IN THE COURT OF COMMON PLEAS

OF CUYAHOGA COUNTY, OHIO

KARLA SPEHAR, a minor, etc., et al.,

Plaintiffs,

vs.

JEFFREY J. ORCHEN, D.D.S., INC., et al.,

Defendants.

Case No. 157883

Doc. 183

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Deposition of MICHAEL S. HAUSER, D.M.D., M.D., a witness herein, called by the Plaintiffs for examination under the statute, taken before me, Heidi L. Geizer, a Registered Professional Reporter and Notary Public in and for the State of Ohio, pursuant to notice and stipulations of counsel, at Mount Sinai Medical Center, One Mount Sinai Drive, Cleveland, Ohio, on Thursday, October 18, 1990 at 10:15 o'clock a.m.

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ORIGINAL

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Jeffrey Orchen, D.D.S.:

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MICHAEL S. HAUSER, D.M.D., M.D., of lawful age, called for examination, as provided by the Ohio Rules of Civil Procedure, being by me first duly sworn, as hereinafter certified, deposed and said as follows:

EXAMINATION OF MICHAEL S. HAUSER, D.M.D., M.D.

BY-MR. BITTEL:

Q. Tell us your name and your business address, sir.

A. It is Michael Hauser, H A U S E R. The address is Chief, Division of Dentistry, Mt. Sinai Medical Center, One Mt. Sinai Drive, Cleveland, Ohio 44106.

Q. Okay. And tell us your profession.

A. And I am an oral and maxillofacial surgeon.

Q. Doctor, your secretary was kind enough to give me a copy of your curriculum vitae, but I have made some marks on it. Do you have a clean copy that we could incorporate as part of the record in this case?

A. I do. A copy of this would have to be made, although it is my understanding that my secretary is about to have the revised CV

prepared and will send you copies.

The only substantial differences will be probably a few different presentations or publications.

Q. Okay. Well, for my purposes what I would like to do is just get a copy, a clean copy of your CV, and just make it a part of the record.

Why don't we just do this. Mark this. There are just a couple checkmarks on it.

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(Thereupon, Dr. Hauser Deposition Exhibit 1 was mark'd for purposes of identification.)

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Q. Handing you what has been marked here as Dr. Hauser Exhibit Number 1, is that the most recent printed edition of your curriculum vitae?

A. Yes.

Q. There are a couple miscellaneous check marks. I exclude any pen marks on the document.

A. Yes.

Q. All right. The only change is going to be what, some additional presentations and publications perhaps?

A. Correct.

Q. Have you written any books since this --

A. No.

Q. -- has been printed?

A. No.

Q. No? Okay.

My understanding, doctor, is that you have been retained to testify as an expert on behalf of Dr. Jeffrey Orchen and his corporation. Is that right?

A. Yes, I have.

Q. You have never seen or treated Karla Spehar; is that true?

A. That is true.

Q. So your only involvement in this case is to testify as an expert witness on behalf of Dr. Orchen?

A. Correct.

Q. Generally would you tell us what is included in the field of oral and maxillofacial surgery?

A. Treatment of diseases, injuries, congenital deformities of the jaws, teeth, related facial structures.

Q. Okay. And generally your treatment is by way of surgical procedure?

A. Correct.

Q. Would you define for me, if you can, in some simple terms surgery?

A. The technical operative treatment of conditions of the human body.

Q. The definition that I pulled out of a dictionary, and we will see if you agree with it, is the treatment of disease, injury, or deformity by manual or instrumental operations, as in the removal of diseased parts or tissue, by cutting.

Would that be an appropriate and correct definition?

A. I think that is appropriate.

Q. Would it be correct?

A. In part. I mean, it may be more extensive. The true definition today is quite different than a definition placed in the dictionary before most of the technology which is currently available existed.

Q. So you are including things like laser treatments?

A. Endoscopic treatment, where no cutting is actually done but instruments are placed in various cavities of the body, also falls under the definition of surgery but there is no cutting, so there are a lot of semantics here.

Q. Oh, yes. And I don't mean to engage in and argue about semantics, but the basic concept of surgery is that it involves some sort of invasive treatment?

A. Yes, I would think that would be correct.

Q. And it certainly includes invasive treatment by the use of scalpels for cutting?

A. Yes.

Q. And in the specialized field of oral surgery it, meaning oral surgery, includes the cutting of tissues in the oral cavity by scalpels?

A. Correct, but an oral surgeon is not the only individual qualified by governing bodies of society to do that.

Q. All right. You are saying that in

some cases some --

A. All dentists and many physicians are qualified to perform surgery of the oral cavity to certain degrees.

Q. Okay. Define for me generally the difference in the training of an oral and maxillofacial surgeon as differentiated from that of a pedodontic dentist.

A. Okay. Both initially train as dentists, which means that typically they go through four years of graduate education beyond the college level in dentistry. At the end of that time you are typically awarded a doctorate degree in either dental medicine or dental surgery, which is substantially the same thing. The two degrees have different titles, they mean the same thing.

Q. Either D.D.S. or D.M.D.?

A. Exactly. From that point the majority of dentists go out and begin to practice dentistry either on their own or with an associate or a group. Approximately 10 or 15 percent of dentists go on for additional specialty training.

One of the specialities you can

train in is oral and maxillofacial surgery. Currently you have to spend at least four additional years beyond dental school to train as an oral and maxillofacial surgeon.

Another specialty one can enter is pediatric dentistry, formerly called pedodontics. That training I believe takes two years beyond the dental school degree. So a pedodontist has substantially more education, at least 50 percent more formal education, than the general dentist that you or I probably go to.

Q. Okay. Is Dr. Orchen now associated with you in any professional capacity?

A. No.

Q. Has he been in the past associated with you in any professional capacity?

A. No. The only time I had a professional association with him was on one occasion he had a pediatric dental patient admitted to this hospital who was concurrently under the care of a pediatric gastroenterologist. The gastroenterologist was going to do some kind of endoscopic surgical procedure on the patient. At the same time the

patient required dental treatment, and I authorized Dr. Orchen one-time privileges to treat that patient in this hospital.

But he is not on the staff of this hospital and therefore does not have routine privilege to come here and treat patients.

Q. All right. When was that event?

A. I would estimate two or three years ago.

Q. Your testimony is he does not have any type of privileges at this hospital, he, Dr. Orchen?

A. Right.

Q. Has he, to your knowledge, in the past at any time had privileges here?

A. I don't know, but I also don't think so.

Q. Okay. Well, how long have you been here at Mt. Sinai?

A. Approximately four years.

Q. So since you have been here he has not had staff privileges; is that true?

A. Correct, except for that one day.

Q. Okay. Do you know him personally through the dental community, through the

university perhaps?

A. Vaguely. I have conversed with him two or three times at a minimal level. I am not a personal friend of his.

I don't routinely treat his patients by referral.

Q. All right. Have you talked to him about this case?

A. No.

Q. So the conversations you would have had would have been in some passing fashion?

A. Correct.

Q. Throughout the balance of this interrogation I will be asking you for your various opinions about the Karla Spehar case, and so that I don't have to continue to repeat myself, will you only answer and provide opinions if you can do so based upon a reasonable degree of medical certainty?

A. I will do my best.

Q. Well, if you can't answer within a degree of reasonable medical or dental certainty would you just tell us so you don't answer the question?

A. I didn't understand the last

sentence.

Q. My question to you, I am requesting that you only answer and provide opinions if you can provide an opinion with regard or in the realm of reasonable medical and dental certainty.

A. Okay, as long as you are able to ask questions that can be answered in such a way.

Q. Right. And if you can't answer a question that way, tell me.

A. I will try.

Q. All right. You have testified before?

A. Yes.

Q. Approximately how many times have you testified?

A. At least a dozen, possibly 15.

Q. Okay. All here in the Cleveland area?

A. Yes.

Q. Have you ever testified in court?

A. Yes.

Q. What generally have been the nature of those cases? Have they been professional

negligence cases?

A. Yes. Most of them have involved negligence against a member of the dental community. Occasionally I have testified on behalf of a plaintiff, again, involving similar circumstances. And once in a rare while I have testified on behalf of a plaintiff in a personal injury case that, say, involved a motor vehicle accident or an establishment.

Q. Has the majority of your work regarding dental negligence and the legal aspects of dental negligence been on behalf of dentists?

A. Yes.

Q. Have you ever testified on behalf of a patient who was suing a dentist?

A. Yes.

Q. How many times was that?

A. At least three.

Q. Okay. Is working with lawyers a substantial part of your practice?

A. No.

Q. What percentage of your professional time would you estimate is devoted toward testifying and toward legal matters?

A. Between 3 and 5 percent.

Q. Have you ever worked with Miss Henry or with a member of her firm before in a dental negligence case?

A. I have not worked with Miss Henry, and I don't know -- I may have worked with another member of her firm in another malpractice defense case.

Q. Okay. Do you know whether Miss Henry's firm provides representation to Mt. Sinai or to other members of your staff?

A. I don't know.

Q. Has her firm or her partners ever represented you in any matter?

A. No.

Q. Are you involved in any teaching activities currently?

A. Yes.

Q. Outline for us generally what those are.

A. Okay. As chief of the Division of Dentistry and Oral and Maxillofacial Surgery at Mt. Sinai I am primarily responsible for the surgical training of the residents in oral and maxillofacial surgery, so it is my duty to see

that these dentists who come to me and wish to specialize in oral and maxillofacial surgery receive complete training in that field.

Q. How many people do you have in your residency program?

A. Four.

Q. Are textbooks used in that program here?

A. Yes.

Q. Do you use Dr. Archer's textbooks?

A. No.

Q. Which textbooks do you use?

A. Primarily we use journals. The journals provide the most current thoughts and studies and research in the field. Textbooks are used more as references and historical perspectives, and sometimes they have very good diagrams. From time to time we use the textbooks for those reasons.

There are numerous textbooks that are used from time to time. There are textbooks on correction of jaw deformities, the most common one being a title by Bell, Profet and White.

There are textbooks on correction

of the gums so that people can wear dentures and implants. There is a book by Fonsica that is used as a textbook on infections of the jaws by Topaziun and Goldberg. That is used very, very frequently.

There is a textbook in anesthesia by Dripps, which is used frequently. There is a textbook in medicine by Harrison that is used frequently. I can go on and on and on and on.

Q. Okay. You say you use journals. Which journals are the ones that are primarily used?

A. There are Journal of Oral and Maxillofacial Surgery, another journal called Oral Surgery, Oral Medicine, and Oral Pathology. And another journal called Oral Surgical Clinics of North America.

Q. Okay.

A. And then we use other journals to teach dental residents more advanced dentistry.

In addition to my responsibility as chief of the oral surgery department I am also the administrative chief of the general practice residency in dentistry. The general practice residency in dentistry is a one-year

training program beyond dental school where we teach dentists to become more comprehensive in their approach to the patients. So I have to teach or I am overall responsible for teaching dentists pediatric dentistry, root canals, gum surgery, bridges, crowns, and the whole field of dentistry in a more comprehensive way.

Q. I see on your bookshelf a two-volume series of Oral and Maxillofacial Surgery by Dr. Archer. I can't see from here if that's the 1975 edition. Can you tell me if it is?

A. I think it is. I purchased that in 1977, so I presume it is.

Q. Is that two-volume series by Dr. Archer on Oral and Maxillofacial Surgery, are those textbooks that you used in your training?

A. They are textbooks I used in my general practice residency in dentistry.

Q. Are those textbooks by Dr. Archer ones that you consider to be authoritative?

A. No longer.

Q. Are you saying that those textbooks are not authoritative today?

A. Correct.

Q. Okay.

A. The field of oral surgery has changed substantially to such a degree that almost everything in the textbook, other than drawings of anatomy and things that cannot change until evolution changes, are no longer valid.

Q. Is there a current textbook in oral and maxillofacial surgery that you consider to be authoritative?

A. Unfortunately today the field is so complex that the textbooks are broken up into special areas. Many of the specialized textbooks I have mentioned, such as ones on infection, ones on surgery of the jaw joint, ones on surgery of jaw fractures, a comprehensive textbook is in publication right now in order to -- so that there is one comprehensive textbook dentists can refer to, and that will be published next year by Dr. Larry Peterson of Ohio State University. I am a contributor to that book, as is Dr. Indresano.

Q. Are you familiar with a textbook by

Dr. Kurt, K U R T, H, Thoma, T H O M A, styled as Oral Surgery?

A. Yes.

Q. And again, this is a volume that I had as published in 1969. Is that authoritative today or is that out of date also?

A. That would be substantially out of date.

Q. Okay. And with regard to two of these textbooks, the two that I mentioned, Dr. Archer's textbooks and Dr. Thoma's textbook, I certainly don't intend to take you through the textbooks page by page, but similarly you are not saying that necessarily every dental oral surgery concept in those books is out of date but many of them on a selective basis are out of date?

A. Well, I would say the overwhelming majority are out of date to such a degree that the only reason somebody would purchase that book, if it is available, is for historical perspective. Nobody training today would purchase that book for guidance as to how to approach surgical procedures.

Q. Okay. Prior to being deposed today in today's proceeding, tell us what information you have reviewed concerning the Karla Spehar case.

A. The information I reviewed is the information I have in front of me and would include a deposition of Dr. Orchen, a deposition of Dr. Indresano, the medical records from Cleveland Metropolitan General Hospital concerning Karla Spehar's admission for attempted removal of the needle, a one-page statement from Dr. Orchen to whom it may concern, I guess involving his recollection of the events of the day in question.

Q. What is the date of the statement?

A. September 14, 1988.

Q. Thank you.

A. I have Dr. Orchen's dental office records of Karla Spehar. I have a letter from Dr. Indresano to you dated December 1, 1989 in which he states his opinions regarding this case. And I have a letter dated October 8, 1990, which is the opinion of Dr. Dennis McTeague of Ohio State University regarding his opinions in this case.

Q. Some X-rays?

A. Yes. I have two X-rays, they seem to be copies of one another, of the panoramic type, dated October 7, 1987 of Karla Spehar. And I did review a CT scan that Miss Henry provided for my review, and the CT scan was dated October, 1987. I don't have the specific day. And these were X-rays and CT scans of Karla Spehar.

Q. Is that the totality of the information that you have reviewed in preparation for this deposition concerning Karla Spehar?

A. Yes.

Q. Is that information the totality of information you have in your file other than correspondence between yourself and Miss Henry?

A. Yes.

Q. Did you talk to any other dental or medical professional about this case prior to your testimony today?

A. No.

Q. You have stated an opinion in the letter that you provided us and provided Miss Henry -- strike that. You have given a written

medical report dated February 21, 1990 addressed to Miss Henry, correct?

A. Correct.

Q. Have you written any subsequent reports?

A. No.

Q. Did you write any drafts of this before it was out?

A. I don't recall.

Q. Have you retained any drafts of it?

A. I don't think I have anything other than what you see here.

Q. Do you have notes or recollection that would tell you when you were first retained to testify in this case?

A. Normally there is a communication from the attorney to me asking me to review a file.

Yes. February 7, 1990, Ms. Henry wrote to me thanking me to agree to review the case and told me what records she was sending me.

Q. Okay. Your report contains the statement, "In view of the potential benefit of

removing the needle early I would advise a limited attempt to be made as soon as possible."

Do you recall that statement?

A. Yes.

Q. Is that still your opinion today?

A. Yes.

Q. What is the potential benefit that you refer to in that statement?

A. The benefit is that it seems to be psychologically problematic for patients, and in this case more to the patient's family than the patient, to have a foreign object in the body, and I feel that it is psychologically extremely beneficial to remove them when possible and when the risks are minimal. There is very little medical benefit to removing this type of object.

Q. Okay. You made a comment about the patient's family. What information do you have about the patient's family?

A. Well, my understanding is that the patient's family is suing a doctor. Therefore, they are quite upset and feel that negligence has been done. They probably want to collect

damage, and this seems to be a major problem in our society. If you can prevent this psychological occurrence, not a medical occurrence, psychological occurrence by removing a small foreign body easily, I would recommend that it be done.

Q. Well, concerning the psychological problem stemming from a foreign body such as a needle, as part of your training were you not trained that people, patients who have foreign bodies, specifically broken needles, often have psychological consequences of that event?

MS. HENRY: Objection.

A. I don't recall specifically being trained that way. This is an experience that I have -- observations that I have made over the years, but I don't recall being taught that.

Q. What have your observations been concerning the psychological sequelae to patients with broken needles?

A. Patients seem to become upset if they perceive anything is abnormal, and I have experienced this multiple times, whether it be due to negligence, whether it be due to a complication that doesn't involve negligence,

whether it be due to their own negligence, that is the negligence of the patient, patients seem to today become extremely upset when anything other than a perfect result is achieved.

Q. Well, having a broken needle located as Karla Spehar does in her lower jaw is certainly not a good result; would you agree with that?

A. Yes, I would agree that you ideally do not want to have a broken needle in your jaw.

Q. Okay. So again, I want to understand your report. The potential benefit that you refer to in your report, are you saying the only potential benefit you refer to is the lessening of the psychological trauma to the patient?

A. I would say substantially that is the only benefit.

Q. Okay. Now, your report says that Dr. Orchen was -- I want to get this quoted right -- again, on page two of your report in the first full paragraph you say, "I would advise a limited attempt to be made as soon as possible."

A. Yes.

Q. Now, using your reasoning and your statement in your report that a limited attempt should be made as soon as possible, would Dr. Orchen's actions in this case have fallen below an acceptable standard of care if he failed to make what you call a limited attempt as soon as possible?

A. It probably would best be stated as soon as feasible rather than as soon as possible. By that one can imply that it should be removed the second you determine that it is broken, if that's what you are getting at, rather than doing the filling first.

Q. Well, I am trying to understand what your opinions are. That's what I am trying to do.

A. Okay. My opinion is in this situation that if you discover that the needle is broken, I think it is psychologically beneficial to remove it. I don't think there are medical consequences to leaving it.

But you have a patient who came to you with a diseased tooth, in this case a young child probably having her first significant

dental experience involving an injection of anesthesia. She also has a decay in her tooth. It is necessary that that tooth be treated because if left untreated it will definitely cause harm to her, it will cause pain, infection, suffering, it could be serious, it could cause damage to the erupting tooth. So therefore, it is best to treat the tooth.

Now, you have two problems at this point. You have an infected tooth, which is now numbed from your injection, and you have a broken needle. There are two possible sequences. Assuming you are going to proceed, one sequence would be to remove the needle first and then treat the tooth. Another would be to treat the tooth first and then remove the needle. And I imagine the third would be to do neither.

It is very important to do whatever you can for the patient as long as circumstances are ideal. At this time my understanding is we had a completely calm and cooperative patient. Therefore, it is wise to restore the tooth, that is fill the tooth.

I would elect to do that first, because if you fill the tooth and there is bleeding, such as from an incision, it can become technically impossible to do an adequate treatment on the tooth. So if you fill the tooth first and then take out the needle, as long as the child is still, that would be my preferred sequence.

If you take out the needle and there is bleeding or the child becomes uncooperative, then you will probably not be able to remove the needle and you will be left with an unfilled infected tooth.

Q. Just so I am clear, since the time of your report you have been given the deposition of Dr. Indresano, which was obviously taken after your report, correct?

A. Yes.

Q. And you reviewed Dr. Indresano's deposition?

A. Yes.

Q. So you know what his opinions are?

A. Yes.

Q. So concerning your statement "as soon as possible" that you made in your report,

you are saying that that would be more appropriately used as the words "as soon as feasible"?

A. Yes.

Q. And feasible being defined as it is okay to go ahead and do the tooth restoration first?

A. Right. I think in this sequence it would be more logical to do that.

Q. Okay. Certainly then following that line of reasoning would it be your opinion that the breaking of the needle was not a dental emergency causing Dr. Orchen to change his plan to fix the tooth?

A. No. In this case, no.

Q. And without any qualification, would you consider the breaking of the needle under the circumstances of the Karla Spehar case when it broke as you know from Dr. Orchen's deposition, would you consider that a dental emergency?

A. No.

Q. You make a statement in your report, this is on the first page, and it is at the end of the third paragraph, "Apparently

he," being Dr. Orchen, "was unable to feel or visualize the needle and could not remove it."

Why do you make the statement, doctor, that he was unable to feel the needle?

A. According to something that I must have read before I wrote my opinion.

Q. Okay. Is that statement, namely that he was unable to feel the needle, is that significant to your opinions in this case?

A. Well, in order to remove a needle you have to locate it. If you can locate it by feel or by visualization you can remove it.

Q. Assume that the sequence of events in the Karla Spehar case were as follows: The needle breaks off. Dr. Orchen palpates the area and says, I can feel the needle. He then goes about and does the tooth restoration and doesn't go back to retrieve the needle or attempt to retrieve the needle until after the tooth restoration.

If that is true, if those facts are true, would your opinions about his standard of care be different?

A. No.

Q. Why?

A. Because the sequencing of treatment is based such that you can do one procedure in the least complicated fashion and then proceed to the next procedure in the mouth. If you immediately make incisions and cause bleeding it can become very difficult to treat the filling, which has to be done on a dry field.

Q. Okay. Are you finished? I don't mean to stop you.

A. Yes.

Q. If that sequence that I just gave you is true, would there be an issue concerning migration of the needle being migrated further into the tissues during the time the filling was being done?

A. I would think that is unlikely on the basis of the information I had at the time of the report, and that is that she was calm, cooperative, and her mouth was propped open. Therefore, I can't really think of anything that would cause the needle to migrate.

If she had been screaming, crying, uncooperative, with her mouth opening and closing, there would likely be pumping action of the muscles, specifically what's called the

medial pterygoid muscle, and I think the needle could move.

Q. And you have behind you Dr. Archer's books, and if you care to look and follow along you are welcome to. But at page 650 of his work on Oral and Maxillofacial Surgery Dr. Archer makes the statement concerning broken needles. He says, quote, "Do not palpate the tissues in the region of the needle in the hope of locating it digitally. This is impossible and may force the needle deeper into the tissues."

Now, would you agree that that is a proper and correct statement of dental practice, or has that changed?

A. I just believe that that was one person's opinion without any substantiation, research, or validity to it.

Q. So you disagree with that statement in Dr. Archer's book?

A. I don't agree with it or disagree with it. It is an opinion, and one can follow that line of thinking, one can not follow that line of thinking. It is a situation where I believe that there is no right and wrong. You

do what you can to try to locate the needle. If you feel by palpating it you can possibly locate it, I believe you should do that. If you feel by palpating it you can't locate it, then I don't think you need to palpate it.

It is not an issue of right or wrong, it is an issue of just an opinion.

Q. Well, let me ask you this.

A. I can show you in textbooks statements which were made which I can say unequivocally are wrong based on current research.

Q. That's fine.

A. This is not that situation. This is just an opinion not based on research. It is one person's opinion who happened to be the author of a textbook. It is different than my opinion.

Q. All right. Well, let me ask you this directly. Dr. Archer says that you should not palpate the tissues in the region of the needle because it may force the needle deeper into the tissue.

Do you agree with that opinion or do you have a different opinion?

A. My opinion is that at times it is helpful to palpate and at other times it would not help you to palpate, and there is the possibility, I would imagine, the possibility that by palpating in an attempt to go help yourself you might worsen the situation, just like there are times when you attempt to treat a patient for a routine procedure and you get an infection that is unintended. You intended to help the patient yet the result isn't what you wanted, but you should still try to attempt to help the patient.

Q. Well, isn't the situation concerning palpation a little bit different if you have a broken needle that is below the surface of the skin?

A. No. Palpating can mean pressing and stretching the tissues, making them taught, and allowing the needle to become stabilized. So in that situation I would probably do that.

Q. My question is this: I don't want to talk about infections, but there is always a possibility of an infection in any surgical procedure.

A. Yes.

Q. Okay. And infections are not an issue in this case, correct?

A. Correct.

Q. Now, with regard to the palpation, if you have a broken needle situation and the needle is below the surface of the skin and the issue is do you palpate or do you not palpate, isn't that pretty much a black and white decision; either you do it or you don't do it?

A. No. I could tell you exactly what I would do. After I treated the procedure that had to be done on the dry field, which would be the filling, the pulpotomy, I would then take my left hand, because I am a right-handed person, and put it at the area where her jaw turns right behind where her molars are developing. I would then tense the tissue as if I were to give a mandibular block anesthetic, and then I would take my left hand, the index finger of my left hand, and very gently rub up and down on the mucosa with the tissues under tension to see if I can palpate the edge of the needle. If I could, I would make the incision right at this point where I palpated it. If I could not, I would make the

incision a little further in, deeper in, so I would have a better chance of encountering the needle.

Q. All right. Well, under the circumstances, if Dr. Orchen palpated -- strike that. What medical benefit would there be to palpating the area before you do the restoration, saying that you can feel the needle, but then failing to do anything about it under your line of reasoning?

A. The medical benefit --

Q. Yes.

A. -- would be that you prevent all the bleeding and possible loss of cooperation of the child and the child swallowing blood that's dripping, and the blood might not drip on your restoration and cause it to fail. So the medical benefit is to wait and do the bloodier of procedure or potential bloodier procedure after you have done the procedures that need dryness.

Q. Because in your opinion the cavity in the tooth was a more severe problem than the broken needle?

A. Yes, more severe medical problem

than the broken needle. There is a real medical disease or dental disease in the tooth.

Q. Obviously then if you assume that after the restoration Dr. Orchen palpated the area for a second time, I presume that you would say that that was an appropriate practice; is that right?

A. That would be appropriate.

Q. Okay. If he had explored the incision that he made with a hemostat, how long do you think it would be appropriate for such exploration to be carried forward?

A. I would say several minutes.

Q. Five minutes?

A. I don't have a specific time because, again, it depends on the circumstances. If the child is completely cooperative and not moving, not crying, and you are able to see clearly and there is not too much bleeding in your way, you probably have 10 or 15 minutes or longer. If you encounter the needle, either you feel it with your finger or you feel it with an instrument that you are using but you can't quite visualize it, I think

that would be indication, if the child is cooperative, to continue to pursue it.

If you find that you just can't find it or the child is not cooperative enough to allow you to find it I think you could terminate it after 10 seconds. It is a clinical judgment. It is not a right and wrong.

Q. The purpose under your approach, the purpose of palpation would be to attempt to find the needle?

A. Yes.

Q. And assuming that Dr. Orchen did in fact palpate for the purpose of finding the needle and he did in fact find it before the restoration, your opinion is that it was appropriate for him not to go in to retrieve it at that time?

A. Yes.

Q. Then why would it have been appropriate to palpate at all?

A. I think that is just a pretty standard response. Again, it is a clinical decision that one makes.

Q. Well, but any decision, any action

in treatment of the patient should have a purpose, should it not?

A. Ideally, yes.

Q. And the action of palpating under my hypothetical right after the needle broke would have been for the purpose of diagnosis?

A. Yes.

Q. And the diagnosis would have been to try to find the needle?

A. Well, at least to try to locate it.

Q. That's what I mean, to locate it.

A. Yes.

Q. But yet under the hypothetical, once he made his diagnosis and his location he didn't follow through. Wouldn't you agree?

A. Yes.

Q. And if he didn't follow through, wouldn't that have been below the standard of care under the hypothetical?

A. Not necessarily, not if he then realized that in order to retrieve this he'd have to make an incision and then there might be bleeding, and then it might compromise the more significant medical or dental disease the patient came in for. You change your mind.

You see, you have an instinct, you might palpate, and then you might say in order to now retrieve this I have to make an incision, there may be problems, I have to do that after I do the other procedure.

Q. Well, if you couldn't see the needle to begin with you'd know that the incision would be necessary anyhow, wouldn't it?

A. Not necessarily, because you might by putting some tension on the tissues or retracting the tissues a little bit, the needle might pop back through to you, and that would be another goal. The reason why it probably disappeared is when he gave the injection the tissues are usually under tension, they are retracted with your opposite hand, and you would insert the needle to the appropriate position, and you slowly deposit the anesthesia. Then you take the needle out and then you let go. When you let go the tissues are no longer under tension. They are no longer retracted out of the way, and then suddenly they cover the broken needle.

So my recommendation would be to

put the tissues under tension again and see if the end of the needle is once again visible, or possibly you can just feel it and just pluck it out with tweezers.

Q. If Dr. Orchen's injection technique was such that he let go of the tissues before he realized that the needle had broken, would that injection technique have been below the standard of care?

A. I don't know. That is something I have not thought about.

Q. Well, you just described the injection technique. Doesn't the proper injection technique for anesthetic call for the dentist to hold his finger or his thumb near the injection site to tense the skin and to not remove the tension on the skin until he realizes that the needle has been safely withdrawn from the tissue?

A. Ideally, yes.

Q. And if that wasn't done in this case, wouldn't that have been a departure from the standard of care?

A. No.

Q. Why?

A. Again, there is enough variability in the technique, in the hand placement, in the degree of cooperation and the movement of the patient that we are dealing in an area where it is not black and white.

Q. Well, certainly your technique is to tension the skin, as you just testified?

A. Yes.

Q. And to not release the tension until the needle was withdrawn?

A. Yes.

Q. And the reason that you use that technique is to make certain if the needle does break off you can see the broken portion of it and have a chance at retrieving it?

A. That is a reason, although I have never in my experience encountered a broken needle upon my own injections, and I use the same type of needle Dr. Orchen used. So I can't say that that is the main reason that I do that. I mean, if I had encountered many broken needles in my career I would say yes.

Q. Okay. But it is one of the reasons that you employ the technique of not releasing the skin tension until the needle is out, is it

not?

A. For all practical purposes I would have to say no, because this is something that just by and large does not occur.

Q. Well, does that mean it is not an event that has to be guarded against?

A. This is difficult to, you know, answer that question. I mean, since there is a very, very, very slight possibility that can occur, I guess you should try to guard against that. But the reason I keep the tension on the tissues is just for visualization, just sometimes I reinsert the needle, frequently I give a second injection of another anesthetic. So I am really keeping the tension on the tissue almost entirely for other reasons than the other ones you suggest.

Q. And the primary one being visualization?

A. Visualization, making sure that there isn't excessive bleeding when I release the needle or there isn't a sudden swelling of the tissues. And frequently I give a second injection, so my assistant hands me another syringe, and I know where to put it.

So overwhelmingly those are the reasons I keep the tension on. I don't keep the tension on to prevent something that has never happened and is very unlikely to happen.

Q. Well, the fact that you leave your thumb near the injection site acts as a marker as to where the injection site was; is that correct?

A. It does.

Q. And is, in fact, the concept of leaving a marker for visualization, a finger digital marker, isn't that one of the things you are taught in dental school?

A. Yes.

Q. And as you say, the reason for having a marker can include the necessity to make another injection?

A. Yes.

Q. And also as a practical matter in the very slight probability of the broken needle event, having a marker, namely your finger at the location, would provide you with a marker to know generally where the needle broke off. True?

A. I think it would.

Q. And in the case where Dr. Orchen removed his marker before he realized the needle broke off, wouldn't that have been a departure from the standard of care in injection technique?

A. No.

Q. Now, you have given a report that Dr. Orchen's making of a surgical incision and his attempt to remove the broken needle was an appropriate treatment in this case, correct?

A. Yes.

Q. And is that still your opinion today?

A. Yes.

Q. Now, as you described to us earlier, you have specialized training in the area of oral surgery?

A. Yes.

Q. Correct? Now, have you ever removed a needle, a broken needle from a patient?

A. No. I have removed other broken objects from patients, but not a broken dental anesthetic needle.

Q. What other kind of broken objects?

A. Broken instrument picks, tips of little what we call dental elevators which are used to remove roots; bullets, screws, pieces of metal that have become dislodged.

Q. Okay. Have you ever participated as an assistant surgeon in a surgical removal of a broken needle?

A. No.

Q. Have you ever seen videotapes of that type of procedure?

A. No.

Q. So you have never made an incision in a person's mouth for an attempt to remove a broken hypodermic needle; is that true?

A. That's true. I would imagine that greater than 99 percent of dentists, practicing dentists, and probably the overwhelming majority of oral surgeons in the country have never done that.

Q. Okay.

A. At least the ones currently trained. Now, in the days when needles were resterilized and more routinely broke that was a more common procedure, so that the senior oral surgeons in practice today and those who

are deceased would have more than likely done that procedure.

Q. Okay. I wasn't taking notes, and I forgot what you said. Did you say that you believe more than 99 percent of the oral surgeons haven't done it?

A. No. I believe that more than 99 percent of practicing dentists have never removed a broken needle.

Q. Okay.

A. And it would be my opinion that the majority of practicing oral surgeons today have not had the opportunity to remove broken needles. They rarely break anymore.

Q. Okay. In that regard about needles breaking, let me ask you this: From everything you know, Karla Spehar was a cooperative patient at all times while she was in Dr. Orchen's office, correct?

A. Correct.

Q. From everything you know, she did not move or jerk or jump or do anything to cause the needle to break; is that true?

A. As far as I know, yes.

Q. All right. In the circumstance

where a dental needle breaks, such as in Karla Spehar, and where the patient doesn't jump or jerk or move to cause it to break, would you agree that there are only two probable causes, namely one being a defectively-manufactured needle, and the second one being improper injection technique by the dentist?

A. No. I think there is also the possibility that the needle could encounter very fibrotic tendons. There are a couple of tendons that come down right where you inject the needle that could be unusually hard and possibly cause the needle to bend when in most patients that would not occur.

Q. In the circumstances of this case, from everything you have seen and everything you read there is no issue of fibrotic tissues, is there?

MR. JORDAN: Objection.

A. I don't know.

Q. Well, from what you have read in Dr. Orchen's testimony, he indicated that the injection was made in the ordinary course without any difficulties; isn't that true?

A. Yes.

Q. Well, let me ask the question differently. In this particular case where there was no indication that there is abnormally fibrotic tissue encountered in the injection and where the patient does not have a sudden movement causing the needle to break, would you agree that the only two probable causes for a needle to break are, number one, a defective needle or, number two, improper injection technique by the doctor?

MS. HENRY: Objection.

MR. JORDAN: Objection.

A. At this time, those are the only reasons I can think of.

Q. Okay. So as far as the actual removal of a broken needle from a patient, you have never seen that procedure or participated in it, correct?

A. Correct.

Q. Were you taught, sir, the technique to be employed by an oral surgeon for the removal of a broken dental needle?

A. I don't recall specifically. I believe I was taught more in the approach to remove foreign objects in general.

Q. Okay. Would you agree with me that the standard protocol employed for the removal of foreign objects, including broken needles, involves the placement of one or more guide needles and the taking of multiple X-rays from different planes in order to provide the surgeon with a point of reference for the incision?

A. No.

Q. You don't agree with that?

A. No. And it depends entirely on the circumstances. For example, if you have -- the most common reason needles are used for localization in my experience is not in dentistry but it is in breast surgery for breast biopsies, where a lesion was seen on a mammogram and the doctor, the breast surgeon, now has to biopsy it. In that situation you are dealing with a large mass of tissue and a small lesion somewhere in that mass of tissue, a needle in a haystack.

You use multiple needles, and then you take X-rays and then you see when the needles are touching the object you are looking for, and then you can go in. Without needle

localization it is almost impossible to find that tissue that needs to be biopsied.

This is a very different situation. Here you are dealing with a known object, you know by and large where it is. Even on the basis of this X-ray alone I have a tremendous amount of information as to where it is. I don't have all the information. I believe I have enough to remove it successfully, but I don't have all the information.

But I also have other clinical information. For example, I know that the needle is in the pterygomandibular space. That is between the bone and the muscle. That space is very small. So now I know that the needle is here in the horizontal plane and I know in the other plane that it is in a very confined space. I am already way ahead of the breast surgeon who has needles in knowing where to go.

If you still can't find it or feel you can't find it, then I think it is entirely appropriate to add additional localizing needles in order to help you. However, it is very, very difficult in the operating room to

get X-rays which clearly delineate where you are in space. It is a much more difficult problem than it seems just by thinking about it.

So the answer to your question is I believe you can probably -- I believe I could probably remove this without any further localizing needles. However, if after one attempt it was not where I thought it would be, I would add localizing needles and begin that long tedious approach, but it is fairly well localized on this X-ray and on the basis of where I know that the dentist placed the injection.

Q. You are testifying that you in your opinion had enough information to operate on Karla Spehar from this panoramic X-ray that was taken on October 7th, presumably by Dr. Callahan?

A. Yes; now, again, if I had operated on the patient right after this was taken. Okay? But this X-ray I understand was taken four or five hours prior to her operation. In that time, it is my understanding that the patient was screaming and crying. Okay. In my

opinion, that would likely cause continued movement of the needle. So I would have an additional X-ray before I began if, you know, if the patient was presented to me four hours after an X-ray was taken in the chance that it might have migrated.

Q. An X-ray with localizing needles?

A. Again, it depends on the circumstance. If I have very good X-rays and more than one plane and very good landmarks and a complete understanding of the anatomy and know where the needle was, you know, was injected, I might not need localizing needles. If I had a CAT scan which provides you with three-dimensional X-rays and if the CAT scan is of high enough quality and the landmarks are clear enough, I might not need localizing needles.

Or I may look at the X-rays and say on the basis of these X-rays I really can't tell in space where this is, it might be here, might be here, might be there, I think we ought to try to localize it. So it is a clinical judgment based on all the information I have available to me.

Q. Your report on page three, your report to Miss Henry says, "I am not aware of any other proven protocol for attempting to remove a broken needle from oral tissues."

That is on the top of the first paragraph.

A. Yes.

Q. What proven protocol are you referring to?

A. Researched protocol.

Q. No. I mean describe to me the proven protocol you are talking about.

A. Okay. The argument that I believe Dr. Indresano was making is that you should wait and not remove the needle at the time of the injury or even that day. You should wait, in his report, at least several days for fibrosis to occur around the needle. Okay.

Again, that is just a thought. That is a doctor's opinion as to how to approach the patient, but that is not a proven protocol.

Q. I am asking you, sir, what are you saying is the proven protocol here you say?

A. There is none.

Q. Okay.

A. I may have not been as clear as I liked, but psychologically I believe that it is best to remove the needle early.

Q. Okay. Well, let me understand. You are saying, sir, that there is not an acceptable or an accepted proven protocol for the removal of a broken needle in a person's oral cavity?

A. Yes. There is no research study which compares one group where you have done it one way and one group where you have done it the other way and showed any difference in the outcome. It is all anecdotal by hearsay.

Q. Okay.

A. We are dealing with one doctor says this, another doctor says that, a third doctor does it this way. It is very, very different than a research clinical trial where you do it one way and you get a good result and you do it another way and get a bad result, and therefore on the scientific body of knowledge we do it the first way because we have proven we get good results. This is not the case in this case at all.

Q. And because of the relative infrequence of broken needles, in all probability would you agree that you are not going to have a research study that's going to give us the information that you just described?

A. Correct.

Q. Okay.

A. At least in humans. I imagine it could be done in animals.

Q. Are you aware, and again, you have here and you apparently used in your training Dr. Archer's book --

MS. HENRY: I don't know that he said that to you.

A. No. I said I used it in my training, dental residency training. Even by oral surgery training, that was subsequent to my dental residency training, I was taught that even in my oral surgery training that that book was out of date, even though it was ten years ago.

Q. Okay. Well, what I want to understand is this. I mean, Dr. Archer's book contains -- are you aware that Dr. Archer's

book contains a description for the removal of broken needles that includes the placing of localizing needles and the placement of -- excuse me.

Are you aware that Dr. Archer's book contains a description for removing broken needles that includes the placement of localizing needles and the taking of multiple X-rays from different planes?

A. Yes.

Q. You have reviewed that prior to coming in here today, didn't you?

A. Yes.

Q. And --

A. Again, he is referring to a very different situation, however. He is referring in an adult situation and not a child. He is referring to the referral situation where he is not the one who broke the needle, because Dr. Archer never does anything wrong.

He received a patient who had a broken needle. He doesn't know where that injection was placed. So it is now an adult patient, not a child, a referral, and he didn't make the original injection. Therefore, he has

to begin the process of localizing the needle.

It is very different than if I personally give an injection to somebody and the needle breaks at the time of injection and I know where I gave that injection. I've got more information than a million X-rays. I know where it went.

Q. Well, let me get back to my question. I meant to ask it again. I mean, you reviewed Dr. Archer's protocol in his book, correct?

A. Yes.

Q. And is it your testimony that the placement of marking or locator needles and the taking of X-rays as he describes does not describe an appropriate current standard of medical practice?

A. No, I think it is appropriate. That doesn't mean it's the only approach to a problem. It is, as you know, if you drop -- let me give you an analogy. You drop a coin, a valuable, valuable coin in the grass. Okay? Now, I know that if you came back with all kinds of X-ray equipment and metal detectors you would be able to find that coin after a

long time. However, if you dropped it and you know that it dropped at your feet and you looked down you are likely to find it because you at that time have more information than anybody is going to have days or hours later with all kinds of equipment. It is a logical approach. If you know where the needle is, then you have more information at that time than any X-rays are going to give you later, because X-rays are distorted.

You can see the amount of difficulty that Dr. Indresano had in a fine hospital with all the X-rays and his experience of removing five needles. He couldn't do it. It is not as easy, even with localizing needles, as you might be led to believe by Dr. Archer's textbook.

Q. I think even his textbook says it is not easy. He says it is very difficult, doesn't he?

A. Yes.

Q. You made a comment before about Dr. Archer never making a mistake. Do you have some problem with him personally?

A. I have not met him nor have I

worked with him. Anecdotally I have heard that Dr. Archer was quite abrasive and quite pompous and gave a lot of opinions which had to be gospel by those around him or they would no longer be around him.

Q. Well, has your anecdotal knowledge about Dr. Archer soured you on his opinions?

A. Yes. There are published statements advising oral surgeons not to listen to the dogma of the senior -- it is not always senior, but the highly regarded oral surgeon without clinical proof that what they are saying is correct. We have all been mislead in these situations.

Q. Which situations?

A. Where an authority figure because of his or her position says something, the subordinates then begin to believe that it is true without substantiation, and unfortunately in oral surgery, as in general surgery as in medicine and as in law, many, many people have followed dogma before questioning the validity of it, and unfortunately textbooks like Dr. Archer were written largely on dogma and not completely on scientific fact.

Q. Well, let's talk about dogma. I mean, you know, X-rays are a pretty standard diagnostic tool, are they not?

A. They are standard diagnostic tools, but they don't always provide you with the information you are hoping to find.

Q. Well, certainly an X-ray, taking of X-rays and the placement of locating needles would provide you with useful information for the attempted needle removal, would it not?

A. Yes. I don't disagree with the technique of using localizing needles, and I think it is entirely appropriate when you have no idea where to begin, but if you know where the needle is because you placed it in a certain spot, just like you know that the coin is at your feet somewhere, even though you can't see it you are better off looking for it right then and there when you know about where it is rather than stopping, taking a million and one X-rays, getting the patient upset, starting to cry, moving the needle with her mouth actions, and losing any ability that you might have had to solve the problem in ten seconds.

Q. Well, let me use your analogy of the coin at your feet. Wouldn't another alternative be to stand still, scream for help, and have somebody come with the X-ray equipment to apply at the area of your feet?

A. It is not practical. You have to deal with the reality of life, and that is it is just not practical. There may be nobody there, it may be impossible to have the X-ray equipment. You yourself might start to cry because this is such a valuable coin. You know, the analogy is this patient is starting to get upset and cry and losing your ability to do anything.

You are dealing with a very young child. It is marvelous that there are people like Dr. Orchen who are able to treat young children and keep them calm and comfortable during what is typically perceived as a terrifying and uncomfortable event. I marvel at Dr. Orchen's ability to be able to do that. Most dentists have tremendous trepidation about treating a child like that and refer them specifically to people like Dr. Orchen because they are so good at handling these patients.

Q. But I don't want to talk about filling the cavity. I am glad he can fill cavities. My question is, I want to use your analogy about standing still with the coin at your -- excuse me -- dropping the coin at your feet. Isn't another option, sir, to stand still and to search just in the area of where your feet are with some additional equipment, using your analogy?

A. That is a possibility, but the practicality of doing it in this situation is very, very low.

Q. Well, going on with the practicality, I mean, she was well anesthetized, correct?

A. Yes.

Q. And using the concept that she was anesthetized, certainly a locator needle could have been put in and she could have been transferred someplace else, and the locator needle would have shown where the needle broke off?

A. I think transporting a child with a needle sticking out of the mouth would be malpractice.

Q. Okay. You know from reviewing Dr. Indresano's deposition that we also referred to in this case and the lawyers previously talked about a book by Dr. Thoma.

A. Yes.

Q. Did you read Dr. Thoma's book or excerpts?

A. Many, many years ago I read parts of it, but not specifically for preparation of this case.

Q. Okay. You know that Dr. Thoma also says that the needle removal should be delayed until extra oral X-ray films can be taken and that the X-rays should be taken in two planes to locate the position of the broken needle?

MS. HENRY: Objection.

A. I don't know that, but if you will allow me to read that, I can verify that it came from his textbook.

Q. I will. I will.

A. Could you state the date of publication of that book again?

MS. HENRY: 1969.

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(Thereupon, Dr. Hauser Deposition

Exhibit 2 was mark'd for purposes of identification.)

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MS. HENRY: What page, Tim?

MR. BITTEL: It is on the bottom of page 227.

MR. BITTEL: It is the last paragraph.

MS. HENRY: Okay.

A. This up here is very similar to Dr. Archer's approach. Again, this --

MS. HENRY: Let him finish his answer.

A. -- this is a very old and dated book. This book is out of print. There is no demand for it anymore because the material in this textbook is by and large obsolete. But at the time I believe that it was appropriate, and I still believe that it is appropriate if you have no idea where the needle is to use X-rays and markers to try to localize it.

Q. Well, let me ask you this so that again I have a clear record. On page 227 of Dr. Thoma's book he says, when the needle is in the tissue and cannot be seen, removal should

be delayed until extra oral X-ray films can be taken. These must be made in two planes to locate its position accurately.

Do you disagree with that statement?

A. Yes.

Q. What --

A. But again, it depends on the circumstances. If I have a patient that I have never seen before who comes to me with a needle in his mouth or her mouth, I have no idea where that needle is. I have to begin to localize it.

If I have given the injection and I know where I placed the needle, and movement, the patient has been still, I know where it is. I have a better idea clinically where it is than trying to interpret from the distortions inherent in X-rays. I have a better idea clinically than I can with two, three, or ten X-rays.

Q. You have said that Dr. Thoma's book is out of date, you said Dr. Archer's book is out of date.

A. Yes.

Q. With regard to the issue of localization of broken needles by X-rays, has there been some scientific breakthrough since these books have been printed that makes them out of date on that issue?

A. No. I am not saying that their approach of localization is incorrect. It is entirely correct if you have no idea where the needle is. Otherwise, how do you know where to begin to look unless you localize it?

That is entirely different from knowing within millimeters where it is clinically and then going and clinically removing it.

There are two very different cases. I believe Dr. Indresano was entirely appropriate in trying to localize the needle because he did not place the needle in that patient, but I believe Dr. Orchen was entirely appropriate using clinical judgment to remove it because he knows where the needle went, or just about, and he could determine more closely clinically than the X-rays could for Dr. Indresano.

Q. Do you train your residents

concerning the removal of broken needles?

A. Not specifically, but from time to time we have cases where there are foreign bodies. And I imagine we may have a time when we have to remove a needle, but the approach is the same --

Q. Being --

A. -- to localize the object. But localization doesn't always imply placement of needles. I can demonstrate a case where I used a CAT scan and the patient's bony anatomy to locate a tiny fragment of the end of a broken instrument down here underneath the mandible.

I did not place needles into that patient, but I knew from the CAT scan and I knew from the relationship of the metal object to the bony anatomy where it was. I did not need needles. But if you have something floating in soft tissue and you have no idea of the anatomic relationships, then you need what we call a radio-opaque marker, something that will show up on X-rays or a CAT scan to help you. The clinical situation dictates what has to be done.

Q. You have told me that Dr. Thoma's

book and Dr. Archer's books are out of date. Can you refer me to any current competent text or any current text that you think is competent and authoritative which would say that it is proper technique for a dentist to make a surgical incision to remove a broken needle without first trying to localize the needle with X-rays or CAT scan?

A. No, I cannot do that, but if you look at most of the current textbooks they won't even discuss the subject because it seems to be such a rare occurrence today, that it is just not something that is used in valuable publication space.

Q. It being broken needles being such a rare occurrence?

A. Right. Right. I am not saying it is wrong to use needles to localize a foreign body when you don't know where it is. I am saying it is inappropriate when you know clinically where it is and under the circumstances of dealing with a calm four-year old child to then transport that child somewhere else to try to localize the needle when in that time the child is going to start

to swallow, to cry, there is going to be motion occurring, and your chances of being able to easily remove that needle go down. You have made a potentially simple procedure into a very complicated one.

Q. Well, the chances you just talked about of going down, again, based upon what you said before you don't have any data to support that; that is your opinion?

A. No. It is my opinion.

Q. Okay. And the concept of rarity of needle breakage, that is something that is exceedingly rare to your experience?

A. Yes.

Q. And to your knowledge, it is exceedingly rare in the dental practice?

A. Yes.

Q. So at the time Dr. Orchen then with the needle breakage situation was faced with an exceedingly rare occurrence?

A. Yes.

Q. And he went ahead to treat an exceedingly rare occurrence?

A. In the most logical fashion that I think is available.

Q. Okay. And he was treating something that, again, in your experience you have never even treated?

A. Correct.

Q. How many times have you acted as the lead surgeon in the removal of any foreign objects from oral cavities?

A. Probably 10 or 15.

Q. And in those 10 or 15 times have you always used either X-rays or CAT scans in order to localize the foreign object?

A. Yes, but you may be misinterpreting what I am saying. In those instances I have had an X-ray beforehand and then on the basis of the information on the X-ray I had I was fairly certain where that object was, and then I proceeded to remove it.

I can only recall two instances where I actually took X-rays at the time of surgery using needles to localize it because I was not able to clinically determine where it was, so I varied the technique according to the clinical needs at the time.

Q. But the answer is that in the 10 or 15 --

MS. HENRY: His answer speaks for itself, Tim.

Q. -- in the 10 or 15 times that you have removed foreign objects you have always used either X-rays or CAT scans, sometimes with or sometimes without localizing needles?

A. That is not entirely true, either. There have been times with gunshot wounds, for example, where there are multiple fragments of bullet, and in the process of surgically exploring the wound I see the fragments and I take them out. There is no good way of localizing objects in the tongue. It is very difficult to get the appropriate X-rays. So there you have an X-ray that you know it's there somewhere, but then you have to clinically determine where it is, and largely you use palpation and surgical judgement.

Q. And I think you said you could visualize the bullet fragments?

A. Well, you can tell on the X-rays that there are bullets in the tongue, but you can't localize it. All you can tell in the X-ray is there are fragments in there.

Q. Okay.

A. So then clinically I then explore it and on the basis of palpation and clinical judgment remove the pieces, because I can't get the X-rays in two or three dimensions.

Q. Okay. What I am trying to understand is this: Is it true that in the 10 or 15 times that you have removed foreign bodies from oral cavities of patients you have always had the benefit in your surgery of the use of an X-ray or a CAT scan for an attempt to localize?

A. Yes. I have had some knowledge that there is a foreign body there. Now, if I had knowledge, clinical knowledge because I just broke off an instrument, I knew right, you know, approximately where it is within a few millimeters, I would not get an X-ray unless I couldn't find it. But in my prior experience, since that has not happened, my prior experience is based on objects that I knew that they were there. It is a different situation.

Q. I am getting confused. You have never had the situation where you have broken off an instrument, correct?

A. Correct.

Q. Therefore, in all of the situations that you have had surgery, the 10 or 15 you have had surgery to remove foreign objects, you have always used either an X-ray or CAT scan in some fashion to help localize; is that true?

A. That's true, but not necessarily applicable to this case.

Q. Fine.

A. And I just don't want others possibly being mislead by that.

Q. All right. You are saying that even though you in your experience have always used X-rays or CAT scans to localize that's not necessarily the standard that had to be used by Dr. Orchen?

A. No. The most logical thing for Dr. Orchen to do is exactly what he did, and this is exactly what I would have done under the same or similar circumstances.

Q. As far as you know, the injection being done on Karla was for the blocking of a nerve; is that right?

A. Correct.

Q. Now, doctor, Dr. Archer in his book says that -- again, you have it here if you

want to look at it, it is at page 1583 -- says that in making that type of injection, the nerve blocking injection, there should be one centimeter of the needle projecting above the tissue.

Do you agree that that states an appropriate standard of dental practice?

A. No. I believe that in most instances that is impossible.

Q. Okay. So Dr. Archer has written something that is impossible and not true?

A. In my own experience, when I give a mandibular block anesthetic, I cannot -- in order for me to achieve complete and total anesthesia, and that is by getting the needle next to the nerve, I cannot have one centimeter of needle sticking out.

Q. And in an adult patient what size needle do you use to do that?

A. In an adult patient I use what's called a 27 long needle, which I believe is an inch and a half long, and in a small child I use a 27 gauge short needle, which I believe is an inch long.

Q. Okay. So that if Sherwood's

instructions on the box of the needles includes an instruction not to insert all the way to the hub, is it your dental opinion that it is impossible to use the needle in that fashion?

MS. HENRY: Objection.

A. It is my opinion that in order to achieve local anesthesia in many patients, especially patients who are big with thick tissues, you have to insert the needle up to the hub. The alternative is using what's called a spinal gauge needle, which is approximately six inches long and would cause so much damage and fear to the patients that one could not practice dentistry.

I believe that the warning is there for only because of legal cases like this, but it is impractical as a dentist to follow the advice on the needle box 100 percent. Again, one tries not to place needles up to the hub, one tries not to bend needles, but in many cases you cannot clinically obtain complete local anesthesia unless you do those things.

Q. Your testimony is that it is within the standard of dental practice to bend needles prior to use?

A. It is within my own personal experience that from time to time I have to bend the needle slightly in order to get around an arc of curvature that a straight needle, completely straight needle would not physically allow me to do.

If I cannot achieve local anesthesia, okay, then I have the option of declining to provide care to that patient, providing care to that patient and putting them into excruciating pain, or putting them to sleep for a relatively minor procedures, which has a much greater risk of complication than the infinitesimal chance of a needle break. So I have to use clinical judgment based on all of the facts, and I have given you examples.

Q. Okay. So you are stating that in your clinical judgment sometimes it is permissible to bend a dental needle prior to use?

A. Sometimes it is the most logical course of action in order to minimize the chances of complications occurring from using extraordinary means of anesthesia.

Q. Well, logic is one thing. I want

to talk about what the standard of dental practice is in your opinion. Is it, in your opinion, within the standard of dental practice acceptable to bend a needle prior to use if you clinically deem that it is necessary to do that?

A. Yes. If local anesthesia cannot be achieved satisfactorily without doing that I believe that it is acceptable to do that. If local anesthesia could be achieved by reorienting the needle or retracting the tissues differently, then I believe it is prudent to do that.

Q. Similarly, is it your opinion that it is within the standard of dental practice to insert needles all the way to the hub?

A. Again, ideally one should not do that in the rare, rare chance that a needle may break.

From time to time I feel clinically I have to do that, and if I did not do that I would have to resort to extraordinary means of achieving anesthesia, which is general anesthesia would be necessary. The risks of general anesthesia are far greater than the

very, very small risk of a needle breaking. So I have to use clinical judgment that from time to time it is necessary for me to insert a needle to the hub, and I would imagine it is necessary for other dentists to do the same.

Q. And in your opinion, it is within the standard of care, dental care, to insert dental needles to the hub if you in your clinical judgment deem that it is necessary?

A. If it is necessary to provide adequate local anesthesia and no other means is available, that is reorienting the needle, injecting in a different fashion, I believe that it is the safest course of action, safer than providing general anesthesia.

Q. Therefore, if Dr. Orchen inserted this needle all the way to the hub or so that there were only, in his words, a couple of millimeters of the needle not into the skin, would that be within the standard of dental practice?

A. Yes.

Q. And again, so that I am clear, Dr. Thoma in his book says the needle should not be inserted too close to the hub so that if it

breaks it can be grasped with a hemostat, which should also be within reach.

Do you agree that the quote recites an acceptable standard of dental practice?

MS. HENRY: Objection. Go ahead.

A. At the time I believe it did, because at the time that that book was written needles were much more susceptible to breakage, so you had to -- again, you were dealing with a different odds that a certain occurrence would happen. The odds that a needle would break in the 1950s and 1960s when that book was written was much higher than it is today. Also, Dr. Thoma was an oral surgeon.

Let me preface this. Oral surgeons have at their disposal the means to render patients semiconscious or unconscious. So if they are unable to achieve complete local anesthesia and the patient is still bothered by the surgical act that is going on, they can deepen the anesthesia or provide anesthesia. So it doesn't matter to them that they have not achieved a complete local anesthetic.

The general dentist does not have those means at his or her disposal and

therefore must achieve complete local anesthetic in order to be able to proceed.

Q. Let me go back to what you said before. The quotation was, the needle should not be inserted too close to the hub so that if it breaks it can be grasped with a hemostat, which should always be within reach.

I believe you said that that was acceptable back when written, namely in 1979?

MS. HENRY: Objection. Go ahead.

Q. 1969.

A. Again, it is hard for me to give an opinion back, you know, when I was just a boy. But since needle breakage was apparently a common occurrence then, I believe that it was more necessary to take precautions against that occurrence.

But these books are written not from the perspective of a general dentist. They are written from the perspective of oral surgeons who do not have to rely on local anesthesia in order to treat their patients, and therefore can come out with statements that cannot apply across the board to general dentists, because they do not have the same

armamentarium of anesthetics available.

In other words, it didn't matter whether the oral surgeon was successful or not with his mandibular block because he could put the patient to sleep. It does matter whether or not the dentist is successful because the dentist cannot do that, and therefore the dentist has to sometimes insert a needle deeper and therefore take a slightly higher risk.

Q. A risk of what?

A. Of a needle breaking. I guess the risk of the needle breaking is the same. It is a higher risk that you might not be able to easily achieve removal.

Q. From what you know about this case as you have defined for us before, is it my understanding that you don't have an opinion as to whether this needle should or should not be removed now?

A. There is no medical reason to remove the needle now. There may be psychological benefit to removing the needle, and then one has to make a judgment with the family using informed consent whether they feel the psychological benefit of needle removal

outweighs the surgical risks of needle removal.

I would like to use an analogy. If somebody comes in for a nose surgery, cosmetic nose surgery, a rhinoplasty or a nose job as it is known, there is typically no medical reason that has to be done. The patient is going to undergo medical and surgical risk in having that procedure done. However, in most cases where the procedure occurs it is because the patient decided that the psychological benefit of having the surgery outweighs the medical risks. The medical risks of rhinoplasty are actually more significant than the medical risk of Karla Spehar of having this removed.

It is up to the family to determine whether or not the psychological benefit warrants them exposing their daughter to a small but real medical risk.

Q. Are you skilled, do you have training to talk about the surgical risks of a rhinoplasty?

A. Yes.

Q. You do?

A. Yes.

Q. Okay. Do you perform those procedures?

A. No, but I perform very similar complex procedures of cosmetic nature.

I use rhinoplasty because it is very easy for the others who might be reviewing this case to understand the analogy. If I use complex maxillary osteotomy they wouldn't know what I am talking about.

Q. Do you plan to testify when this goes to trial? Do you plan to testify live?

A. I would be willing to, yes.

Q. Let me ask you this: You testified earlier in this deposition that it was your opinion that the breakage of the needle was not an emergency. Do you recall that?

A. Yes.

Q. And you testified that it was appropriate to go ahead and to do the tooth restoration?

A. Yes.

Q. And from what you have seen here in the various documents you have studied the tooth restoration took 10 or 15 minutes, correct?

A. That is my understanding.

Q. And then after that was done Dr. Orchen elected to go in and to try to retrieve the needle, correct?

A. Yes.

Q. Now, the election to go in and to treat the needle was certainly a different procedure than fixing the cavity in the baby tooth, correct?

A. Yes.

Q. And that was an option that Dr. Orchen, from what you see, chose to proceed on?

A. Yes.

Q. He obviously didn't treat this as an emergency either, because he went ahead and did the restoration before the attempted removal, right?

MS. HENRY: Objection.

A. Right -- I don't know his thinking, but I do agree with your statement of the sequence of things.

Q. Right. Now, you made a comment a few minutes ago about informed consent. Let me ask you this: Don't you think that if the mother was in the waiting room while all this

was going on it would have been required under the standards of dental practice then existent for Dr. Orchen to have obtained her consent for his surgical attempt to remove the needle since he had the time to go talk to her?

MS. HENRY: Objection.

A. I don't have an opinion on that. It is very difficult for me to determine at this time what the nature of informed consent is in dentistry. In oral surgery it is more clear, because our society has decided that there should be written informed consent before procedures are done. In general dentistry that is generally not done, and the patient has more of an implied consent to treatment, so I really can't give an opinion on it.

Q. Okay. What would you need to know in order to give an opinion? What other information would you have to have?

A. Whether or not there is some written defined standard that a dentist is obliged to inform a patient of something of that nature before treating it. I think in general it is presumed that if there is an adverse reaction to the care and the treatment

of that adverse reaction is within your training and skills that is acceptable that you do that. And even when the treatment is outside of your training and skills, such as a cardiac arrest or something of that nature, or stoppage of breathing; that it is your obligation and duty to do whatever you are capable of to try to help.

So I believe that Dr. Orchen had a duty to do whatever he thought was best to help the patient in that situation.

Q. But didn't he have an equal duty to obtain the consent of the mother if she was waiting just a few feet away in the waiting room?

A. It is very difficult for me to say. You know, for example, if he spilled something on the patient that was caustic to the skin I believe that it is your duty to inform, let's say, it's apparent that you did that, but I believe it is also your duty to immediately clean it up or flush it or do whatever has to be done. So I believe the dentist has more of a duty to treat the problem and then inform that there is a problem. I

think that is important.

But if he goes out he's then leaving the patient, the patient may start to move or cry or do things which I think will cause needle retrieval to become more difficult or impossible.

If the mother says, no, I don't want you to retrieve it, that would become a problem. If she said, yes, I do want you to retrieve it, you are no different than you would be. So there is no advantage to this, only disadvantages to leaving the patient.

Q. Well, if the mother said, no, I don't want you to retrieve it, why would that be a problem?

A. Because you would have lost your chance to do the simplest possible procedure, which is make a small incision right where you know that the needle is right before you have left the patient.

So I think you are only putting yourself and the patient at a disadvantage by leaving the patient.

Q. Well, talking about losing your chance, again, that is your opinion and there

is no statistic about that, correct?

A. Correct. I am just saying what I think I would do under the same circumstances.

Q. I understand that, doctor, and I am trying to find out what that is. Your report says, "The question remains now as to whether or not it would be desirable to remove the needle from Karla Spehar knowing that she has a diagnosis of malignant hyperthermia. I am not in a position to give expert opinion on that question."

I want to understand. You are not giving an opinion as to whether or not the needle should be removed in Karla? Is that what you are not doing?

A. No. I intended it to be giving an opinion as to what is the risk of malignant hyperthermia.

Q. And I am not trying to make you an expert on malignant hyperthermia. Are you one?

A. No.

Q. Do you know about malignant hyperthermia from an expert standpoint?

A. No.

Q. Or just generally?

A. I just have general knowledge of the problem.

Q. And you are not in a position to give opinions as to the risks of surgery and malignant hyperthermia on susceptible patients; is that true?

A. True.

Q. On Karla Spehar, do you have an opinion as to whether or not the needle should be removed today?

A. From a medical standpoint, I do not believe that there is a necessity to remove the needle. That is, leaving the needle will have no adverse medical consequences for her. However, I believe leaving the needle in her may have adverse psychological consequences for her via her parents. And if her parents came to me and said would you remove this needle, okay, I would sit down with them and I would say these are the medical risks to the procedure, there is no medical benefit, but I believe that you will feel much better, and therefore, since there are very few medical risks to this procedure, I would agree to remove the needle from her.

Q. If they consented to it?

A. If they consented to it. If I felt there was significant medical risks, I as a surgeon would not consent to do the surgery, even if the parents wanted it done.

Q. You keep talking about her parents. You have never met her parents, correct?

A. Correct.

Q. What do you know about her parents and about their concerns or lack of concerns in this case other than the fact that they have brought a lawsuit on behalf of their daughter?

A. Okay. A comment stated in Dr. Indresano's deposition, that the father thinks that this object is going to cause a significant injury to a blood vessel and cause her to die.

Q. Okay.

A. I mean, if that is in fact true, if those really represent his feelings, I believe that it would be of significant benefit to him and to her and between the relationship between the two of them for her to have this surgery. If that is really the feeling that this family

has, they should not live with those feelings.

Q. What do you know about the relationship between the two of them?

A. I know nothing.

Q. Well, has somebody talked to you about the familial relationship between Mr. and Mrs. Spehar and given you other information about that?

A. No.

Q. Under the circumstances of this case, of Karla Spehar as you know it, there is some risk of injury from the surgery removal, is there not?

A. There is.

Q. And there is a risk of injury to the carotid artery?

A. That would be a very small risk, less than one percent.

Q. Okay. If there would be an injury to the carotid artery what would be the most probable type of injury in surgery?

A. The most likely injury would be that the needle could be displaced into it, and that would most likely have no adverse consequence, because I as a surgeon and

especially in my training in general surgery frequently put large bore needles into significant arteries and have not had adverse consequences. So having a much smaller bore needle than surgeons generally use going into an artery would likely have no adverse consequence.

Q. All right. Would there be an injury of risk to the jugular vein?

A. Again --

Q. Excuse me. Would there be a risk of injury to the jugular vein?

A. Yes. Again, very, very small risk.

Q. What approximate percentage, would you say?

A. Much less than one percent.

Q. And if the jugular vein were injured in surgery on removal what would be the probable nature of that injury?

A. The most likely injury that I could conceive of occurring, again, would be that the needle would be displaced into it, and I also believe it would have no consequence.

Q. So your testimony is that probably if this needle got pushed into the jugular vein

it would not be a consequential injury, and probably if it got pushed into the carotid artery it would not be of major consequence?

A. Yes.

Q. Why is that?

A. The needle has such a small diameter and the capacity of the blood vessels to seal themselves off is excellent, especially when it's surrounded by muscles as they are.

Q. Would there be a risk of injury to her 5th cranial nerve?

A. There could be a risk to several of the branches. Not the nerve in its entirety, but specifically the lingual nerve, which is the branch of that nerve that gives feeling to your tongue, it is probably at the highest risk of injury of all the structures, because the needle probably is within a few millimeters of that.

I can't say statistically what that is, but I will give my best opinion that there is probably a ten percent chance of temporary numbness of the tongue, and one or two percent chance of permanent numbness of the tongue.

Q. Is there a branch of the cranial

nerve, the 5th cranial nerve, that controls the facial muscles?

A. No. The 7th cranial nerve is the one that controls that, and that would be far enough away from this that it would not be a problem.

Q. What other risk of injury besides possible injury to the carotid artery and the jugular vein or the 5th cranial nerve would be a possible consequence of the needle removal?

A. The needle is partially or completely embedded in muscles which work the jaw, specifically the medial pterygoid muscle and possibly the lateral pterygoid muscle. If those muscles scarred significantly upon removal of the needle she might not be able to open her jaw quite as wide as she could have.

And then you have typical risks of surgery, such as bleeding, infection, problems with the anesthesia, problems with the heart, all of which are very, very low.

Q. So about this removal, you said medically there is probably no reason for the removal?

A. Yes, that is my opinion.

Q. From the totality of everything you have seen about this case, is it therefore your opinion that the needle would probably not be removed during her lifetime?

MS. HENRY: Object. How does he know?

A. Again, my answer is I don't know.

Q. Well, from what you know about the case, would it be your opinion that it should be removed?

MS. HENRY: Objection.

A. I would recommend removing it if the family feels that they would feel psychologically better and more comfortable knowing the needle is out, then I feel it should be removed. If they would not feel better whether it is in or out, then I don't think the surgery is justified.

Q. Okay. Now, if you were the surgeon to remove the needle what protocol would you use to remove it?

A. I would begin by obtaining an updated high quality CT scan. Then, depending on how much information I gain from the CT scan, I would plan my surgical approach. It

may be necessary -- the surgery would have to be done in an operating room, she would have to be completely still under general anesthesia. We would have to take the appropriate precautions for preventing malignant hyperthermia.

It may or may not be necessary to place localizing needles, depending on the information I have from the CT scan. If we need to place localizing needles we would have to have X-rays available in the operating room, and then I would proceed in the safest manner possible, trying to avoid specifically the lingual nerve.

She would have to have a dissection done under magnification in order to magnify the relationships of the nerve to the muscle to the needle to minimize trauma.

Q. Would you agree, this would be a rather complex surgery?

A. No. It is possible that the surgery could take 15 minutes. If we were fortunate enough in having the needle in an accessible position and if I can determine pretty well either by the CT scan and/or needle

localization and surgical judgment, and possibly luck, make an incision right near the needle and remove it, it is possible it could be done very quickly. It is possible that it could also take several hours and be quite frustrating, as Dr. Indresano experienced, and it is possible that we would not be able to remove it at all despite the best available medical and surgical technology.

I would estimate that there is probably an 80 or 90 percent chance that it could be removed. I don't want to say a hundred percent. I only say that after I have removed it.

Q. In other words, even after going through the whole protocol you have just described the circumstances might be 10 or 20 percent that it would not be removed?

A. Yes. Now, if I were allowed the liberty of causing subsequent problems such as scarring of the oral tissues or numbness which surgeons of yesteryear were allowed, because those things did not seem to matter to patients the way they do today, I could more vigorously retract the muscles and the nerve and probably

with 98 or 99 percent certainty remove it. But again, we have a risk/benefit situation, and we do not want to remove the needle to help the patient psychologically and then also have a numb tongue, which will hurt the patient psychologically.

So we have a much more delicate balance there than we used to have. If you just wanted me to remove it I could almost certainly remove it. If you wanted me to remove it without complication I have to give a lower chance of success, because I have limits.

Q. So your 80 to 90 percent probability rate of removing the needle successfully means 80 or 90 percent probable without doing significant harm to either her nerves --

A. Right.

Q. -- or vascular structure --

A. Exactly.

Q. -- or her muscles?

A. Right. And I would say that's generally what is expected today. So again, I am working in those parameters.

Q. Okay.

A. For example, if this were a cancer, okay, leaving that would be such a medical problem that then we have to destroy the muscles and the nerves and the bone in order to remove the cancer. It is a different risk/benefit.

Q. But this isn't a cancer.

A. Exactly. But I just wanted to clarify why I can't say that I am going to remove the needle for the family. I am saying I will make every attempt to remove the needle while minimizing any chance of long-term complications.

Q. Okay.

A. And I would put that at 80 or 90 percent success.

Q. So that if these people are concerned about the psychological problem, you would have to tell them even if they went into surgery there is still a 10 to 20 percent chance she'd come out with the needle still in her face?

A. Yes.

Q. And a part of the surgery, you used

the word luck before, a part of the success basically is founded upon luck or good fortune if you find the needle when you make your incision?

A. Yes. But again, you control the luck to a degree based on your surgical judgment and interpretation of X-rays and understanding of surgery, but there is a certain degree of good fortune that allows some operations to go very expeditiously.

Q. All right. Now, back when Dr. Orchen made his incision the only thing that he had going for him was his -- he had no X-rays, correct?

A. Correct.

Q. He had a 10 to a 15 minute delay after making the injection, correct?

A. Correct.

Q. So the only things leading him to the possibility of finding the needle were his recollection of the anatomy and where he put in the needle, number one, and number two, good luck; isn't that true?

A. And clinical judgment. If you offered me two scenarios, one is if I was in

his position and the needle just broke off and I could have a chance at making a small incision and using an instrument and taking the needle out or the situation I could be put in now by the Spehars or the surgeon, Dr. Indresano, possibly could be put in, having all the available technology and CT scans and needle localization, and you had to say which situation would you rather be betting on could get the needle out without causing complications, I would rather be in the first situation.

Q. Okay. What I want to understand is what situation he was in. The only things that he had going for him when he made the incision 15 minutes or 10 minutes after the needle broke off was his recollection of where he made the injection and the possibility that he might have good luck in finding it. Is that true?

A. Yes, but that is more significant, knowing where he put the needle and knowing that her mouth didn't move and the anatomical relationships haven't changed and distorted, that is more valuable than all the other technology in the world.

Q. But I am just trying to get an answer to the question, and then you can explain. The only things he had going for him were, number one, his recollection of where he had put the needle 10 or 15 minutes earlier, and number two, good luck in making the incision. Isn't that true?

MS. HENRY: Object. You have asked and answered that nine million times.

A. Good clinical judgment, and I believe he did the right thing.

Q. What is the basis of the good clinical judgment?

A. The fact that he knows within millimeters where that needle entered. A subsequent surgeon hours or days later has very little idea where it has entered, plus the patient had cried and screamed and swallowed and all kinds of pumping actions of the muscles which move the needle further away from the gum, which makes retrieval potentially more difficult.

Q. Are you critical of Dr. Indresano's treatment of this patient in any fashion?

A. No.

MR. BITTEL: I don't think I have any other questions. Thank you.

MS. HENRY: Thank you.

MR. BITTEL: I am sure Mr. Jordan has a few.

EXAMINATION OF MICHAEL S. HAUSER, D.M.D., M.D.

BY-MR. JORDAN:

Q. My name is Patrick Jordan, I represent Sherwood Medical.

A number of my questions have already been asked, so I might be skipping around a little bit.

A. Sure.

Q. Please bear with me. And again, I have the same request, that if you could answer the questions, the appropriate questions with a reasonable degree of medical certainty, please do so. If you can't, please indicate, and I will try to rephrase the question.

Do you know Dr. Dennis McTeague?

A. I do not know him personally. I only know of him.

Q. What do you know of him?

A. That he is Chairman of Pediatric Dentistry at Ohio State University.

Q. But you have never worked with him or talked with him?
A. No.
Q. Do you know Dr. Kenneth Callahan?
A. Yes.
Q. And how do you know Dr. Callahan?
A. Through personal contact.
Q. Is he a friend of yours?
A. He is a colleague.
Q. Have you talked with Dr. Callahan about this case?
A. Only in that he knows that I am reviewing it, but we have not talked about details of the case.
Q. Did Dr. Callahan in any way influence your decision to become involved in this case?
A. No.
Q. Do you know if Dr. Callahan recommended you to Miss Henry or Weston, Hurd?
A. I don't know.
Q. Do you know Dr. Indresano?
A. Yes.
Q. Have you worked with him or spoken to him?

A. Yes.

Q. And what is it? Have you worked with him?

A. Both. Dr. Indresano and I speak all the time together.

Q. Have you ever spoken to Dr. Indresano about this case?

A. No.

Q. I take it you have performed mandibular blocks; is that correct?

A. Yes.

Q. Have you performed a mandibular block on a child?

A. Yes.

Q. Can you give any sort of rough estimate? Was it only once or was it many times or was it hundreds, mandibular blocks on a child?

A. Probably in the low hundreds.

Q. Okay. And what gauge and length needles have you used during most of those mandibular blocks on a child?

A. On a young child, I would typically use a 27 gauge short needle. On an older child, a 10 or 11, 12-year old or a teenager, I

would use a 27 gauge long needle.

Q. Have you ever used any other type needle than the ones just indicated?

A. Yes.

Q. And what other needles have you used? Gauge and length I am referring to.

A. I have used 25 gauge needles, and I found them to be exceedingly uncomfortable for the majority of patients who are receiving only local anesthesia, so I recommend not using them. I have used 30 gauge needles and found them to be more comfortable for patients receiving anesthesia, but the needles are quite thin and it is sometimes difficult to inject the anesthesia because of the small gauge of the needle.

So I have come to the conclusion that 27 gauge needles are the most satisfactory needles to use, and I judge the length on the basis of the size of the patient.

Q. Do you know if the needles that you have used have primarily been the Monoject needles?

A. I believe they are.

Q. And have any of these Monoject 27

gauge needles that you have used ever broken?

A. No.

Q. Have you ever heard of a Monoject needle breaking other than in this case?

A. Not specifically. I have heard that needles have broken, but I have not heard a specific brand of needle has broken.

Q. I'm sorry, I forgot your answer or if you answered the question. Have you ever conducted surgery on any patient with malignant hyperthermia?

A. Yes.

Q. On how many occasions was that?

A. At least two that I can recall.

Q. And was that here at Mt. Sinai?

A. No.

Q. Where were those two occasions?

A. Massachusetts General Hospital in Boston.

Q. And what were you treating the patients on those occasions for?

A. One occasion it was for removal of impacted wisdom teeth, and the other patient I can't recall.

Q. Do you know how those patients were

prepped because of their malignant hyperthermia different than other patients?

A. Yes. They were given medication called Dantrolene before the surgery and during the surgery and after the surgery, and the anesthetic agents were changed. I believe they received more narcotics and more nitrous oxide and did not receive halothane, which is a gas that can trigger this. They also did not receive medicine called Succinylcholine, which paralyzes the vocal cords such that they can have a breathing tube inserted.

So certain modifications had to be made by the anesthesia department, and then the surgery proceeded without incident.

Q. Okay, which is the next question. Were there any complications or adverse reactions in those two patients that you operated on that had malignant hyperthermia?

A. No.

Q. Doctor, how did you become aware of what the standard of care is in the dentistry field for the treatment of a patient who has a broken dental needle in their mouth?

A. Just through general knowledge and

experience.

Q. And what do you mean general knowledge and experience? I mean, you indicated you never were in a situation where there was a broken dental needle.

A. Right.

Q. What do you mean by general knowledge?

A. Just through reading, and I can't even specifically tell you what source. But I don't recall having a specific course in, you know, management of broken needles in dental school or in residency training.

Q. Do you remember any particular books, any articles, any lectures?

A. Not -- I don't remember any specific source.

Q. Well, do you know whether you learned anything about the treatment of patients who have broken dental needles while you were in dental school?

A. I may have. Again, this is 12 to 15 years ago. It is not clear to me exactly when I acquired a certain piece of knowledge.

Q. Well, I am not trying to figure out

exactly when so much as what the source of your knowledge is.

A. The source is general reading.

Q. And do you recall any of the reading material that provided you with this general knowledge?

A. No.

Q. Would you say that the standard of care in treating a patient with a broken dental needle is different for a child than for an adult?

A. I don't know. If a child is calm I believe that it is most appropriate to try to remove the needle. If the child is hysterical I believe it is not entirely appropriate to remove the needle.

A lot depends on the level of cooperation. But in that regard, a lot depends on the level of cooperation of an adult. So largely, the standard in my opinion would be the same.

Q. Okay. And that is the standard of care for the treatment of an adult and child is basically the same as far as after a broken needle has occurred in her mouth?

A. In general I would have to say yes.

Q. Would you agree that needle breakage is usually the result of lateral pressure exerted against the shank by either improper insertion, force, or sudden movements of the syringe or patients?

A. I don't know.

Q. What is a maxillary nerve block?

A. It is an injection in the posterior aspect of the upper jaw in order to numb the upper jaw.

Q. Okay. And what is a mandibular block?

A. An injection in the rear of the lower jaw in order to numb the lower jaw.

Q. Would you say those are the two primary nerve blocks dentists perform today?

A. No. There are sublingual nerve blocks, which is numbing a nerve further to the front of the jaw. There is a palatal nerve block, numbing the nerves to the palate. But the two nerve blocks you mentioned are frequently performed by dentists.

Q. And I meant are those the two most frequent?

MS. HENRY: Objection.

A. I don't know. It depends what type of dentistry you are doing. It varies.

Q. Would you say that the mandibular block is the procedure that is most frequently performed by a dentist?

A. It would be the most frequent nerve block performed by a dentist.

Q. Okay. Are there major clinical differences of the success rates upon first injection within the different nerve blocks that can be performed?

A. Yes.

Q. And what would you say is the most difficult nerve block to perform or to achieve success upon first injection?

A. On a routine basis, the mandibular block is the most difficult one to achieve.

Q. And why is that?

A. Because the mandibular anatomy is quite varied. You cannot actually see where the nerve enters the jaw. You are doing it on the basis of clinical judgment, feeling, palpation, X-ray, various guides that you may have or may not have. It is literally a blind

procedure based on your best clinical judgment. You cannot actually see the nerve.

Q. Are there any differences in the tissue areas that you are injecting when doing a mandibular block as opposed to some of the other nerve blocks?

A. Yes.

Q. And what is that?

A. The mandibular nerve block is complicated by the presence of a muscle, specifically the medial pterygoid muscle, which often gets in the way of where you are trying to place the needle.

Q. Okay. And does that affect the chances of success of a nerve block upon first injection in mandibular block?

A. Yes.

Q. And I take it makes it more difficult?

A. Yes.

Q. When performing a mandibular block is it more difficult for the needle to penetrate that area than when you are performing other nerve block injections?

A. Sometimes.

Q. How did you come to learn that, that it is more difficult to perform a mandibular block injection?

A. I was taught that, and my own clinical experience supports that.

Q. Is that something that dentists generally know, that it is more difficult to perform a mandibular block injection than the other injections?

A. I believe so.

Q. Would you say the chances of a dental needle breaking during a mandibular block are greater, lesser, or the same than during, say, a maxillary nerve block or any of the other nerve blockages?

A. I think they are greater during mandibular nerve blocks.

Q. And why would that be?

A. The injection is more difficult, often you have to reposition the needle several times in order to appropriately place the needle at the nerve. You can be going through some very dense tissue, tendons, ligaments. Since you can't actually see the bone you can encounter the bone and the bone can end up

deflecting the needle.

There are many reasons.

Q. Okay. Would you say that that's something any practicing dentist is aware of?

A. Yes.

Q. Is that something that dental students are taught in dental school?

A. I believe so.

Q. Would you agree that a dentist must be more careful during a mandibular block injection than during the other nerve blocks?

A. No. I believe one should be careful at all times.

Q. Did you ever learn how broken dental needles are to be removed during dental school?

A. I can't recall specifically learning that during dental school.

Q. Would you agree that the bending of a needle weakens the needle?

A. Yes.

Q. Okay. And is that something that dental students learn during dental school?

A. I believe so.

Q. Is that something that any

practicing dentist is aware of?

A. I believe most are.

Q. Would you agree that dentists should not attempt to change the direction of a needle while the needle is embedded within tissue?

A. Ideally you should not. Sometimes it is impractical.

Q. And why do you say that?

A. Because it can be painful to insert the needle into the tissue. The mucosa has a lot of nerve endings to it. When the mucosa or the gum, for vocabulary sake, is penetrated by the needle many patients will whince or moan. Then for the most part when the needle is under the tissue it doesn't bother the patient until it contacts the periosteum of the lining of the bone, then it may bother the patient again. In between those two sensitive tissues what hurts the patients is the fluid pressure.

So if you are giving a mandibular block and you feel that the needle is not contacting the mandible appropriately you may have to redirect the needle.

If you take the needle all the way

out and insert it again you again stimulate the patient and may elicit pain. And in a child this becomes a problem, because as soon as that child gets upset you are probably going to lose the patient. I don't mean the patient is going to lose their life, but you are going to lose your ability to successfully treat that patient. So if you can make a maneuver that is likely not to cause the patient more pain yet allow you to achieve the mandibular block, I feel that it is an appropriate thing to do. So there are times when I don't take the needle all the way out but I redirect it while it is still under the tissue to maximize patient comfort.

Q. Okay. And you indicated there are certain circumstances where you feel it is appropriate not to remove the needle, but you did indicate that it was ideal that you do not change directions. Why would you say that it is ideal not to change directions while the needle is embedded in the tissue?

A. Because you may bend the needle if you change it, and you can't see the whole needle, it may be contacting a bone or a firm

ligament and you don't see that, where you can't easily feel it, and you may bend the needle.

Q. Okay. And bending the needle weakens the needle?

A. Yes.

Q. Would you agree that a dentist should never attempt to force a needle when he or she feels resistance?

A. Yes.

Q. I take it needles are not meant to or designed to penetrate bone?

A. No.

Q. Why are reuseable needles more likely to break than disposable needles?

A. I don't know for certain. This is historical teaching that I have somehow obtained. My guess is that there were different manufacturing controls then, probably different metals and alloys years ago, and the fact that you have to resterilize the needle and put them through this heat change probably weakens the metal structure, but these are all just hypotheses on my part.

Q. When needles are injected in tissue

there is a certain amount of deflection; is that correct?

A. Yes.

Q. And wouldn't the repeated use of a needle enhance the probability that it would break simply from the amount of deflection that has repeatedly occurred on that needle?

MS. HENRY: Objection.

A. Possibly, but again, it depends on the parameters you are talking about. It is clinically acceptable to use a needle on the same patient. I may give a dozen injections with the same needle, and it is changing directions and it is deflecting and doing all kinds of things.

If you are talking about hundreds and hundreds of injections, that may stress the needle to the point where it can fracture or separate.

Q. Which leads to my next question. How many times is it appropriate for a dentist to use the same disposable needle on the same patient?

A. In my experience, until the completion of the treatment on that patient

that day, whether it involves one injection or 15 or 20 injections throughout the procedure.

Q. Do you know how many times Dr. Orchen used the same needle during this procedure?

A. No.

Q. Does the fact that a dentist during a mandibular block has to pull the needle out and reenter two or three different times indicate anything to you?

A. No.

Q. Would you agree that a general rule of dentistry is that a needle should not be inserted into the tissue to the hub unless absolutely necessary?

A. Yes.

Q. Were you ever taught in dental school that a needle should not be inserted to its hub?

A. I believe so.

Q. I think Mr. Bittel alluded to the fact that there is some warning on some needles now indicating that needles should not be inserted to the hub. Have you ever seen such warnings?

A. Yes.

MS. HENRY: Objection.

Q. Have those warnings affected your practice in any way as far as how far you insert the needle?

A. No.

Q. And why is that?

A. Because I have to achieve the best level of comfort for my patient, and if it involves moving the needle up to the hub in order to have him completely numb, I would rather have a completely numb patient than run the infinitesimal low risk that the needle may break and be difficult for me to remove.

Q. How do you know that it is an infinitesimal small risk of the needle breaking if it goes to the hub?

A. Well, on the basis of my own experience with thousands of injections, those around me who have also given thousands of injections, all the students that I have trained and the residents that I have trained, none of whom have, to my knowledge, experienced broken needles.

Q. Okay. And were the needles that

were used in most of those injections you just described or have observed Monoject needles?

A. I believe the majority of them were.

Q. Have you read any articles, books, treatises or journals which indicate that needles should not be inserted to their hub?

A. Yes.

Q. Would you say that any practicing dentist has reviewed such articles, books, journals, or treatises indicating that needles should not be inserted to the hub?

A. I don't know.

Q. Would you agree with the statement that needle breakage, while rare, does occur?

A. Yes.

Q. Did you ever learn that the weakest part of a needle is at the hub?

A. Yes.

Q. And when did you learn that?

A. I don't know specifically.

Q. Is that something that, once again, dentists in the field generally know?

A. I don't know.

Q. Did you ever learn that needle

breakage is most likely to occur at the hub?

A. Yes.

Q. And again, is that something that most dentists generally know?

A. I don't know.

Q. Do you know if you learned that in dental school?

A. Again, I just can't recall where specifically I learned this.

Q. Okay. But do you know when you have learned it? Is it something you have recently learned?

A. No. No.

Q. Is that something you have known for a long time, that needles generally break at the hub?

A. Yes.

Q. Would you agree that the retrieval of a needle is much more difficult if it breaks at the hub?

A. That would depend on the circumstances. If the needle is buried under the tissue and it breaks at the hub then retrieval would be more difficult.

Q. Well, when you say it depends, if

the needle is not inserted to the hub you don't have that problem; is that correct?

A. Right.

Q. So then if it's inserted all the way to the hub it might be covered by tissue and therefore retrieval might be more difficult?

A. Yes.

Q. Is that a fair assessment?

A. Yes. I would agree with that.

Q. Now, have you ever seen any tests which indicate that patients cannot tell the difference between 25, 27, and 30 gauge needles?

A. I have read of that, and I strongly disagree with that.

Q. Now, you referred to what I think you labeled as dogma before.

These were actual tests that have been conducted and analyzed upon various patients in control groups which indicated that patients could not tell the difference between the amount of pain when a 25, 27, or 30 gauge needle was used, correct?

A. That's correct, at least there was

a study. However, I know from my own experience the way I give anesthesia, which is I think the gentlest technique I observe, the patients definitely in my experience whince or say ouch or sometimes cry upon the insertion of a bigger needle than they do with a smaller needle.

What I don't know about the study is that you can have more pain from the actual technique of injecting the anesthesia if you do it too quickly than the puncture of the needle through the mucosa. So if they injected the anesthesia more quickly than I would recommend in all cases in their study, that would hurt so much more than whatever they perceived the initial prick or a pinch on the gum, that it would negate the study with respect to doing it slowly.

Q. Are you aware of any studies which indicate that the patients do notice a difference between the 25, 27, and 30 gauge needles?

A. I am vaguely aware that there is a study that shows that.

Q. You say vaguely aware. I will ask,

do you know the name --

A. I can't quote the study. Somewhere in my readings.

Q. Do you know what the study is that indicated that those gauges that we have been discussing, that there is no perceptible difference in the level of pain?

A. I can't tell you the specific study.

Q. Would you agree that there is less deflection in a larger gauge needle?

A. Yes. I would say that deflection is less likely.

Q. I take it you are aware then a larger gauge needle, the walls of the needle are thicker and stronger?

A. Yes.

Q. Would you agree that needle breakage is less likely to occur in a 25 gauge needle than a 27 gauge needle?

A. Yes.

Q. I take it you are aware the needle is still in Karla Spehar, correct?

A. Yes.

Q. Now, are you aware that the needle

has not moved at all, not even one millimeter apparently, since the day Dr. Orchen treated her in October of 87?

A. That is my understanding based on the statements I have read.

Q. Right. And I take it you read Dr. Indresano's deposition in which he indicated in part that the needle had not moved at all?

A. Yes.

Q. Does that surprise you?

A. No.

Q. And why is that?

A. There are many variables. It is very possible that the needle -- the tip of the needle is engaged up to the mandibular bone or under the periosteum, which is the lining of the bone, and that would trap it and that would prevent it from moving backwards or up and down.

Q. Are you aware of where the needle is, where one end of the needle is in relation to the gum line? And when I say one end, I mean the end closest to the gum line.

A. I have read in depositions that it is several centimeters from the gum line.

Q. Okay. Can you explain why the needle is several centimeters from the gum line if it broke off at the hub?

A. My understanding would be that it did migrate some from the time the injection was given to the time the first X-ray was taken, during which time the child, I understand, was crying and quite uncooperative, so I think any movement of the needle would have occurred until it got stuck up against the bone, and it has remained stuck there.

Q. Okay. Now, you say it is stuck against the bone. Do you know that it is stuck against the bone or is that --

A. No, I am just --

Q. -- a guess?

A. -- just surmising what would block it from moving further posteriorly.

Q. Well, wouldn't the encapsulation and fibrous tissue also prevent its movement?

A. Yes, but that doesn't occur immediately. That may have taken several days or longer to occur.

Q. Would you agree that the manipulation of the tissue surrounding the

broken needle can contribute to the migration of the needle, of a needle?

A. Can you repeat that?

Q. Sure. Would you agree that the manipulation of the tissue surrounding a broken dental needle embedded in a patient's gum can contribute to the migration or movement of that broken dental needle?

A. Yes.

Q. Do you know whether Dr. Orchen manpiulated the tissue surrounding the broken dental needle in Karla Spehar at any time after it broke?

A. Yes.

Q. Do you know who put the mouth prop in Karla Spehar?

A. No.

Q. Do you know who put the rubber dam in Karla Spehar?

A. No.

Q. Typically is a rubber dam placed in a patient's mouth during a tooth restoration?

A. Yes, or at least for children, and ideally for adults, but it becomes impractical in most adults.

Q. And typically is that the doctor or the dentist or the dentist's assistants who places the rubber dam in the patient's mouth?

A. It depends on the dental practice.

Q. Okay. And is there any manipulation of the tissue involved in the placement of a rubber dam in a patient's mouth?

A. Very little. There is some manipulation of the gum between the teeth.

(Discussion off the record.)

(Recess taken.)

Q. Okay. I have a few other questions, and then Mr. Bittel might have a few questions on that exhibit.

Do you know if Dr. Orchen drilled Karla Spehar's tooth?

A. I believe he did.

Q. Okay. Can you state with a reasonable degree of medical certainty whether the drill would not have affected the migration of the needle?

A. I believe it would not have affected that.

Q. Could the treatment of Karla

Spehar's molar tooth after the needle broke contributed to the migration of the needle? Could it have?

MS. HENRY: Well, I am going to object. The standard is reasonable degree of medical certainty or probability. You asked him to answer in that regard in the beginning.

A. I am saying it is extremely unlikely.

Q. Could it have happened?

MS. HENRY: Objection.

A. I don't understand how drilling the tooth would make that happen, so --

Q. Okay.

A. -- I cannot think of a reason that would support.

Q. I am not referring now just to the drilling of the tooth but the whole procedure that elapsed during the 10 or 15 minutes, during the placement of the rubber dam mouth prop, the manipulation of the tissue, all the events that you observed during the deposition of Dr. Orchen -- not observed, but read during his deposition. Those factors, that is what I am asking you to direct your attention to.

Could those factors have contributed to the migration of the needle?

MS. HENRY: Objection.

A. Insofar as she may have been opening and closing her mouth significantly, yes, but if her mouth was still, I would say it is unlikely.

Q. Is opening and closing of the mouth the only factor which could contribute to the migration of a broken dental needle?

A. No.

Q. Okay. What are the other factors that could affect the migration of a needle?

A. Swallowing could, because you are changing the pressures in the tissues. Palpating vigorously, which could push it. I think I mentioned before crying, talking.

At this time those are the only reasons I can think of.

Q. What about making an incision and touching it, you know, an unsuccessful attempt to pull it out?

MS. HENRY: Objection.

Q. Could that have contributed to the migration of the needle?

MS. HENRY: Objection.

A. It could have, but it's absolutely necessary in the attempt to remove it. So, yes, it could have, but it is necessary.

Q. Earlier you had talked about a psychological benefit, and you had talked about the feeling that patients have -- I am trying to restate your testimony, so I need to do that in order to ask the question. Was it your testimony that one of the psychological benefits that a patient would have, and in this case a patient's parents would have, is the fact that something abnormal would not have happened if -- strike that.

I believe you testified that people feel that if something abnormal is the result of an operation that they file lawsuits.

A. Yes.

MR. BITTEL: Objection.

A. It is my understanding that that is a frequent occurrence in our society.

Q. And was that what you were referring to when you said that there is a psychological benefit that could occur from removing the needle immediately? You would

avoid that problem?

MR. BITTEL: Objection.

A. I think it is my opinion that you decrease the chances of that occurring.

Q. Because if the needle is removed people are not likely to sue if it's removed immediately; is that correct?

A. That is my opinion, yes.

Q. Is it your opinion that a dentist could during palpation of the tissue feel a broken dental needle if it is three centimeters inside the gum line?

A. No.

I have thought of another reason which I believe is significant as to why the needle may be further below the gum line than it would have appeared to be at the time the hub broke.

If the tissues were made very taught by the dentist's finger of his opposite hand and then the needle injected near the hub, you could upon release of your finger have the tissues come back to the normal position in the mouth and actually have quite a bit of tissue over the needle.

I don't understand why there would be three centimeters of tissue, but there could be some, and it could easily be a centimeter of tissue.

Q. You referred earlier to a book that you and Dr. Indresano are contributing chapters or portions of.

A. Yes.

Q. Is it Dr. Peterson that is compiling that book?

Do you know who is writing a chapter of the portion of the book of pediatric dentistry?

A. I do not.

Q. You were asked a question during Mr. Bittel's examination concerning what are the various factors that could have caused the breakage of the needle. Would another option have been that the thinness of the needle could have caused the needle to break?

MS. HENRY: Objection.

A. A thinner needle, in my opinion, is more likely to break than a thicker needle. I recommend using a 27 gauge needle because I think that is overall the most satisfactory

needle to use when I account for all the variables. I believe the majority of practicing dentists, overwhelming majority of practicing dentists use 27 gauge needles in their daily dental practice.

I don't know what the sales of needles are through Sherwood, but I would be very surprised if I were to find out that the majority wasn't 27 gauge needles.

Now I have lost my train of thought.

Q. I have nothing further on that issue unless you do.

MS. HENRY: Would you like her to read the question and the answer back? Read the question.

(Record read.)

A. To continue my answer, a very thin needle would be more likely to break, and a needle thinner than a 27 gauge needle I believe would be more likely to break.

Q. And would the flip side of that be that a 25 gauge would have been less likely to break?

A. Yes, but it isn't practical to use

that.

Q. Okay. In your experience it is impractical to use a 25 gauge needle when performing a mandibular block on a child?

A. Yes, but I believe the experience of the overwhelming majority of dentists would support my opinion.

Q. Do you know when disposable needles were introduced into the market?

A. No.

Q. Would you agree that in general more senior dentists and oral surgeons who practiced in or around the time prior to the introduction of disposable needles are more experienced with broken dental needles?

A. I believe they would be.

Q. Would you agree at the time of Dr. Thoma's and Dr. Archer's book that the incidence of broken needles were more common than they are today?

A. Yes.

MR. JORDAN: I have nothing further at this time.

MS. HENRY: Could we move this right along here?

MR. BITTEL: I am going to go real fast.

EXAMINATION OF MICHAEL S. HAUSER, D.M.D., M.D.

BY-MR. BITTEL:

Q. With regard to this document that we previously marked in Dr. Indresano's deposition as --

MS. HENRY: It doesn't matter. Just explain what it is.

Q. -- Exhibit 1, I believe, I don't know where the sticky is, I would like you to just take a look at this and tell me -- this depicts in an artistic fashion the relationship of the foreign body of the needle to various anatomical structures of Karla Spehar.

And specifically, with regard to the dimensions, relating to the 10 millimeter dimension, the 5 millimeter dimension, 7 millimeter dimension, 8 millimeter dimension, would you say that generally those adequately and properly reflect the relationship of this needle to the structures indicated?

A. I am not prepared to comment on that until I have reviewed all the information from which this was obtained.

Q. That's fine. Okay. And on the second page of this, the flip-over, there is an illustration called lateral relationships.

Generally there the relationship of the needle to the indicated structures, the cranial nerve, the broken needle, the jugular vein, the carotid anterior, and the inferior alveolar nerve, would generally that depict the relationship of the needle to those structures, without dimension?

A. Again, the only piece of information other than your artist's rendition is this X-ray, and what I see on this X-ray is not accurately represented in your diagram. However, one has to look at multiple views in order to make that opinion.

Q. The X-ray that you are talking about is the panoramic X-ray taken by Dr. Callahan prior to Karla's going to Metro Hospital?

A. Right.

Q. From that X-ray of Dr. Callahan, can you tell us approximately how far below the gum line the needle is in that X-ray?

A. It is impossible to do so. The

only dimension that the --

Q. You have answered my question. If it's impossible, that's all I need to know.

With regard to the dental technique of the injection Mr. Jordan asked you about, is it my understanding that one of the contributing factors of having the needle three centimeters below the gum line tissue could be the injection technique by stretching the tissue of the gum and then releasing the tissue?

A. Yes.

Q. Okay. So that to the extent that Dr. Orchen released the tissue before he realized the needle broke off, would you agree with me that that action is a contributing factor to the depth of the needle?

A. That is impossible to say. It could be.

Q. Isn't it more probable that had he not released the tissue before he realized the needle was broken off that it would have been more probable for the needle to have been found at the surface?

A. I don't know. I think it would

have been closer to the surface.

Q. Well, but the purpose of having the thumb on the tissue when you make the injection is to provide a marker and to stretch the tissue, correct?

A. Yes.

Q. And if he would not have released the tissue before the needle was broken off, before he realized the needle was broken off, wouldn't it have been more likely that he would have found the needle at the surface?

A. I don't think so.

Q. Why?

A. I don't think he technically could have done the procedures where you need two hands and also have kept one hand on the tissue. You need two hands to operate, and especially in a very small area. One hand is usually using a little retractor or little like a tweezer pick up and the other one is spreading the tissue, and you can't also have your hand at the position stretching the tissue at the same time. You would have to have someone else's hand do that and then transferring the hands, it is just technically

not possible.

Q. I don't understand. Are you talking about the needle retrieval operation or the injection?

A. Trying to answer your question, it is my understanding that you feel that he should have kept his hand on the tissue to keep it as taught as possible in order to keep the needle as close to the surface as possible, and then try to remove the needle.

Q. No. My only question is this: You have indicated that it is your technique not to remove your thumb from the tissue until the needle is retracted. Is that true?

A. For the most part, yes.

Q. Okay. Had he followed that technique, wouldn't it have been more probable that the needle would have been found at the surface of her gum line when it broke?

A. It is hard to say. There are many things are going on. There are changes in pressure taking place in the tissues, you are adding fluid, you are changing suction within the tissues when you inject and then you pull out. Things are more dynamic than I think you

want to believe.

Q. Okay. Regarding the warning by Sherwood about not putting the needle in all the way to the hub, what is your understanding as to why the warning is made?

MS. HENRY: Objection.

A. So they have every possible chance of reducing their legal liability.

Q. Do you have as a dentist with the experience and training you have, do you have an opinion as to when the needle is injected all the way to the hub whether that has a causal relationship to an increased probability of breaking?

MS. HENRY: Objection.

A. No.

Q. Do you know?

MR. JORDAN: He just testified over and over again that it has.

MS. HENRY: Look, gentlemen, let's get a move on with this, all right? We have been at this for three hours now, you have asked that question 85 times. I am getting a little fed up, and I think I have been very patient. Now let's get on with this.

A. It is my opinion that the needle is most likely to break at the hub. However, putting the needle into the tissue up to the hub is not, in my opinion, more likely to increase the fact that it breaks.

There are two different things here. One is what causes it to break and where it breaks, and they are not related.

Q. Okay.

MR. JORDAN: I do have a few questions then based on that.

MR. BITTEL: I am done.

MS. HENRY: Make it fast, please.

EXAMINATION OF MICHAEL S. HAUSER, D.M.D., M.D.

BY-MR. JORDAN:

Q. Is it your testimony that inserting the needle to the hub does not increase the probability that the needle will break?

A. Yes, I would think that inserting the needle to the hub does not increase the probability of it breaking. It might make it more difficult to retrieve should it break.

Q. Are you aware of studies and reports that indicate that inserting the needle to the hub increases the chances of it

breaking?

A. I am not.

Q. Do you move a needle around once you inject it during a mandibular block?

A. Frequently.

Q. Okay. Now, if you try to move the needle around --

MR. JORDAN: Would you relax?

MS. HENRY: No, I can't. You have asked that five times already.

MR. JORDAN: We have not. This is a key issue in the case.

MS. HENRY: Don't tell me to relax. It is ten after 1:00. Just get on with it. All right?

Q. When you move the needle around during a mandibular block, if you insert the needle all the way to the hub, wouldn't that increase the probability that the needle would break since there is no, say, pliancy or give in the needle?

MS. HENRY: Objection.

A. I don't know. Again, the lever arm effect can come into play. However, if more of the needle is surrounded by tissue you in a

sense decrease the lever arm effect. If only the tip of the needle is engaged in something and then it moves it has the greatest lever arm. So we are dealing in an area of engineering and physics that are very, very difficult for me to give an opinion on.

MS. HENRY: Is that it?

MR. BITTEL: We have signature waiver?

MS. HENRY: It is up to the doctor. You can make the transcript available to him to review if they order it?

THE WITNESS: Can we go off the record?

(Discussion off the record.)

MS. HENRY: If you want to waive --

MR. BITTEL: Waiver?

THE WITNESS: Yes.

MS. HENRY: Yes.

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CERTIFICATE

The State of Ohio,)
SS:
County of Cuyahoga.)

I, Heidi L. Geizer, a Notary Public within and for the State of Ohio, duly commissioned and qualified, do hereby certify that the within named witness, MICHAEL S. HAUSER, D.M.D., M.D., was by me first duly sworn to testify the truth, the whole truth and nothing but the truth in the cause aforesaid; that the testimony then given by the above-referenced witness was by me reduced to stenotypy in the presence of said witness; afterwards transcribed, and that the foregoing is a true and correct transcription of the testimony so given by the above-referenced witness.

I do further certify that this deposition was taken at the time and place in the foregoing caption specified and was completed without adjournment.

I do further certify that I am not a relative, counsel or attorney for either party, or otherwise interested in the event of this action.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my seal of office at Cleveland, Ohio, on this 2nd day of November, 1990.

Heidi L. Geizer

Heidi L. Geizer, Notary Public
within and for the State of Ohio

My commission expires January 22, 1995.

Revised May 1989

CURRICULUM VITAE

NAME: Michael S. Hauser, D.M.D., M.D.

ADDRESS: 3333 Maynard Rd.
Shaker Hts., Ohio 44122
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OFFICE: Mt. Sinai Medical Center
Chief, Division of Dentistry &
Oral & Maxillofacial Surgery
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216-421-3601

DATE OF BIRTH: October 10, 1951

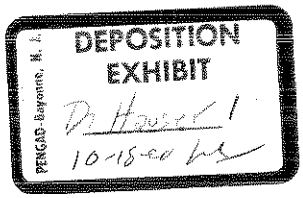
PLACE OF BIRTH: Bronx, New York

EDUCATION:

1973 B.S.	State University of New York at Albany, Albany, New York
1977 D.M.D.	Boston University, Henry M. Goldman School of Graduate Dentistry, Boston, Massachusetts
1983 M.D.	University of Massachusetts Medical School, Worcester, Massachusetts

POSTDOCTORAL TRAINING:

1977-1978	General Practice Residency in Dentistry, Albert Einstein College of Medicine-Bronx Municipal Hospital Center, Bronx, New York
1978-1979	Intern, Oral and Maxillofacial Surgery, Massachusetts General Hospital, Harvard School of Dental Medicine, Boston, Massachusetts
1979-1980	Assistant Resident, Oral and Maxillofacial Surgery, Massachusetts General Hospital, Harvard School of Dental Medicine, Boston, Massachusetts
1980-1981	Clinical Fellow in Plastic Surgery, Children's Hospital Medical Center and Brigham and Women's Hospital, Boston, Massachusetts



POSTDOCTORAL TRAINING: (Cont'd.)

1981	Chief Resident, Oral and Maxillofacial Surgery, Massachusetts General Hospital, Harvard School of Dental Medicine, Boston, Massachusetts
1983-1984	Second-year Resident, General Surgery, New England Deaconess-Harvard Surgical Service, New England Deaconess Hospital, Boston, Massachusetts

LICENSURE:

1974	National Board of Dental Examiners, Part I
1977	National Board of Dental Examiners, Part II
1977	Northeast Regional Board of Dental Examiners
1979	National Board of Medical Examiners, Part I
1983	National Board of Medical Examiners, Part II
1984	National Board of Medical Examiners, Part III
1978	Commonwealth of Massachusetts, Dental #13848
1981	Commonwealth of Pennsylvania, Dental #DS011636-L
1981	State of New York, Dental #036417
1981	State of New Jersey, Dental #13303
1981	State of Michigan, Dental #13076
1982-1984	District of Columbia, Dental #3928
1982	State of Illinois, Dental #019-018434
1984-1986	State of Georgia, Dental Teaching #000177
1984	State of Georgia, Medical #26546
1986	State of New York, Medical #166765-1
1986	State of Ohio, Medical #54653
1987	State of Ohio, Dental #30-01-8431
1987	State of Pennsylvania, Medical #037996-E

CERTIFICATION: Board Certified, American Board of Oral and Maxillofacial Surgery, 1986

ACADEMIC APPOINTMENTS:

1980-1981	Clinical Fellowship in Oral and Maxillofacial Surgery, Harvard University, Boston, Massachusetts
1984-1986	Assistant Professor of Oral and Maxillfoacial Surgery, Emory University School of Dentistry, Atlanta, Georgia
1987-	Chief, Division of Dentistry and Oral and Maxillofacial Surgery, Mt. Sinai Medical Center, Cleveland, Ohio
1987-	Program Director, Oral and Maxillofacial Surgery Residency Chief Administrator, General Practice Residency in Dentistry, Mt. Sinai Medical Center, Cleveland, Ohio

HOSPITAL APPOINTMENTS:

1982-1984	The Malden Hospital, Associate Surgeon, Department of Surgery, Division of Oral and Maxillofacial Surgery, Courtesy Staff, Hospital Road, Malden, Massachusetts 02134
1984-1986	Emory University Hospital, Oral and Maxillofacial Surgery Staff, 1364 Clifton Road, N. E. Atlanta, Georgia 30322
1984-1986	Grady Memorial Hospital, Active Medical Staff, Division of Oral Surgery, 80 Butler Street, S. E., Atlanta, Georgia 30335
1984-1986	Crawford W. Long Hospital of Emory University, Courtesy Member, Department of Surgery, 35 Linden Avenue, Atlanta, Georgia 30365
1984-1986	Henrietta Egleston Hospital for Children Provisional Medical Staff, Surgery Service 1402 Clifton Road, N. E., Atlanta, Georgia 30322
1984-1986	Veterans Administration Medical Center, Consulting Staff, Department of Surgery, 1670 Clairmont Road, Atlanta, Georgia 30033
1987	Mt. Sinai Medical Center, Chief, Division of Dentistry and Oral and Maxillofacial Surgery One Mt. Sinai Drive, Cleveland, Ohio 44106
1987	Veterans Administration Medical Center, Consultant Oral and Maxillofacial Surgery, 10701 East Blvd. Cleveland, Ohio 44106

HONORS AND AWARDS:

1969	New York State Regents Scholarship
1973	Bachelor of Science, Magna Cum Laude
1977	Alpha Omega Award (For attaining the highest scholastic standing in the Class of 1977)
1977	Boston University School of Graduate Dentistry Graduated first in class

PROFESSIONAL PRACTICE:

1984-1986	Partner, Emory Dental Health Services, Emory University School of Dentistry 1462 Clifton Road, N. E. Atlanta, Georgia 30322
1987-	Oral and Maxillofacial Surgery, Mt. Sinai Medical Center, One Mt. Sinai Drive, Cleveland, Ohio 44106 and 26900 Cedar Rd., Beachwood, Ohio 44106

PROFESSIONAL MEMBERSHIPS:

1973-	American Dental Association
1978-1981	American Association of Oral and Maxillofacial Surgeons (Resident member)
1981-	American Medical Association
1984-1986	Medical Association of Georgia
1985-1986	DeKalb County Medical Society
1986-	American Association of Oral and Maxillofacial Surgeons, Fellow
1986-1987	Georgia Dental Society, Northern District
1986-1987	Fifth District Dental Society, Atlanta, Georgia
1987-	Mt. Sinai Medical Center Medical Society, Executive Council
1987-	Ohio Society of Oral and Maxillofacial Surgeons
1987-	Northeast Ohio Society of Oral and Maxillofacial Surgeons
1988-	Ohio Dental Association
1988-	Cleveland Dental Society
1988-	Great Lakes Society, Oral and Maxillofacial Surgeons

COMMITTEE MEMBERSHIPS:

1987-	Cancer Committee, Mt. Sinai Medical Center
1987-	Institutional Residency Review Committee, Mt. Sinai Medical Center
1987-	Quality Assurance Committee-Clinics, Mt. Sinai Medical Center
1989-	Operating Room Committee, Mt. Sinai Medical Center

RESEARCH:

1982	The Role of "Activated" Periosteum at the Healing of Bony Defects. Research at Massachusetts General Hospital in collaboration with R. Bruce Donoff, D.M.D., M.D.
1988	Transplantation of Cryopreserved TMJ Menisci in Rabbits, A Pilot Study. Mt. Sinai Medical Center in collaboration with Dr. Joshua Uram

PUBLICATIONS:

Hauser MS and Boraski J: Oropharyngeal Carcinoma presenting as odontogenic infection with trismus. Oral Surg. 1986, 61:330-2.

Hauser MS and Meyer RA: Increasing the operative experience of oral and maxillofacial surgeons. J. Oral Maxillofacial Surgery, 43:836, 1986

Hauser MS: Current trends in TMJ surgery, Alpha Omega Newsletter, Cleveland Chapter, Cleveland, Ohio, January 1988

Hauser MS: Mandibular and Lingual Nerve Injuries Cleveland Dental Society Journal, Vol. 43, No. 6 P. 45, July/Aug. 1988.

Uram J and Hauser MS: Deep neck and mediastinal necrotizing infection secondary to a traumatic intubation: A case study. J. Oral & Maxillofacial Surgery, 46:788, Sept. 1988

Hauser MS, Freije S, Payne R, Timen S; Bilateral massive cementifying/ossifying fibroma of the mid face: Report of a case and review of the literature, Accepted for publication, Oral Surg., Jan. 1989

IN PROGRESS:

Sundheimer R, Hauser MS: Total Maxillary Squamous Odontogenic Tumor: Report of a case and review of the literature.

Hauser MS: Orbital and Ocular Trauma in Peterson L. (Ed) Principles of Oral and Maxillofacial Surgery, L. B. Lippincott Co. Phila., in production

PRESENTATIONS:

1984-1986

Pharmacology in Implant Dentistry. American Academy of Implant Dentistry, Annual Meeting, Atlanta, Georgia, October 15, 1984.

Crisis in the Dental Office: Medical Emergencies. Continuing Education Emory University. (With Dr. L. Marra) November 16-17, 1984.

Pre-prosthetic Maxillofacial Surgery. Presented to Emory University Department of Graduate Prosthodontics, monthly seminar, April 17, 1985.

Introduction to Pediatric Office Surgery. Course instruction (wound repair techniques). Director, Gerald Zwiren, M.D., Henrietta Egleston Hospital for Children, Atlanta, Georgia, August 15,1985.

Repair of Orbito-ethmoidal Injuries. Mt. Sinai Medical Center, Cleveland, Ohio, June 26, 1986.

1987

Deep Neck Infections. Presented to attending dental and oral surgery staff at Mt. Sinai Medical Center, Cleveland, Ohio, March 17, 1987.

O.R.-Inservice, Mt. Sinai Medical Center, Neck Infections, April 30, 1987.

Maxillofacial Infections. Case Western Reserve University School of Medicine, General Surgery Clerkship Lecture Series, 4/87, 5/87, 6/87, 8/87, 10/87, 12/87.

Maxillofacial Bleeding. Case Western Reserve University School of Medicine, General Surgery Clerkship Lecture Series, 4/87, 6/87, 7/87, 10/87, 12/87.

Mandibular Reconstruction with Hyperbaric Oxygen, Mt. Sinai Medical Center Division of Dentistry Continuing Education, June 23, 1987.

Physical Diagnosis of the Abdomen, Extremities, Genitalia, Lecture to Division of Dentistry, July 24, 1987.

Current Trends in TMJ Surgery, Division of Dentistry Grand Rounds, Mt. Sinai Medical Center, Cleveland, Ohio, November 17, 1987.

Advances in Dentistry, Patient Education Series, Jewish Community Center, Cleveland, Ohio, December 9, 1987.

1988

Rigid Fixation in Orthognathic Surgery, Presented at Division of Dentistry Grand Rounds, Mt. Sinai Medical Center, Cleveland, Ohio, February 16, 1988.

Rigid Fixation in Orthognathic Surgery, Alpha Omega Education Day, Landerhaven, Pepper Pike, Ohio, March 16, 1988

Maxillofacial Infections, Department of Emergency Medicine, Mt. Sinai Medical Center, Cleveland, Ohio, March 17, 1988

Table Clinic, Orthognathic Surgery, North Coast Dental Meeting, Cleveland, Ohio, April 13, 1988

Maxillofacial Infection, Case Western Reserve University School of Medicine, General Surgery Clerkship Lecture Series, 3/88, 4/88, 6/88, 8/88

Maxillofacial Bleeding, Case Western Reserve University School of Medicine, General Surgery Clerkship Series, 3/88, 5/88, 7/88,

Maxillofacial Problems in Adolescents, Pediatric Grand Rounds, Mt. Sinai Medical Center, Cleveland, Ohio, April 15, 1988

Odontogenic and Sinus Infections, Cleveland Area Dental Study Group, Beachwood, Ohio, April 18, 1988

Microsurgical Repair of Mandibular and Lingual Nerve Injuries, Great Lakes Society of Oral and Maxillofacial Surgeons, Annual Meeting, Detroit, Mich., May 8, 1988

Nerve Injuries of the Mandible, Division of Dentistry Grand Rounds, Mt. Sinai Medical Center, Cleveland, Ohio, July 12, 1988.

Pre and Post-Operative Assessment and Care of the Oral Surgery Patient, Division of Oral and Maxillofacial Surgery, Mt. Sinai Medical Center, Cleveland, Ohio, July 6 & 8, 1988

Physical Examination of the Heart, Division of Oral and Maxillofacial Surgery, Mt. Sinai Medical Center, Cleveland, Ohio, July 18, 1988.

1989

Maxillofacial Infections, Case Western Reserve University School of Medicine, Surgical Clerkship Series, 3/89

Maxillofacial Bleeding, Case Western Reserve University School of Medicine, Surgical Clerkship Series, 4/89

PRESENTATIONS: Continued

Mandibular Nerve Injuries, North Coast Spring Meeting, Cleveland Dental Society, Cleveland, Ohio, April 5, 1989, (1.5 hours)

CONTINUING EDUCATION:

Microsurgical Laboratory, 1 month elective, University of Massachusetts Medical School, Worcester, Mass., March, 1983.

Oral Pathology Review Course. Emory University at Sea Island, Georgia, June 10-11, 1985. (10 hours)

AAOMS Annual Meeting, Washington, D.C., September 3-6, 1985. (30 hours)

1987

Implant Training Course, IMZ Implant System, Atlanta, Georgia, July 12-13, 1986. (8 hours)

AAOMS Annual Meeting, New Orleans, Louisiana, September 25-28, 1986. (30 hours)

TMJ Surgery, Dr. Martin Dunn, Case Western Reserve University, Cleveland, Ohio, February 3, 1987

Hyperbaric Oxygen in Oral and Maxillofacial Surgery, Drs. Hart, Mainous, Marx et al, Huron Road Hospital, Cleveland, Ohio, (8 hrs.CME)

Alveolar Cleft Grafting, Dr. Raymond Fonseca, Case Western Reserve School of Dentistry, Cleveland, Ohio, February 25, 1987. (2hours)

Anesthesia, Sedation Pain Control, Stanley Malamed, Alpha Omega Lecture Series, Celveland, Ohio, (6 hrs.), March 25, 1987.

OSOMS Annual Meeting, Toledo, Ohio, July 18-19, 1987, TMJ Therapy (8 hrs.) Dr. Mercuri.

OSDA Annual Meeting, July 17-18, Anesthesia Monitoring (7 hrs), Drs. Jay Anderson & David Donaldson.

Inplant Training-Integral (8 hrs.) Veterans Administration Medical Center, Brecksville, Ohio, Dr. Michael Block, Dr. Israel Finger, September 29, 1987.

AAOMS Annual Meeting, Anaheim, Cal., September 16-20, 1987 (32 hrs).

Risk Management Seminar, St. Paul AAOMS Plan (8 hrs) Anaheim, Cal., September 16, 1987.

Implant Prosthetics, Dr. Charles English, Mt. Sinai Medical Center, Cleveland, Ohio (8 hrs.) December 9, 1987.

CONTINUING EDUCATION: Continued

Diagnosis and Treatment of Difficult Bimaxillary Dentofacial Deformities, Drs. Albert Carlotti, Jr., David Precious, Raymond George, Case Western Reserve University, Cleveland, Ohio, December 11, 12, 1987. (12 hours)

Medical Grand Rounds, Mt. Sinai Medical Center, 5 hours in 1987

Pediatric Grand Rounds, Mt. Sinai Medical Center, 6 hours in 1987.

Division of Dentistry Grand Rounds, Mt. Sinai Medical Center, 48 hours in 1987

Oral and Maxillofacial Surgery Conferences, Mt. Sinai Medical Center, 72 hours in 1987.

Physicians' Role in AIDS Epidemic, Mt. Sinai Medical Center, September 2, 1987, (2 hours CME).

1988

Management of Soft Tissue Problems of the Head and Neck, Cleveland Clinic Foundation, Dr. Howard Levine (Laboratory instruction included.) February 4-6, 1988, (18 hours CME).

Costochondral Grafting to the TMJ, Dr. Bruce McIntosh, University Hospitals, Cleveland, Ohio, March 16, 1988, (3 hours).

Alpha Omega Education Day, Update in Dentistry, Oral and Maxillofacial Surgery Topics, Landerhaven, Pepper Pike, Ohio, March 16, 1988, (5 hours).

Nasal Surgery in Orthognathics, Dr. Raymond Fonseca, Case Western Reserve University, Cleveland, Ohio, March 17, 1988, (2 hours).

Great Lakes Society of Oral and Maxillofacial Surgeons, Annual Meeting May 7-9, 1988, Detroit Mich., (14 hours) Topics include oral pathology and surgical complications.

North East Ohio Society of Oral and Maxillofacial Surgeons Meeting. Resident presentation of Area O.M.S. Programs, Cleveland, Ohio, May 17, 1988 (2 hours).

Pain Symposium "88, Case Western Reserve University School of Medicine, Cleveland, Ohio, June 3, 1988 (7 hours CME).

A.A.O.M.S. Annual Meeting, Boston, MA, September 29-October 3, 1988 (36 hours).

Certified, Advanced Cardiac Life Support, Mt. Sinai Medical Center, Cleveland, Ohio, December 12-14, 1988, (16 hours CME).

CONTINUING EDUCATION: Continued

North Coast Dental Implant Study Club, Implant Reconstruction, Dr. Carl Misch, Cleveland, Ohio, December 7, 1988 (7 hours).

Division of Dentistry Grand Rounds, Mt. Sinai Medical Center, 44 hours in 1988.

Oral and Maxillofacial Surgery Conferences, Mt. Sinai Medical Center, 72 hours in 1988.

Case Western Reserve University, Medical Grand Rounds, Mt. Sinai Medical Center, 3 hours in 1988. (CME)

Case Western Reserve University Pediatric Grand Rounds, Mt. Sinai Medical Center, 4 hours in 1988. (CME)

1989

Lasers in Surgery, Lecture and Laboratory Instruction, Case Western Reserve University, School of Medicine, Department of Surgery, Dr. J. Crowe, April 6, 1989, (7 hours CME).

Case Western Reserve University, Medical Grand Rounds, Mt. Sinai Medical Center

Case Western Reserve University, Pediatric Grand Rounds, Mt. Sinai Medical Center

Division of Dentistry Grand Rounds, Mt. Sinai Medical Center

Oral and Maxillofacial Surgery Conferences, Mt. Sinai Medical Center

North East Ohio Society of Oral and Maxillofacial Surgeons Meeting, Resident Presentations, Independence, Ohio, March 29, 1989 (2 hours).

Volume one

Oral surgery

Kurt H. Thoma, D.M.D.

Dr.med.dent.h.c. (Zurich); F.D.S., R.C.S. (Eng.); Hon. F.D.S., R.C.S. (Edin.); F.A.C.D.

Professor of Oral Surgery, Emeritus, Boston University School of Graduate Dentistry; Professor of Oral Surgery, Emeritus, Harvard University; Brackett Professor of Oral Pathology, Emeritus, Harvard University, Boston, Mass.; Honorary Professor of San Carlos University, Guatemala; Honorary Surgeon, formerly Oral Surgeon and Chief of Dental Department, Massachusetts General Hospital, Boston, Mass.; Civilian Consultant in Oral Surgery and Oral Pathology to the Walter Reed Army Medical Center, Washington, D. C.; Consultant in Oral Surgery to the Chelsea Naval Hospital and to the Public Health Service Hospital, Boston, Mass.

With a chapter on general anesthesia by

James L. Vanderveen, M.D.

Clinical Professor of Anesthesiology, Boston University Medical School; Professor of Anesthesiology, Boston University School of Graduate Dentistry; Chief of Anesthesiology, Boston University Hospital, Boston, Mass.

Fifth edition

With 2,471 illustrations, including 427 in color

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Saint Louis 1969

ward and outward. Sometimes there are accessory foramina.

The injection is made by inserting the needle directly through the skin into the infraorbital foramen, which is easily palpated below the inferior border of the orbit. After it is advanced for about 1.5 cm., the piston of the syringe is drawn back to make sure that the needle has not been inserted into a blood vessel; then 1.5 ml. of solution is injected with even pressure. The area anesthetized is about the same as that affected by the intraoral method.

Palatine injection. This injection is made to block the anterior and accessory palatine nerves, which produces anesthesia of half of the soft and hard palates with the exception of the most anterior part. The injection is made at the junction of the alveolar and palatal processes. To effect anesthesia of the hard palate, a small amount of solution is used, about 0.25 ml., so that the soft palate remains unaffected since a numb soft palate is uncomfortable and often distresses the patient. If the hard and soft palates are to be anesthetized, 1 ml. or more is used so that the solution will reach the anterior, middle, and posterior palatal nerves (Fig. 1-6).

Sphenopalatine injection. The needle is advanced high up into the palatine canal through the anterior palatine foramen. Thus the sphenopalatine ganglion may be reached and, in some instances, the maxillary nerve in the sphenomaxillary fossa. The depth of insertion of the needle varies. Cook (1950) states that in the adult the site of the needle puncture to the sphenopalatine nerve in dry specimens is between 30 and 40 mm., with an average of 35 mm. To this must be added 4 to 7 mm. for the soft tissue overlying the foramen. However, this approach is not as safe as that already described for maxillary anesthesia since it is very easy to inject the solution into a blood vessel, and there is also danger of breaking the needle.

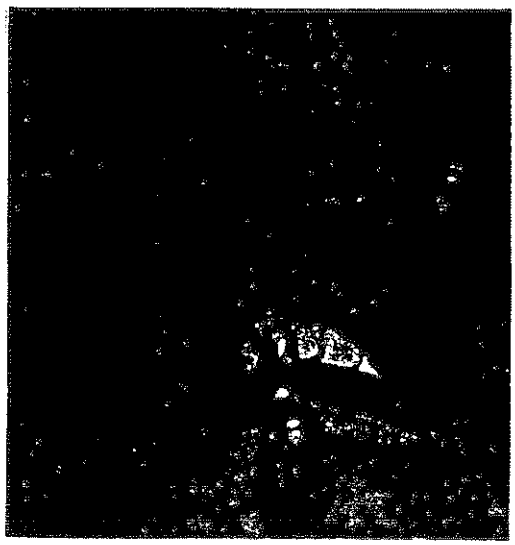

Fig. 14-11. Infraorbital injection, intraoral method.

Injection of the incisive foramen. This method is used to anesthetize the anterior part of the palate and palatal gingiva. In the incisive canal, a dental branch is also given off to the incisors, and for good anesthesia of these teeth the labial injection must be supplemented with an injection into the incisive foramen. The injection is not difficult since the foramen is usually large.

The needle is inserted in the median line, directly behind the central incisors. If the bone is followed, the needle will be conducted into the proper place. A few drops only are needed.

COMPLICATIONS

Complications may be due to the action of the drugs employed or to faulty technique. However, complications which are due to the operation itself must be carefully differentiated from those produced by the injection.

Accidents during injection. The breaking of a needle is an accident which may be caused by an unexpected movement of the patient and should be anticipated and guarded against. Bending the needle when it is inserted and the use of a defective or a too fine needle are other causes of breakage. The needle should not be inserted too close to the hub so that if it breaks it can be grasped with a hemostat, which should always be within reach.

When the needle is in the tissue and cannot be seen, removal should be delayed until extraoral x-ray films can be taken. These must be made in two planes to locate its position accurately. Furthermore, the removal of a needle should be performed by someone who has had experience in the procedure since otherwise undesirable trismus and even infection result and prevent an early successful operation. Blum (1928) reported 100 cases of needles broken during the administration of oral local anesthesia, and Dorrance (1929) wrote an article on the subject. A case de-

scribing the removal of a broken needle follows.

Case report—Broken needle in pterygomandibular region. M. G., a 20-year-old girl, came to the dental clinic stating that a needle had been broken off on the right.

Two days before admission, during the attempted administration of procaine for a right mandibular block, a needle was broken off by her local dentist. Two attempts had been made to remove it, one by the local surgeon who operated for 2 hours without finding it. X-ray examination showed the needle; apparently it had moved to the posterior limit of the pterygomandibular space (Fig. 14-12).

After the inflammatory reaction had subsided, the operation was performed under intratracheal nitrous oxide, oxygen, and ether anesthesia. A Kazanjian indicator (Fig. 14-13), which had previously been prepared by inserting a pointed metal wire into the tube of an Angle band, was attached to the right lower second molar. The point was introduced into the pterygomandibular space in the same manner as that used for making a mandibular block injection.

X-ray films were taken while the patient was on the operating table, first from the lateral (Fig. 14-14) and then from the anteroposterior aspect. These showed the indicator crossing the needle approximately in the middle.

An intraoral incision was then made along the anterior border of the ramus, and, by means of blunt scissor dissection, the pterygomandibular space was opened. A three-pronged tracheotomy dilator was inserted and opened (Fig. 14-15); it allowed dissection under direct vision. The indicator was located, after which it was easy to find the broken-off needle with a curved hemostat. When the needle came into view, it was grasped and removed.

The day after the operation the patient had little swelling. She was discharged on the second postoperative day.

Early complications. Complications occurring immediately after the injection must be watched for. They may be due to the action of the injected drug, or they may be of psychic origin. Four well-defined toxic reactions may be recognized.

Central nervous system stimulation. Stimulation may occur which makes the patient talkative and pugnacious and sometimes dizzy. The patient may be flushed and the blood pressure may be elevated with a rapid pulse. Muscular twitching may be evidenced, and nausea and vomiting may occur. The muscular twitching may progress to frank convulsions, asphyxia, and death.

Treatment is aimed at stopping the convulsions, and this may necessitate the administration of a barbiturate intravenously. Since this depresses the respiration, artificial respiration must be administered at once, and

Fig. 14-12. X-ray film showing broken-off needle far back in pterygomandibular space.

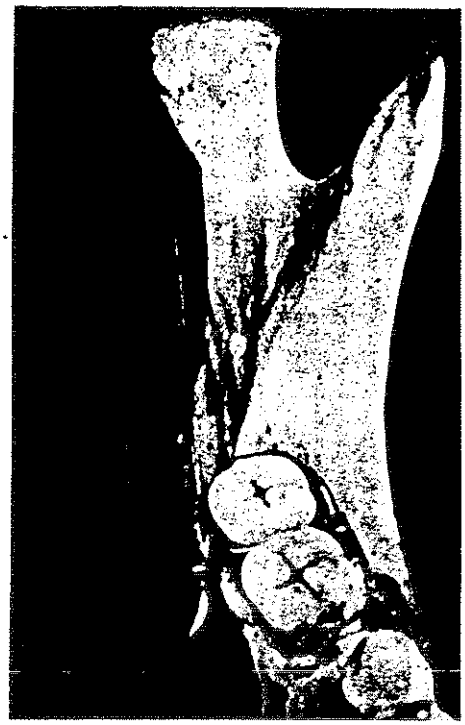

Fig. 14-13. Foreign body location. Kazanjian indicator applied to mandible.