IN THE CIRCUIT COURT OF COMMON PLEAS
CUYAHOGA COUNTY, OHIO

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WILLIE R. LUKERSON, SR., etc., :

Plaintiffs, :

v. : CASE NO. 433806

E. LUKE BOLD, M.D., :

Defendant. : Volume 1

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Baltimore, Maryland

Tuesday, May 7, 2002

Video/telephone deposition of WAYNE KOCH, M.D., a witness herein, called for examination by counsel for Defendant in the above-entitled matter, pursuant to notice, taken at Johns Hopkins Outpatient Center, Otolaryngology Department, 601 North Caroline Street, 6th Floor, Baltimore, Maryland, beginning at 11:13 a.m., before Cindy Davis Strohmaier, a stenotype reporter and Notary Public in and for the State of Maryland.

APPEARANCES:

On behalf of the Plaintiffs:

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On behalf of the Defendant:

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ALSO PRESENT:

Al Underwood, Videographer

C O N T E N T S

E X H I B I T S

EXHIBIT NO.	PAGE MARKED
(none)	

P R O C E E D I N G S

(11:13 a.m.)

THE VIDEOGRAPHER: This begins videotape No. 1 in the deposition of Dr. Wayne Koch in the matter of Willie R. Lukerson, Sr., etc., versus E. Luke Bold, M.D., in the Court of Common Pleas, Cuyahoga County, Ohio.

This is case No. 433806.

Today's date is May 7th, 2002. The time on the video monitor is 11:13 a.m. The video operator today is Al Underwood, employed by VideoAge in Washington, D.C. The court reporter is Cindy Strohmaier. This video deposition is taking place at Johns Hopkins Outpatient Center, 601 North Caroline Street, Baltimore, Maryland, and was noticed by Mark Frasure, representing the defendant.

Will counsel identify yourselves and state whom you represent.

MR. FRASURE: Mark Frasure, representing the defendant. Dale?

MR. ZUCKER: Dale Zucker, representing the plaintiff.

MR. FRASURE: Okay, all set?

COURT REPORTER: One second.

THE VIDEOGRAPHER: Will the court reporter swear in the witness.

MR. FRASURE: Doctor?

COURT REPORTER: One second. Let me swear in the witness.

MR. FRASURE: Okay.

Whereupon:

WAYNE KOCH, M.D.,

a witness, was called for examination by counsel for Defendant and, having been duly sworn, was examined and testified as follows:

EXAMINATION BY COUNSEL FOR DEFENDANTS

BY MR. FRASURE:

Q. Doctor, my name is Mark Frasure. I represent the defendant, Dr. Bold, here with my partner, Dirk Riemenschneider. I'm taking the deposition today because Mr. Riemenschneider is not available, I think. We have your CV and we have your report. Is there just the one written report, sir?

A. Yes.

Q. And that is dated June 28th of last year?

A. Correct.

Q. All right. Doctor, you're an otolaryngologist, is that correct?

A. That's right.

Q. I didn't hear you.

A. That's correct.

Q. And do you do this kind of surgery that was done here?

A. Yes, I do.

Q. How often -- roughly how many times would you say you've done that surgery?

A. I've done this sort of surgery two or three

times a month for the last 15 years.

Q. For the last how long?

A. Fifteen years.

Q. Okay. What's the surgery called? The correct name, if there is a name.

A. Well in general you would call it endoscopic sinus surgery. That's terminology that will allow you to do a number of different, specific procedures. As I understand it, Dr. Bold performed some specific things I could go through if you want to.

Q. All right. Have you had any complications from this surgery in the several hundred times you've done it?

A. Yes, I have.

Q. What kinds of complications have you had?

A. Occasionally -- two or three times I've had a small leak of cerebral spinal fluid from the upper -- part of the ethmoid cavity.

Q. Right.

A. I have had one patient who had transient or very short, limited double vision or diplopia. I think that's all.

Q. How did that resolve?

A. The diplopia resolved on its own in one day with medical therapy. The cerebral spinal fluid leaks that I have had were all recognized intraoperatively and

repaired by myself, so there were no problems afterwards.

Q. No -- nothing beyond just a few days?

A. Yes. They would have required an admission to the hospital and a day of bed rest beyond what they would have normally experienced.

Q. Have we covered all of your complications then for this surgery --

A. To the best of --

Q. -- leaks --

A. To the best of my recollection. I'm sorry.

Q. -- and the one patient with the double vision?

A. To the best of my recollection. Of course, every patient has some bleeding, and that would not be, I think, considered a complication. But there are minor things that may have gone on and have slipped my mind.

Q. Where is the bleeding from specifically? Does it always come from the same area or --

A. No. There are several arteries that enter the nose in specific areas, and then the nose has a wonderfully good blood supply from small vessels. And so you can have diffuse bleeding from the entire cavity.

Q. I take it this bleeding that you had has not come from any cranial arteries?

A. The cranial artery is not a term that I'm familiar with.

Q. Okay.

A. There are some intracranial vessels. The anterior and posterior ethmoid arteries, for example. And, yes, I'm sure I've had bleeding from those

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occasionally.

Q. What do you think bled here?

A. From the best that I can tell, it was probably the posterior ethmoid artery on the right side.

Q. Posterior ethmoid?

A. Ethmoid. It might have been the anterior ethmoid. It's a little difficult to piece it together from the records.

Q. And it was on the --

A. On the right side.

Q. Right side. Have you ever had bleeding from that artery?

A. Yes, I have had some bleeding from that artery.

MR. ZUCKER: Excuse me. This is Mr. Zucker. I'm just going to place an objection to the form of the question heretofore and the last question. That being said, go ahead, Doctor.

Q. Okay. You say you've had some bleeding from the artery that you think was involved here?

A. Yes.

Q. What do you think caused your bleeding?

22 A. Well some of the time when you do this

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operation, you're doing it because of a tumor in that area. It would be a slightly different reason. And then you might go to the upper extent of the ethmoid and nasal cavity to try to remove the tumor completely. That would be one situation.

I think at times you could, in an effort to find the entrance into the frontal sinus on the right side, get close to the anterior ethmoid artery. And there are, of course, branches off the artery, and you could inadvertently hurt or injure one of those.

Q. Is the anterior less dangerous to injure than the posterior artery?

A. I don't know that I'd say that.

Q. Okay. Well when you had some bleeding from that artery, the posterior ethmoid, were you dealing with a tumor during all those occasions?

A. I have been answering your questions the best I can in a somewhat hypothetical manner, and to get very specific, we'll start to stretch my ability to answer accurately. I would say --

Q. Because of your memory?

A. Well because some bleeding from these vessels

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or branches thereof is common to the procedure. Massive bleeding from any of these vessels -- if we step back three or four answers -- I would say I have never encountered. And so I don't have a specific memory of a specific case to tell you about.

Q. Okay, so you have not encountered massive bleeding?

A. Correct.

MR. ZUCKER: Mr. Zucker here. Continuing objection to the form of counsel's questions, each and every one of them so far in this deposition. That being said, Doctor, go ahead.

Q. Why do you think in this case the doctor encountered massive bleeding.

A. To the best of my understanding from reading the operative note and looking at the films, Dr. Bold was working in an area where the vessels are very close to the tissues that he was trying to remove. That being said specifically, from what I can tell he was in an area medial to the middle turbinate insertion at the cribriform plate. In that area the vessels are known to run, and it's a standard teaching not to go there

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surgically; especially in a case of benign nasal polyps. So I believe that he was working in an area where the vessels were known to be of concern and encountered an injury that was foreseeable.

Q. Are you saying that he should not have gone there to obtain a polyp that may have been there?

A. That's what I'm saying, yes.

Q. If it were a tumor, your point might be it's okay to try to get a tumor there?

A. If a tumor were in that area, because it's so high and close to the cribriform plate, it would not be appropriate to -- for him to approach that as a solo procedure by an otolaryngologist. What would be appropriate is to perform a combined procedure with an otolaryngologist and a neurosurgeon that would be called a craniofacial resection.

Q. Have you done that before, sir?

A. Yes, I have.

Q. And you've had the other surgeon with you?

A. Yes.

Q. Okay. How close is this to the Turkish saddle?

A. To the Turkish saddle. I'm afraid that's a

term I'm not familiar with.

Q. The sella turcica?

A. The sella turcica I'm familiar with. This is the anterior --

Q. The Turkish saddle. I had a case like that ten years ago.

A. Yeah.

Q. It was the Turkish saddle. That's why I --

A. I guess that's the English from the Latin.

Q. There you go.

A. Very good. And I'm not quick enough on my feet to pick it up. The sella turcica is a centimeter to two centimeters behind or posterior to this area.

Q. Do -- does this area sometimes have polyps there?

A. It certainly can, yes.

Q. So I take it you're not disputing that there may have been a polyp there. You're just saying he shouldn't have gone there to get a polyp.

A. Exactly.

Q. Okay. Because it's a very dangerous area?

A. That's right.

Q. Is it the most dangerous area in this general area we're talking about? Or are there some other ones that are equally dangerous?

A. I would say that the entire length of the cribriform plate, the roof of the nose medial to the

middle turbinate, from back to front, is roughly of equivalent danger.

Q. Are you saying that for polyps the otolaryngologist should not go at the cribriform plate area?

A. Correct.

Q. Okay. And you believe he did here?

A. Yes.

Q. Okay, I follow you. What do you tell your patients, Dr. Koch, when you're doing a surgery like Dr. Bold was doing for polyps? And I take it you've done it for polyps, right?

A. That's correct.

Q. What do you tell your patients beforehand the risks are for their informed consent?

A. I go through a standard listing of bleeding, infection, and anesthesia complications. I will expand

on those and describe how much bleeding. I'll talk about the likely necessity or lack of necessity for a transfusion. I talk about infection and what types of infection. I would consider including meningitis. And I talk about anesthesia complications, which would include heart attack and stroke, and permits me to then tell the patient also that, of course, someone might die during a surgical procedure, although that is rare.

Then I would talk about two specific problems with sinus surgery. One would be an injury to the skull base or this area where there could be cerebrospinal fluid leak or bleeding. And I would talk about vision disturbance. And then I would expand on that and say vision disturbance; could be double vision or even loss of vision.

Then I would talk about the likelihood of the surgery to accomplish the goals. And in a polyp surgery like this one, I would emphasize that if there is improvement in nasal airway, it would be only temporary. Most likely the polyps will grow back and the problem will recur.

Q. Okay.

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A. I think that's the gist of what I would say.

Q. Is the potential for visual disturbance due to the optic chiasm being involved or being in that area?

A. The optic chiasm is not exactly in the area. So, no, that's not what I would mean.

Q. Then what is the mechanism for possibly causing visual disturbance with this kind of surgery?

A. There are several. If you go through the sidewall of the sinus, the lateral wall of the sinus, you will enter the globe -- or not the globe; the orbit. And around the eye itself, the globe, are muscles that move

the eye, and if you injure those, you'll get double vision.

There have been reports of blindness after sinus surgery. Some of those are hard to determine what the cause was. Injection of local anesthesia has been blamed. The optic nerve itself runs directly under the surface of the sidewall of the sphenoid sinus. Generally one doesn't go near the sidewall of the sphenoid sinus in these surgeries. So unless I was going to that area, I wouldn't make a major point of that potential.

So there are several ways that the eye -- also

another one would be bleeding into the orbit with increased pressure in the tissues around the eye, causing a tightening or tension on the optic nerve. All of these things can cause vision disturbance.

Q. Can we agree that there are indications or reasons for doing the surgery here?

A. That's a point that I would need to make some caveats and discussion about. I think that this -- I'll cut to the chase. I think the surgery was of questionable wisdom.

Q. Because why? The risk benefit?

A. I have three sort of categories that I'd say that on. The first is the nature of this particular patient's disease; that is chronic sinusitis with massive

polyps. And I can talk more about that if you wish.

The second is the patient's underlying medical problems and, therefore, the general risk to her health.

A third reason would be the -- more generally the proper treatment of this kind of sinus problem in the setting of asthma and so on.

Q. Okay. Let's go -- would you go through each, please. The first one --

A. Sure.

Q. -- being the nature of this disease that this patient had.

A. Well in this particular patient, my understanding is that she was a patient on hemodialysis with endstage renal disease and asthma, and that through the course of at least two years, which is all I can find in the records I was sent, she had had two episodes of breathing problems -- the one that resulted in her hospitalization and this particular surgery -- and another one approximately 18 months earlier, in October of 1999.

And what I mean to say there is that although the emergency room record from when she was admitted and, I think, one of the renal doctors said that she had acute sinusitis -- actually Dr. Bold correctly said she had chronic sinusitis -- and the treatment for her sinusitis,

which in Dr. Bold's deposition he said he had outlined in 1999, that being medical therapy, had been working reasonably well. So although this woman occasionally had shortness of breath, she had not required surgery for almost two years and had exactly the same or -- as best

we can tell -- exactly the same nasal condition during that time.

So it raises me to wonder why medical therapy was not used again in this case. And, in fact, it was used again. And on the morning -- while her coumadin level was decreasing so that her bleeding time was improving, her breathing condition got better. So that the renal note from the morning of her surgery said she was back to her old self or something like that.

Q. Due to what therapy?

A. Due to her -- I think she had gotten steroids and antibiotics during the couple of days that she was being withdrawn from her anticoagulant.

Q. But wouldn't continuation of the steroids for treatment of the disease pose problems too?

A. Oh, there's no question this was a very difficult person to manage. I think my point is only that she had been managed medically for two years. And this exacerbation or severe worsening of her breathing, in some places in the chart was described as being due to

perhaps anxiety. And so here's a person that at least -- I don't think this is a major point -- but at least you

would have to ask yourself, did she need surgery?

The second issue is her comorbidity, a big word that I mean to imply all the other things that were wrong with her.

Q. I understand.

A. And her cardiac disease -- I'm not a cardiologist, but the notes would imply that she was a very delicate patient from a heart perspective. She certainly was from a renal and, therefore, electrolyte balance perspective. She'd just been on coumadin. And although an appropriate response to an increased I&R was to wait a few days until that improved, there was still the issue of her possible problems with coagulation. And she was severe asthmatic. And she'd been on steroids. So all of these things made her, I think, a poor surgical candidate.

I would say that Dr. Bold recognized that. In some of his notes he said he would try to do this surgery with less than one hour of general anesthesia. I would assume or at least posit for discussion that he was saying that because people were concerned that she might not do well with a longer anesthetic. So her comorbidities made her

a poor candidate for surgery of any sort.

I do a fair amount of cancer surgery, and I wonder whether I would even have tried to do a cancer operation for this person where the risk and intensity of the need is higher. And so I think that to do this surgery was something that should have only been undertaken in real extreme circumstances.

And the third issue is that of chronic sinusitis and asthma. If you want to, I think, defend why this surgery should have been done, it is the linkage between nasal chronic sinusitis and worsening of asthma, which is well understood and -- or well agreed upon, not well understood, in our specialty and others who take care of these patients.

The problem is that the sinus surgery in those settings, I think, has a modest contribution and a temporary contribution to improvement in breathing. So that most patients that I've taken care of, who have undergone maybe even multiple sinus surgeries, still have difficult-to-manage asthma that flairs up. And in many cases that difficulty in managing the asthma is back again within a few months of the sinus surgery. In the

best case scenario people might get a year or two of improved asthma management from having their nasal polyps removed.

So this was a person who had been managed well, to summarize, for years without -- or at least managed adequately for years without surgery; was a poor risk, in general, for surgery; and the surgery only promised a modest and temporary improvement in her problem.

Q. Okay. Let me follow up on a few of those. You've covered a lot of area. Are the asthma and the chronic sinusitis related? I know that's a big term. Are they -- does one cause the other? Are they coming from the same cause?

A. Yes, this is -- I said it was not well understood. And I'm not -- I don't know that I'm the leading expert in this field. My understanding is that they are related in one of several ways. One is that there is a -- what's been called a sinonasal reflex, which means if your nose isn't clear, your breathing physiology is affected. And that may have to do with the kinds of pressures in the nasal cavity or lack of pressures in the nasal cavity when you're trying to

breath in or out and how that affects the lower airway.

The second way that they're related is probably an inherited tendency to have both conditions.

Q. I understand.

A. And so there are people who are sensitive to getting aspirin and having that make their problems worse in both their polyps and their lungs.

There is something called the immotile cilia syndrome, which is obviously an inherited problem. And we've -- at Hopkins some of the investigators -- other places as well, I'm sure -- have been doing studies that seem to indicate that some of these people may have a minor variant of cystic fibrosis. So that, again, genetic inherited tendency to have these problems.

Q. Are you saying that even if we can help her sinusitis, it's not going to really do much for the asthma, if any, and she's still going to have the asthma problems?

A. Well I think many people in the specialty would vigorously disagree with a statement made that strongly. There are patients who are helped significantly by having their sinus disease taken care of. For example, in the

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pediatric cystic fibrosis population, doing sinus surgery is a common way of helping the pulmonologist manage the breathing problems.

Q. Have you --

A. But -- I'm sorry. But in the adult with nasal polyps, because the nasal polyps tend to be back quickly, it's been my observation, and I think people would agree, that that's by no means guaranteed and in many, many cases the results are disappointing.

Q. Do you think that the patient's death resulted, at least in part, from her underlying comorbid medical problems?

A. It's very difficult to say with certainty. Any patient -- I'll make a general statement. Any -- or most complications of surgery are better tolerated by healthy people. And so, yes, I think it's possible that this person's demise was in part because she was in such poor general condition.

On the other hand, the damage that's visually seen on the CT scan is dramatic. Hematoma, air in the brain, and, you know, none of us were there to see what had gone on. But she succumbed very quickly. It was not a

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situation where the comorbidities had time to really have an effect. She was essentially brain dead by the tame they got her to the angiography suite.

Q. So you're saying a patient that was healthy from this injury still could have --

A. Possibly so. But if this was a death due to

comorbidity, I would expect to see someone lingering in the ICU, still alive but with sequential multisystem failure. First the kidneys go; she never gets off the ventilator; then the heart goes. That sort of thing.

That's not what happened here. This person died very quickly after an acute injury. So although it's difficult for me to say with 100 percent certainty that her comorbidities did not contribute to her death, it is my opinion that they, if anything, were of very minor contribution and that the cause of the death was the surgical injury.

Q. All right. Do you think, Doctor, it was within the standard of care -- not whether you would have done it necessarily -- but it was within -- was it within the standard of care to proceed with this surgery with the informed -- with the risks that he told her about and her

condition?

MR. ZUCKER: Do you understand that question, Doctor?

A. I do understand the question, and I'm going to say no and then explain why. The first thing I want to say in response to your question is I have not seen a written informed consent from this patient, and I would be very keen to see that. So I don't know --

Q. I don't know if there is a written one. He --

A. I don't know other than his --

Q. -- mentioned it in his deposition --

A. Right.

Q. -- where he discussed with her and/or her family, I think.

A. I saw that. But I do think it's a critical issue that if -- as some of the other experts that have written things stated in their writing, that death is a known complication of this operation. If that had been stated to this woman, you have a high risk of dying from this operation, or substantial or even a modest risk of dying, I wonder whether they would have consented to the surgery. And that question, I think, was not made as

blatantly clear in the deposition testimony as perhaps it should have been. And I would have liked to have seen it written down on a -- that's what we would do here at Johns Hopkins, and I think that's the standard of care.

The second reason --

Q. So even if you were contemplating the surgery, that there was a high risk of dying from the surgery?

A. You would need to tell your patient that. And there are surgeries where you would proceed, even under those conditions.

Q. Yeah.

A. But probably not this one.

Q. But when you mentioned the informed consent that you typically -- or risks that you typically give in your surgeries, you mentioned bleeding, infection. You didn't qualify those with saying, now there's a high risk of bleeding; there's a high risk of infection; there's a high risk that you're going to get in trouble.

A. Correct.

Q. But you're saying that -- that the minimum should have been done here?

A. No, no. I think that there should have been a

written informed consent, and that on the informed consent -- given this woman's debilities -- it should have included that death was a possible outcome.

Now the other reason that I will disagree with your statement was you said "this surgery." And by that I would interpret, instead of any nasal surgery, the specific surgery that Dr. Bold undertook, which to my understanding was a complete anterior and posterior ethmoidectomy with partial middle turbinate resection and with medial -- I'm sorry, maxillary antrostomies.

One could make a case for doing a nasal polypectomy to clear the nasal airway and a -- with that, of course, one would do a limited ethmoidectomy under those circumstances. That's the sort of surgery you might be able to finish in an hour safely. That's not what was

undertaken here.

Q. Have you ever done this surgery that was undertaken here, the more extensive type?

A. Yes. It's a standard procedure, yes.

Q. But it's questionable in this patient?

A. That's correct.

Q. Did the -- if he had done the more limited --

the major polypectomy that you mentioned -- surgery, would that have offered her much potential benefit?

A. Well that goes back to the question of whether any surgery was going to offer her benefit.

Q. I see.

A. I'm not sure that I understand or anyone understands well enough what the various interactions that we've just discussed between the nose and the breathing is. But I would at least consider whether opening the nasal passage by removing the polyps that are -- say from the middle turbinate downward and in the anterior ethmoids, would have been enough to buy the benefit that we were hoping for, a limited -- time-limited and amount-limited benefit of her breathing knowing that the polyps were going to come back.

But having said that, even if you did a full ethmoidectomy from posterior to anterior, you should not be doing anything medial to the middle turbinate. And

that's where the injury occurred and that's where the real problem lies.

Q. He went medial to the what?

A. Medial to the insertion of the middle turbinate

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at the roof of the nose.

Q. And you're saying that should never be done?

A. That's correct.

Q. Even on a patient without comorbid problems?

A. That's right. You leave polyps alone there.

Q. If he had gone in with the more -- well let's assume he has a patient of this age, no comorbid problems of any extent. We've changed the hypothetical on you. No comorbid problems but the same symptomatology. Would doing the more extensive surgery, but not going into the insertion of the middle turbinate, have been appropriate?

A. I believe so, yes.

Q. Now you did not mention that in your report, that the surgery should not have been done. Have you come to that conclusion since your report?

A. If it wasn't in the report, I assume I came to it since then. I've just reviewed all the records again, and so it's fresher in my mind now than my report is.

Q. Tell me, Doctor, if you would, what you have reviewed in total.

A. Okay. I have a binder that was provided to me

from Mr. Zucker that has a number of medical records.

It's got 16 parts to it.

Q. Okay.

A. Mostly hospital records from Meridia Euclid Hospital. I have copies of CT scans done on Mrs. Cooper before and after her surgery, and I could get the dates if you want them.

Q. That's fine.

A. And I have the depositions of David Blatt, M.D., and E. Luke Bold, M.D. And then I have some letters to Mr. Riemenschneider from three or four physicians. I can give you the names if you want them.

Q. No, that's fine.

A. And I have my report.

Q. Okay. Do you know any of those individuals listed in the reports to Mr. Riemenschneider?

A. No, I don't. I've heard of one of them. Michael Papsidero I think I've seen. And Richard Zarbo. I've seen both of those names, but I don't know them personally.

Q. Is there a recognized percentage of complication rate in the medical literature for this kind of surgery? And I know that we're talking about

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different complications. Let's say a bleeding --

A. I went to the literature when I first reviewed this case and did a PubMed search and came up with an article -- I can't remember which journal -- by David Kennedy, who is probably one of the most prominent people in the country doing this surgery. And it talked about intracranial complications of sinus surgery. I can come up with a reference if you want it.

Q. Was that recently?

A. Within the last decade. I think it was the mid-'90's.

Q. Okay.

A. And it would have been in one of the otolaryngology journals.

Q. Was that of any benefit to you?

A. I thought it was helpful in discussing the idea of whether this is a known complication. Because I, frankly, have struggled with the question of whether something being a known complication means that when it happens, there's been no negligence.

Q. Right.

A. And so one thing that that paper emphasized was

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the low frequency of major complications in these surgeries.

Now obviously people writing those papers are not writing them for legal purposes but for the purpose of -- usually being a proponent for a procedure that they like to do. And so -- and how good they are at doing it. And so they'll tend to -- if they have a bias -- want to keep those complications rates low.

But I think this paper was a sort of metananalysis looking at -- or it was from a survey; I don't remember which -- but looking at experiences across the country in a period of time. And the rate of all major complications from sinus surgery, if I remember correctly, was a half of a percent or less. And of those, you know, intracranial bleeding and emergent or rapid death was a very small percentage of a percentage.

So while the statement that this is a known complication is true from the point of view that any surgery may have death as a complication, it's certainly not such a major complication in terms of numbers that it would require you to tell people that, I think, as a special emphasis when you're discussing the surgery. If

it was, thousands of healthy people across the country having sinus surgery would think twice about having this

otherwise very safe operation. It's an unusual, rare complication.

Q. Have you written on this subject yourself, Doctor, this surgery?

A. No, I have not.

Q. You've got a lengthy CV and I wanted to ask you, do any of the references in this CV pertain directly to this subject matter?

A. Not that I'm aware of, no. I had written one article in a textbook, and I'd have to look at my CV again. I've written some articles about sinus surgery approaches, midfacial degloving, ethmoidectomy, but not for polyp disease. It didn't directly pertain.

Q. All right. Do you believe the correct instruments were used here? Just so I'm trying to narrow the various criticisms that you have.

A. Well Dr. Bold describes that he used almost exclusively a Takahashi forcep. Many people now would consider some kind of shaver instrument to be a more preferable instrument. He states in his deposition, I

believe, that he didn't have that available. In the absence of having that, a Takahashi is an acceptable instrument. It's a bit larger and, therefore, it can be used somewhat more aggressively than the instrument I might have chosen, which would be a Blakesley forcep.

But that's not a major issue.

Q. That's more of a surgeon's choice?

A. I think so. It's more how -- and he goes through this very nicely in his deposition -- it's more how you handle the instrument than what instrument you're using.

Q. Okay. My next question there was, was the method inappropriate? And I think you've already described that you believe the doctor went in an area that he should not have gone in.

A. Correct.

Q. So beyond that, is there anything wrong -- or besides that -- with the method, for lack of a better term?

A. Well he discusses -- I mean there are some issues around how he got there. Because you'd have to wonder. It's intriguing that on the other side, on the

left side, in his operative note he states that he stayed lateral to the middle turbinate, which is the right thing to do. And it's also intriguing he doesn't say that in the operative note for what happened on the right side.

Now he does, apparently routinely, trim the middle turbinates, and he describes how he did that and the method that he used sounded appropriate. He did state at one point that the middle turbinates were involved with

polyps. In other words, that they had, I would call, polypoid degeneration. And so as he was removing tissue from that area, I could imagine that it was difficult to know how much tissue he was removing and how delicately it could be removed. At any rate, the point of leaving at least some of the middle turbinate is that it is then the landmark to keep you out of the danger that was encountered here. And so removing any of the middle turbinate at least raises a question of what landmark was left to him and why he then ended up in a place that apparently he knew he didn't want to be.

The other issue that I have some trouble with is the timing -- and I've hinted at this before -- the timing of the surgery and the extent of what he hoped to accomplish

in that timing. Going into a surgery expecting to spend an hour or less under general anesthesia, and to do a complete front to back ethmoid with middle turbinate resection and maxillary antrostomies, and to do that in an hour means that you are moving very quickly. And I would believe that that was one of the precipitating factors to what happened here.

Q. All right. Was Dr. Bold's response to the bleeding and the complications that developed, was his response appropriate or within the standard of care?

A. Yes and no. I have some concern about the

absence of the step of taking a vasoconstrictive agent. I would use Otrivin on a cotton ball and placing it in the place of bleeding and holding gentle pressure there. That would be my very first maneuver under these circumstances, and I think that would be the standard teaching of what to do.

Q. Can you spell Otrivin for me, Doctor.

A. Spell which?

Q. The word, the substance.

A. Oh, Otrivin. O-t-r-i-v-i-n. But that's one of several. You could use Neo-Synephrine. Whatever you

have available for vasoconstriction, on a cotton ball, placed directly on the site of bleeding with gentle pressure held there. That is the only hope, I think, that his bipolar cautery, which apparently he tried next, could be effective. You need to slow or stop the bleeding, see where the vessel is bleeding from, and then cauterize the vessel directly.

So trying to use bipolar, I think, was fine as long as it was done with clear visualization of what he was going to cauterize. Without clear visualization, having penetrated the brain, as apparently -- at least according to Dr. Blatt he says he did -- he could be cauterizing brain tissue with a bipolar cautery in a pool of blood, that he can't see the vessel in. And that would be a

problem.

And then it's intriguing that he needs to call a neurosurgeon to think of using Avitene. Because Avitene would be my second step, and I would go straight to it, and every resident in our program would go straight to it and knows that it's the appropriate next step. The Avitene is a wonderful vasoconstricting -- or clotting assistant, and to get it up there will stop most bleeding

relatively quickly. But he had to stop and make a phone call to get that idea, and during the time of the phone call, the bleeding is going on and on. So getting a consultant is never the wrong thing to do, but I think the critical moments were those first couple of minutes before the phone call was even made. And I have some doubt that he responded in a way that was adequate.

Q. Well he mentioned, I think in his deposition, that he had a good view.

A. Okay. He's the only one who was there, so he's the only one that can tell us that.

Q. Let's assume he had a good view after the complication developed. Did he use Otrivin or something similar?

A. He doesn't mention it. So -- it was not asked of him at deposition and I don't know. But the fact that it's not there and yet other things are there in detail,

I would assume means he did not.

Q. What's your understanding of what he did use, besides the cautery?

A. That's the only thing I could see. He tried to control the bleeding with bipolar cautery.

Q. Oh, I see. Are you saying the standard of care requires, before using cautery, some type of substance like the Otrivin or Neo-Synephrine?

A. The standard of care would require that, if you're going to use a bipolar cautery, you can see the point bleeding; especially in this area where you're right at the brain. And otherwise the cautery has no hope of working. So the only way I know of, the best way I know of to see the point bleeding is to control it with medicine application first.

Q. Now you mentioned he called the neurosurgeon and the neurosurgeon suggested using a --

A. Avitene and gelfoam.

Q. And it's your understanding he did use that then, correct?

A. That's right. And, in fact, he --

Q. Now is that acceptable to use in place of the Otrivin-type substance?

A. It's a -- it's a fall-back position. It's not used for the same purpose. Once you apply the Avitene,

you obscure your view of the area, and you commit yourself to controlling the bleeding only by packing.

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And here we've got a situation where you can pack from below, but because a craniofacial resection was not being done, you have no way of controlling how much bleeding is going on above. And so hematoma could continue to form into the cranial cavity, even though there was no visible bleeding from below.

Q. Doctor, to cut to the chase on this part, do you think that what Dr. Bold did or did not do in his use of the various agents in response to the bleeding, do you think that that was a factor in the outcome here?

A. I think it was a factor. I cannot tell how much injury to the brain occurred with the first thing that happened. You know, the pulling away of the polyp with the bone attached and the vessel next to it, or penetrating into the brain, as one statement made in, again, Dr. Blatt's deposition. I don't know how much damage happened then. But I would believe that it would be difficult to cause enough damage with a single maneuver to cause death. Instead what happened was bleeding continued and a hematoma formed and caused increased intracranial pressure, I believe. So, yes, the moments of trying to stop the bleeding and the inability

to stop the bleeding were critical and contributed to her death.

Q. Do you think his efforts at stopping the bleeding were within the standard of care?

A. I believe I've said that I do not think that they were within standard of care clearly by saying that a vasoconstrictive agent should have been applied and so on.

Q. How do you spell that Avitene?

A. A-v-i-t-e-n-e.

Q. Okay. That's not a vasoconstrictive agent?

A. No. That's a -- it's collagen material that gives blood -- I don't know exactly what the pharmacology is, but it gives the blood a matrix or a beginning of clotting.

Q. All right. A few more questions. Did her -- we talked about the patient's underlying medical condition, Dr. Koch.

A. Um-hmm.

Q. The comorbidity, and I think we're in agreement that it was a significant underlying condition. Did her underlying condition create any weakening or dehiscence

of any of her bones in the nasal cavity?

A. I believe that it may have -- I believe that she may have had thinning of the bone, perhaps due to her underlying medical problems; perhaps due only to her chronic sinusitis and nasal polyps. I did not see, nor did the radiologist see, and so, therefore, I believe there was no dehiscence. Nor do I think there was an encephalocele.

Q. Is dehiscence different from thinning?

A. Dehiscence would imply to me a complete absence of bone material.

Q. But you say she may have had thinning but not dehiscence.

A. That's correct.

Q. Does thinning of the bone increase her chances of this complication?

A. I think it does in that I think if you know a person has thin bone, one, a surgeon would take increased caution and care in working around that bone. But if a surgeon takes that increased caution and care, it should be possible to do surgery in this area safely, even with thin bone.

Q. Can polyps be attached to bone in this area?

A. Well the polyps arise from the mucus membrane, and mucus membrane is loosely attached to bone. It can be removed from the bone relatively delicately if it's done under direct vision with small motions and appropriate instruments. It is attached enough to the bone that if you took a large polyp up in this medial superior nasal cavity and pulled on it vigorously, you might get pieces of bone to come off.

Q. And then if you get pieces of bone, does that then potentially lead to getting into the cranial cavity and then bleeding ensues?

A. Well in this area the arteries that we talked about at the beginning of the deposition might be outside of the bone. In other words, in the nasal cavity directly under the mucosa. So when you're pulling away polyps, if you go up and get an instrument right on that area and pull at the branches of the vessel, you could have bleeding without going through bone at all from those vessels. Now after you get above those vessels and go into the bone, the next material that you ought to find is dura, the coating around the brain cavity.

♀

Q. Did he get into that area?

A. Yes, he had to. So in the cribriform plate, the dura is thinned and there are sleeves of dura coming

into the nose along with olfactory or nasal smell fibers. And so it's easy to create a leakage of cerebral spinal fluid by penetrating dura in that area. Once you get into the meningeal space, then there are vessels, veins and arteries of the -- outside of the brain itself. And there was discussion between Dr. Blatt and Dr. Bold and others in the things I've read about whether this might be the middle cerebral artery that was bleeding or some of the sinus -- in this case blood sinuses we're talking about -- in the area that were bleeding. So it's possible that the bleeding came from an intracranial vessel as well.

Q. What is the proof, in your opinion, that he did get into the dura?

A. The postoperative CT scan shows clearly a large -- it's a limited scan because it's only in an axial view. But it shows a large process going on that includes a lot of soft tissue, probably blood clot, in the nose. And then as you look at higher and higher

views, blood clot again in a space where the frontal lobes ought to be and air in a space -- in that same space where the frontal lobes ought to be. And so the only place that air could have come from is from the nose. And the blood, again in both the nasal and the cranial portions, is identical in size and shape. And so

it was all one chamber there. There was apparently a large piece of the cribriform plate removed.

Also, Dr. Blatt's deposition testimony about the conversation that was held between Dr. Bold and Dr. Blatt immediately in the operating room, I believe -- I'd have to look and read the quotes -- said that the first thing that Dr. Bold told him was that he had penetrated the skull base and penetrated the brain. So I think Dr. Bold knew he had gone through the cribriform plate into the brain cavity.

Q. So you're saying that if, in fact, he did go through, that that in and of itself is negligence?

A. The negligence is built on a series of events. And so being in the wrong place, moving too quickly and, therefore, apparently with too much vigor, created an injury that should not have happened.

Now you could certainly, in this guise of injuries, happen and -- you know, I could imagine doing this surgery and the nurse that's standing next to me bumps my elbow and my instrument goes into the brain. That's not negligence. And that kind of bad thing could happen. I could slip and fall down, or the patient could wake up and move.

But being lost in the wrong place, acting too aggressively and causing an injury that's a -- in a place

that is warned of in textbooks -- don't go there -- is, I believe, negligence.

Q. Dr. Bold also said that he -- excuse me, you say in your report, correct me, that you saw no signs or symptoms of disruption of bone?

A. That's correct. On the preoperative CT scan.

Q. Okay. Does that condition always show on a preoperative CT?

A. Well the CT scan is the best we've got in terms of visualizing this. So again, Dr. Blatt gives a nice comment in his deposition that says, "To see this well, you need thin slice CT scan in a coronal plane." That's what we've got; they're three millimeter slices, coronal

plane. And in every view, there's bone where it's supposed to be -- between the eye and the sinus and between the brain and the sinus.

So your question was, do I think it always shows up? There may be very, very small areas where there's an absence of bone that wouldn't show up because the resolution of the CT scan is only measured in tenths of millimeters and millimeters and so on. But for all practical purposes, any dehiscence that I've ever seen would show up, and people would use exactly this kind of study to determine whether there was a dehiscence and there was none.

Q. Can polyps cause thinning and devascularization of bone?

A. Thinning, yes. I don't know about devascularization. The bone in this area gets all its blood supply from the periosteum, and so that's still there. They're still going to have blood supply to the bone.

Q. Well in summary on this, Dr. Koch, do you reject the argument that unusual thinning of her bones here contributed to the complication?

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A. Yes, I do. I do think that if she'd had very thick bone here, you could have come in with very inappropriately aggressive maneuvers and not caused an injury. But standard of care would require that a skilled surgeon recognize the risk, stay out of the areas of known danger, and behave very delicately. And that did not happen.

Q. Dr. Bold testified in his deposition, I think at page 31, that he found some obliteration of the ethmoid bone and of some obliteration of the turbinates between the polyps. A, do you think that -- do you quarrel with whether he found that or not?

A. No. Polyps -- see there's bone between all the sinus cavities, and then there's bone that is around the sinus cavities. And polyps do tend to cause a loss of

bone substance in the walls between the various sinus chambers. So it is a common thing, when you have somebody that's had large nasal polyps like this, to go in and find very little internal structure of the sinuses.

Q. But you don't think that contributed to the outcome here?

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A. I do not.

Q. And Dr. Bold also said, I believe, he saw generalized thinning of the bone on the CT. Do you disagree with that?

A. I wouldn't have characterized it in that way. So I don't think it's a major point of disagreement. There may have been a little bit of thinning of the bone.

Q. I think he also mentioned that the interface -- and I'm trying to quote this -- the interface between the polyps and the bone was very close. Do you know -- do you understand what he means by that?

A. Well there were polyps all the way up to the outside edges of the sinus cavities.

Q. As he describes the amount and type of polyps that she had, is that something quite extensive in the range of people that have polyps in the nose?

A. I've seen people whose polyps come out the front of their nose, but this was just one step before

that. It was fairly extensive polyp disease from what I can tell.

Q. And you've operated on patients like this with extensive polyp disease? I don't mean her comorbid

condition.

A. Yes, I have.

Q. You may have -- I think we've covered some of this. Is the cribriform area and the ethmoid area always a danger zone? Is that what you're saying?

A. Well the ethmoid is lateral to the middle turbinate.

Q. Okay.

A. And the bone there tends to be thicker. It also is a little higher than where the cribriform is. And where these vessels that we've talked about -- the anterior and posterior ethmoid arteries -- come through into the ethmoid, the bone becomes thin. So on the medial or middle side of the ethmoid roof, even though you are medial to -- or, I'm sorry, lateral to the middle turbinate, there is an area that is thin that you need to be careful of. But the cribriform is the thinnest and most in danger.

Q. Right. What is a turbinate exactly?

A. Turbinates are the normal tissues that protrude from the sidewall of the nose. There are at least three

of them -- inferior, middle, superior -- on each side.

They are usually a thin plate of sort of curved bone with mobile -- or I'm sorry, mucus membrane that is -- we call it erectile tissue. It's got big vascular channels, and so the tissue can become swollen and engorged or very thin, depending on a variety of outside stimulants, and that's what gives you stuffy noses or not. It's what warms and humidifies the air you breathe.

Q. Okay. How much, Doctor, medical-legal review do you do?

A. I review roughly four to six cases a year. And I've done it only for three years or four years now.

Q. And by review, just so we're clear, you getting some records in and an attorney for either side saying, "Doctor, I'd like you to look at this and see what you think"?

A. That's right.

Q. Okay. Four to six per year for about three years.

A. That's right.

Q. What's been the percentage rough breakdown between plaintiff versus defendant on the review?

A. It's roughly 50/50.

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Q. Are you listed, to your knowledge, with any type of service or booking agency or whatever you call it?

A. Not that I'm aware of.

Q. How did you get this case, Dr. Koch?

A. You know, I'm not sure. People call Johns Hopkins because of the name recognition, and I guess we're far enough away from Cleveland. And I, at the time that this case came in, was the major person doing sinus surgery, so whoever got the call first said, oh, you should talk to Dr. Koch.

Q. Have you worked with this attorney before?

A. You know, I may have reviewed one other case for Mr. Zucker several years ago. So maybe that is how we got together. I'd have to go back and look.

Q. Do you recall reviewing any other cases for any other members of his firm?

A. No.

Q. Okay. Other than the one article that you mentioned, have you done any other research involved in this case?

A. Well I looked at the textbook of

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"Otolaryngology Head and Neck Surgery" that our chairman, Charles Cummings is the senior editor on, and found a chapter that nicely describes this area in the middle of the roof of the nose and its danger. That only to confirm what I've been taught all through my training and what I teach people now, and that is to stay away from the area.

Q. What's the name of the textbook that you mentioned?

A. It's called "Otolaryngology Head and Neck Surgery." It's a four-volume text. The lead editor is Charles Cummings.

Q. C-u-m-m-i-n-g-s?

A. That's right. And the chapter I looked at is written by a Dr. Terrell, T-e-r-r-e-l-l, and it's something about sinus surgery. I could find it --

Q. Do you do more sinus surgery than any of the other E&T doctors there at Johns Hopkins or --

A. I did until last year when we brought in a young man who is focusing on that as his main career focus.

Q. What percentage of your surgery is sinus

surgery, would you say?

A. About a third. I'm a head-and-neck cancer

surgeon, and so a fair amount of what I do is that. But I do sinus surgery frequently.

Q. Just give me a couple more minutes --

A. Sure.

Q. -- to look at my notes; we may be done. Would you agree that the patient did have extensive nasal sinus disease?

A. Yes.

Q. I believe Dr. Bold mentioned in his deposition that sometimes the boundaries between the paranasal sinus and the cranial cavity cannot always be identified because of disease lying on top of the bone. Does that make sense to you? Do you understand what I'm saying or he's saying?

A. Yeah, I think I understand it from a practical point of view. You want me to comment on it?

Q. Yes, please.

A. If you have to go there, you would want to go there with extreme caution. Meaning be very delicate; stop if there's any bleeding; have neurosurgery know that

you're up there -- I do this for tumors sometimes.

The tissue is like the inside of an egg, and so there is a membrane -- a thin membrane in a healthy person. It's thickened and becomes a polyp in this kind of a situation. Which like the membrane inside an egg,

you can peel away if you're very careful. And the bone is about the thickness of a thin egg. And again, you can peel the outside, the sinus side tissue away. Then you can take an instrument and very delicately chip pieces of the bone away, and all of that without injuring the next tissue out, which would be the tough tissue around the brain or the tough tissue around the eye. So you can find that boundary and dissect it if you're very careful.

On the other hand, in a case like this one, the best thing would be not to go anywhere near it; not to try to identify it.

Q. Because of the risk?

A. Because of the risk to it, yeah. And so in a practical sense, it probably was wise not to try to identify precisely the bone at the roof of the nose. On the other hand, you have to stay away from the area then and know where you are with relationship to it. So even

though you haven't identified it directly, you got to stay away from it. So it means -- I guess it depends on what you mean by identify.

Q. Dr. Bold also mentioned that he tested for stability of bone by pressing gently. Is that --

A. That's fine.

Q. -- how one tests for stability?

A. That's an acceptable way, yes.

Q. He also said at page 74 that when he pulled or grasped the polyp, I guess the one in question, and uncovered -- he uncovered the dehiscent bone and there appeared to be a defect in the dura. Do you disagree with that characterization?

A. Yeah, I think I disagree with the characterization. The whole discussion in the latter part of his deposition is appropriate language about being delicate and careful. And the logical problem I have with it is a major injury occurred that would not have occurred, I believe, had this approach been taken the way it's described here. And so I'm not sure how to rectify those things except that the facts say at some point the description that he gives is not what happened.

Q. Do you think there was not a defect in the dura? A preexisting defect?

A. The only defect in this area would have been the small sheathes or sleeves that come in along with olfactory nerves. And so this is an area where it would be easy to tear dura when you're pulling the bone away. And so there may have been a defect in the dura but not a preexisting defect in the dura.

Q. He also went on to say that the dura was likely tethered to the underside of the bone that came with the polyp.

A. Yes. It's very closely associated with that bone.

Q. Is your point again though that he should not have been there?

A. Shouldn't have been there. When a neurosurgeon elevates the frontal lobes in a craniofacial resection, he takes 15, 20 minutes to elevate the dura away from the cribriform plate very, very carefully. And then he still has to put stitches in there to stop the CSF leak. So, yeah, the dura is tightly adherent to the cribriform plate.

Q. Are you saying that he should not have been up in that area?

A. That's right.

Q. Okay. I'm sorry. All right, Doctor, I think -- do you think we've covered all of your standard of care opinions here?

A. I believe we've covered all the broad categories, yes.

Q. Okay. That's all I have then. Thank you.

MR. ZUCKER: Thank you, counselor. Doctor, you have the right to review the transcript for errors of any sort and to list those. I would suggest that you avail yourself of that right.

THE WITNESS: Yeah, I'd like to do that. Yes.

MR. ZUCKER: Okay. Court Reporter, you'll send that directly to the doctor then?

COURT REPORTER: Yes, I will.

MR. ZUCKER: Very good. All right, Doctor, I thank you for your time. Counselor, thank you.

MR. FRASURE: All right. Thank you very much. And we'll waive the 7-day requirement or whatever if he needs more time to read.

MR. ZUCKER: I appreciate that.

THE WITNESS: Thank you.

MR. FRASURE: Thank you, sir.

THE WITNESS: Good-bye.

MR. FRASURE: Bye-bye.

THE VIDEOGRAPHER: This marks the end of tape No. 1 of 1 in the deposition of Dr. Wayne Koch. The time is 12:24:47. We are off the record.

(Whereupon, at 12:24 p.m., the taking of the deposition concluded.)

CERTIFICATE OF DEPONENT

I hereby certify that I have read the foregoing pages of my deposition testimony in this proceeding, and with the exception of changes and/or corrections, if any, find them to be a true and correct transcription thereof.

_____

Deponent

_____

Date

NOTARY PUBLIC

Subscribed and sworn to before me this _____ day of _____, 20___.

UNITED STATES OF AMERICA)
STATE OF MARYLAND)

I, Cindy Davis Strohmaier, the reporter before whom the foregoing deposition was taken, do hereby certify that the witness whose testimony appears in said deposition was sworn by me; that the testimony of the witness was taken by me in machine shorthand and thereafter transcribed at my direction; that said deposition is a true record of the testimony given by said witness; that I am neither counsel for, related to, nor employed by any party to the action in which this deposition was taken; and, further, that I am not a relative or employee of any attorney or counsel employed by any party hereto, or financially or otherwise interested in the outcome of this action.

_____
Cindy Davis Strohmaier,
Notary Public in and for
State of Maryland
My Commission expires June 7, 2004.