APPEARANCES:

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I N D E X

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Whereupon,

MARK LUCIANO, M.D

who, being first duly sworn, testified as follows:

CROSS-EXAMINATION

BY MR. TSAROUHAS:

Q Dr. Luciano, my name is Tony Tsarouhas I represent the Plaintiff here in this case. Could you please state your full name for the Record?

A. ark Gregory Luciano.

Q Dr. Luciano, have you given a deposition before?

A. Once, yes

Q What kind of case did you give a deposition in?

A. It was a case as a resident at University of Pennsylvania and it involved a pituitary tumor dissection. I was not specifically named

Q I expect there was a lawsuit involved because of medical care?

A. Because of the surgical hemorrhage at that time.

Q You were a resident?

A. I was a resident, yes

Q How long ago was that?

A I guess it was -- It was my chief year, so '85, something like that.

Q. And you haven't given any depositions since for any reason?
A. No.
Q. And you probably already know this, I'm sure Mr. Murphy has already gone over it with you, but as far as for the purpose of this deposition you have to verbalize all of your responses.
A. Okay.
Q. Because the court reporter has to take it down and 1 promised the court reporter that I would speak a little bit slower so she could take everything down accurately.

If you don't understand a question, please let me know, because we don't want you answering a question that you're not sure of or you didn't understand. Is that fair enough?
A. Okay.
Q. You'll let me know that and I'll fix the question?
A. Yes.
Q. What have you reviewed in preparation of this deposition?
A. I reviewed the patient chart and I guess the medical records with tabs.

MR. MURPHY: This is a Xerox copy that

I put together.

MR. TSAROUHAS: That's fine.

Q. Other than the chart, have you reviewed any kind of summaries, notes or anything?

A. There are notes after my care that are included in the summary.

MR. TSAROUHAS: I guess actually let me just take a look here --

MR. MURPHY: Sure.

MR. TSAROUHAS: -- if you don't mind.

MR. MURPHY: No. I think those are what you had sent me with Dr. Ruch and Dr. Mars.

BY MR. TSAROUHAS:

Q. So you've had an opportunity to review essentially the Cleveland Clinic records from like December of '96 through to perhaps present?

A. Uh-huh. There even are some from '92, *yes.*

Q. You reviewed the notes of Dr. Harold Mars?

A. Yes.

Q. And Dr. Ruch?

A. Yes.

Q. All right. And I take it you probably reviewed some notes from Dr. Sahgal's office?

A. Yes.

Q. Do you know Dr. --

A. I could not read them, but I did look at them, yes.
Q. We couldn't either
A. The reason I hesitated with Dr. Mars, I could not read that either.
Q. Okay. Have you reviewed the radiology films in this case?
A. Yes.
Q. When did you last review those?
A. Oh, I think more than six months ago.
Q. So you haven't reviewed them recently?
A. No. Not in the last few days or weeks, no.
Q. Have you taken any notes in this case, made any independent notes other than what is in the medical chart, just notes that are outside of this chart?
A. No.
Q. Okay. And have you reviewed any summaries outside of the medical record; in other words, like medical summaries involving this case?
A. No.
Q. Do you have an independent recollection of Linda Cimino outside of the medical record?
A. Yes. Yes, I do.
Q. And you understand what I mean by that question,

that outside of this record, whatever has been reduced to writing in this record, whether you have independent memory of either, you know, events that you had with her or spoke to her, those type of things?

A. Yes. I can't say that I have independent recollection of all events and all things, but I do remember.

Q. Can you share with me what you do recall?

A. I remember her presentation with the suffering, I remember her demeanor, I remember her complaints of pain afterwards. I mean, I just remember little snips, that sort of thing.

Q. With regard to any specific discussions that you may have had with her, do you recall any of those?

A. With independent recollection I would have to say no. I mean, I recall them when I see the chart and I see the notes, but --

Q. But outside of that you don't recall any specifics of any conversation whether, you know, in substance or generally what you may have spoken about? I understand that you may not recall verbatim what you said to her or what she said to you.

A. I can't picture the scenes in my head, if that is what you mean.
Q. You indicated that you recalled I think her presentation and I didn't catch that last part. It was the first thing that you said you recalled, presentation of her as a patient prior to the surgery or her presentation with pain. I can't remember what you said.
A. Yes, with the pain, with the headaches.
Q. All right. Was this before the surgery?
A. Yes.
Q. What do you recall about that?
A. I just recall her talking about her headaches, I recall discussing the pseudotumor and I just recall her appearance basically, the rudiments.
Q. What do you recall about her demeanor?
A. Because pseudotumor is often associated with weight, I recall that because I particularly attended to that, and her dark hair. I just remember her.
Q. Now, you indicated you had some recollection of her complaints of pain. Was that postoperatively or again preoperatively? You gave me three things, that's why.
A. I do recall her complaining of right leg pain.

Q. And that was after the surgery?
A. Yes.
Q. Do you recall the nature of the leg pain or what complaints were made specifically?
A. You mean by independent recall?
Q. Independent recall.
A. No.
Q. I guess just as a brief overview, what do you believe or what is your understanding of, you know, the facts in this case from your initial visit with Linda Cimino all the way until you finished treating with her or she finished treating with you?
A. Do you want me to give a review of everything?
Q. Just a brief overview of what is your understanding of what happened.
A. That she had a course from 1992 of severe headaches -- well, even longer with severe headaches, since I believe her teens and early years of severe headaches. Since 1992 she had progressive problems with progressive headaches, but also more importantly blackout spells with loss of vision totally, sometimes for thirty seconds and sometimes for longer. She had a long period of conservative treatments. I believe

most of them were through Dr. Kosmorsky here in the clinic, but I'm not sure entirely.

She had a previous -- besides medical treatments and medications and so forth, she had a surgical procedure I believe in '92 to try and help her vision in one eye, I believe the right eye. In spite of this headache -- I think it stabilized for a short period of time and then had a progressive course with worsening ophthalmia, swelling of the eyes, pressure. She had periods of visual loss when moving and with position, that she had narrowing of her visual fields, that she was not seeing as well and her vision was -- visual. field was decreasing. She complained of very, very severe headaches.

My feeling of her course before was that she had quite a bit of conservative treatment and it was progressing severely at the time I saw her. When I saw her she had **I** believe already had some taps -- I'm sure she had some taps that showed increased pressure. I believe after I saw her even the first time I did another tap, which also verified high pressures. So I felt --

Q. I'm sorry. When did you see her for the first

time?

A. I would have to look to see.

Q. You can look at the chart.

MR. MURPHY: Do you want the outpatient notes?

A. Yes. It would be shortly -- probably shortly before the procedure. Let me make sure this is the first. Yes, I believe October 25th, 1996.

Q. Between that time, between October 25th, 1996 through *to* the day before the surgery in this case, which I think was November 21, '96; is that right?

A. November 21, yes.

Q. You found through the history you obtained, your clinical exam and so on that she was a candidate for a shunt placement?

A. Yes.

Q. When did you meet with Linda Cimino to advise her of your recommendation that she was a candidate for shunt placement?

A. There are two meetings between October 25th and surgery. One is November 5th and the other is November 19th. The later date would be the date for the actual discussion of the surgery, the previous date was where we discussed results of a

lumbar puncture.

Q. On 11/19 what options did you give her for treatment; do you remember?

A. I don't specifically recall the consent. During the course of the pre-op I make sure that we discuss all medical treatments and all conservative measures. She had already had, as I said, surgery to help try and preserve vision in her eye. So in terms of other options we would have covered, she has already by experience covered the other more conservative measures besides shunting.

Q. All right. Was there any other course of treatment here for Linda other than shunt placement?

A. I believe that lumboperitoneal shunt placement is an appropriate next step in the surgical treatment of a pseudotumor. Are there any possible theoreticals, are you asking me, or just a reasonable --

Q. Reasonable practical alternatives.

A. A reasonable alternative --

Q. Shunt placement?

A. Shunt placement would be my choice, yes.

Q. Okay. My question is a little different though.

Any other types of shunt placement procedures that can be offered?

A. There are other shunting procedures, but I don't feel that they -- I feel they carry greater risk as opposed to lesser risk.

Q. All right. What shunt procedures do you perform?

A. Lumboperitoneal shunt.

Q. What are the other shunt procedures that can be performed in order to address the same problem, if you will, with a pseudotumor?

A. There are other shunting procedures. I think they are much less commonly used to treat this problem. There is ventriculoperitoneal shunting which puts a catheter through the brain and into the ventricle. We often use that and I often use that for treatment of hydrocephalus where there is fluid pressure but enlarged ventricles. It involves insertion of a catheter, as I said, through the brain and has more risks for brain complication, obviously. The lumboperitoneal shunt.

Q. Any other shunt procedure here that would be suitable to address the same problem?

A. None that I know of.

Q. Okay. So really those are the only two

procedures that one could possibly do?
A. Well, I would say that the lumboperitoneal shunt is far more appropriate and is more -- it is done much more routinely than a ventriculoperitoneal shunt in this situation. But theoretically a ventriculoperitoneal shunt can be used and occasionally I assume has been done.
Q. But you've never done it that way?
A. No, I don't believe I ever have. I do a lot of ventriculoperitoneal shunting for other reasons, but not for a pseudotumor. The ventricles are actually quite small so the target of the catheter is small, and not only does it have greater risk going in, but the patency to keep it open and keep it running properly is more difficult as well because the ventricles are not large, they're small.
Q. Did you discuss with Linda the risks and benefits of the lumboperitoneal shunt procedure?
A. Yes, I always discuss the risks. 1 place catheters frequently, both operatively and on the floor, and we discussed the risks of catheter placement and of, you know, abdominal risks and risks associated with infection and so forth. Yes, I went over them.

Cimino? What risks do you advise them of?

A. Well, first we talk about the risks of non-treatment, progression of problems, visual, headaches and so forth, and of the increased pressure. We obviously discussed documented increased pressure.

We also then talk about the risks of surgery which include general risks of anesthesia. Although the full anesthesia risks are also discussed in more detail by anesthesia themselves, but I also mention that there is a risk of surgery and of anesthesia itself.

I mention the risk of infection of the catheter and also mention the risk of placing a catheter in the spinal canal in terms of causing a neural injury or irritation or injury.

Also I would mention the risk of the abdominal -- with an anterior incision that there can be, although it's very unlikely and has not happened, but there could be abdominal or GI injury secondary to the anterior or the distal

portion of the catheter.

I also mention that lumboperitoneal shunting is problematic and that it doesn't always work and that sometimes there can be too much drainage, sometimes there can be too little drainage and they can get blocked. I always mention that with either types of shunting that tubing, it's just plumbing. Tubing can get blocked, it can get infected and it doesn't always work. And I also mention that sometimes it has to be removed.

Q. I've just sort of made a list here and I've written down the five areas of risks that you indicated. The anesthesia, infection, that there can be a neurologic injury, there can be a problem with abdominal incision, and then also that it may not work and require removal.

A. Did you list that it may drain too much or too little?

Q. Right, it may not work meaning that just for all those reasons, whatever the reasons, whether it becomes, you know, blocked or just doesn't work or there is some problem with the shunt that it has to be removed.

Now, you would agree with me that the

standard of care requires that the physician talk about all those risks and at least advise the patient of all those risks before undergoing surgery in order to obtain an informed consent?

A. I agree that there should be a full discussion of risks, of all risks typically or possibly encountered, all risks that reasonably occur. I mean, not every .550 percent risk but, yes, all the ones that are of concern to me as I go in that can happen and that we see happen.

Q. And at least the five risks that we've discussed here are ones that you would expect a physician to advise the patient of?

A. Yes.

Q. Okay. And I guess what I'm trying to establish here is to see if not only is it your practice to tell the patient that, okay, but the standard of care requires you to tell the patient about those risks, these five risks?

A. Yes. I'm unaware of a written standard or anything because I know that is what my practice is. But I would believe any physician's practice would be to go over the risks, yes.

Q. But I guess **I** want to make sure we're communicating, because I'm trying to figure out

whether or not the standard of care or a reasonably prudent physician requires those risks to be covered with that patient.

A. I'm uncertain what you mean by standard of care where that is defined. I know that my standard would be to tell the patient the risks and I assume that most prudent physicians tell and so note that they've gone over risks. I'm not sure what reference to standard of care that you're making, but I know it would be my standard to tell the patient about all likely risks.

Q. And that is a good point. What do you believe -- When one talks about a medical standard of care, what do you believe it to be? I mean, how is that established?

A. Well, I'm not sure. Definitions may vary. I'm not sure what a legal definition is. My definition would be something which is well-established in terms of good, safe medical practice that has been, for example, shown to work in patient population, something that is trained to our residents, something that we were trained to do that is shown to be effective.

I'm not quite sure of your question. I mean, I know of no written standards of care

for this or for a standard of care of what should be listed for a pseudotumor or lumboperitoneal shunting. I don't know of any "standard of care". I know that review of the literature and knowing the disease process is appropriate and explaining the risks and treatments is appropriate and should be a standard.

Q. And the reason why you advise the patient of these five risks, for instance, prior to obtaining an informed consent for a lumboperitoneal shunt procedure is that those are at least risks you believe that are important to discuss?

A. Yes.

Q. In other words, those risks are material enough to you as a physician that the patient needs to know about those before consenting to the procedure?

A. I would think *so,* yes.

Q. Because if these risks aren't discussed with the patient, these five risks that we're talking about, then you would not have obtained the informed consent of the patient?

A. Would you read those five again?

Q. The five being again --

A. Infection.
Q. -- the anesthesia risks, the infection risk, the risk of neurologic injury, the complications with the abdomen, and then the risk that the shunt either may fail or not work or for whatever reasons may be required to be removed.
MR. MURPHY: Initially he had talked about risk of non-treatment too when he started out there.
MR. TSAROUHAS: But we're talking about risks of the surgery.
MR. MURPHY: What can happen from the surgery.
MR. TSAROUHAS: I have non-treatment.
A. Again, with the qualification of the anesthetic risks, that would be something that I would hope would be gone into in more detail and discussed with the anesthesia people, the general surgery risk.
Q. Okay. With that qualification, a physician in order to obtain an informed consent would have to discuss these five risks with the patient?
A. They would have to be mentioned, yes.
Q. Well, not only mentioned, but also explained with the understanding --

A. They would have to be understood, made clear that it was communicated and understood.
Q. With the understanding that the anesthesia risks will be gone into more detail with the anesthesiologist?
A. Sure.
Q. And I don't want to belabor this point, but I think you would agree that failure for a physician as a neurosurgeon, if that neurosurgeon has failure to discuss those five risks with the patient before obtaining a consent for the surgery would be below acceptable medical care?
A. I think all risks -- I think these risks should be mentioned.
Q. And if they're not mentioned, that is below acceptable medical standard, that would not be appropriate?
A. The reason I hesitate is -- Well, for example, the abdominal portion happens so infrequently. As I mentioned initially, an injury in the anterior portion is a very infrequent occurrence. It also can be quite benign. In the context of severe disease and so forth I don't believe that necessarily that is a critical factor.
Now, I think that it is a possible

complication and 1 do mention abdominal wall issues, but I don't think that that would "be below a standard of care" not to mention it. These are things I feel, you know, should be mentioned; however, if another surgeon does not mention anesthetic risk or does not mention abdominal wall problems or anterior problems in the context of someone who is having visual loss, because it is an infrequent occurrence and it is such a decreased severity related to the problem that we're dealing with, I wouldn't call it below or substandard of care, mainly because this procedure is indicated for a very severe ongoing problem like visual loss.

So I would hesitate to say that is below a standard of care because I still feel that the neurosurgeon should recommend a lumboperitoneal shunt procedure. And, again, because of the frequency and because of the lack of severity of that sort of problem in light of visual loss, I wouldn't call it a substandard of care if he did not mention that.

It is like if a patient is dying of brain tumor not mentioning every single detail that (a), is infrequent and, (b), is not of

severity relative to the disease, I would not call it substandard care. I still feel that those are some likely -- based on the surgery, some likely complications and should be covered, but I wouldn't say that it was below the standard of care if some of that was neglected.

Q. Let's take them one by one then. If the physician, the physician we're talking about is hypothetically a neurosurgeon treating a patient such as Linda Cimino about ready to undergo a lumboperitoneal shunt placement, that if a physician failed to mention anything about anesthesia risks that would be below the standard of care?

A. I think it should probably be mentioned, but again, that is covered by anesthesia, so I guess overall I would say no, that is not below standard of care. I would say not, because it is covered.

Q. I understand. How about if the physician failed to mention infection, would that be below the standard of care?

A. Again, you're talking about standard of care and you're saying my opinion of what should be said?

Q. Right.

A. And I think an infection of shunt should be mentioned, yes.
Q. So the failure to do that would be unacceptable?
A. It would be below my standard.
Q. And I expect that the standard of care you render is that of other reasonable physicians, isn't it?
A. I don't know.
Q. You would expect it to be?
A. I would expect that a neurosurgeon should tell a patient about possible infection, yes.
Q. And the failure for that surgeon to likewise mention neurologic injury --
A. I think it should be mentioned, yes.
Q. And if it is not mentioned, that would be again below the standard of care?
A. Again, it would be below what I would expect another neurosurgeon to say and it would be below what I would want to say myself.
Q. Just so I'm clear that you're practicing under that hypothetical, by mentioning that you would be practicing the standard of care treatment?
A. Again, I don't know what standard of care is, but I would expect that to be mentioned.
Q. I guess I have a little problem with your saying that you don't know what the standard of care is.

I mean, if you don't know what it is to obtain an informed consent prior to lumboperitoneal -- if you're telling me you don't know what the standard of care is of a reasonably prudent physician in obtaining an informed consent prior to lumboperitoneal shunt placement, that is okay, but I want to make sure that is what you mean.

MR. MURPHY: Let me object because I don't think you're necessarily communicating. I think the Record reflected earlier he's not aware of any written "standard of care" that outlines what has to be told to a patient, but then he said what we tell patients is based on what we learn in our training, in the literature and so forth, that we know what the risks are of this and we explain that with patients. So I think he's saying what a reasonable physician would do. I think he considers himself a reasonable physician.

So he's saying he doesn't know of a written standard of care any place, but he knows what should be done and I think that equates with standard of care.

A. I'm not clear on what your definition of what standard is, so if I say standard, I'm not sure

I'm communicating the proper thing. I can tell you what I feel is the right thing to do and another neurosurgeon what I feel the right thing for him to do is. If I feel that, I guess it's standard.

Q. I appreciate that explanation and I suppose we can just lay that issue to rest. From the standard of care definition, we're working from your definition, not mine.

A. What I would reasonably think?

Q. Right, reasonably think the standard of care is and appropriate for a reasonable physician.

MR. MURPHY: That is the way a Court would define it too, what a reasonable physician would do under the same or similar circumstances.

Q. The reason I wanted to clarify that, I just wanted to make sure we were communicating again. I appreciate that.

And, again, based upon the definition that we've established or you've established as being the standard of care, if a physician failed to advise the patient of neurologic -- potential neurologic complications or injury, that would be below the standard of care?

A. Yes.

Q. And that is an opinion with reasonable medical probability? Do you understand what that means?
A. Yes.
Q. And you would agree with that?
A. Yes.
Q. We've already discussed about the abdominal incision complications, right?
A. Yes.
Q. But you're not --
A. That is a lower frequency and lower severity that I wouldn't -- I would think that it would be a good thing to discuss, but I don't think below the standard of care.
Q. Right. And then with regard to the shunt just not working or something coming up which would require it to be removed, failure to tell the patient again would be below the standard of care?
A. I think it should be said that it may not work, yes.
Q. And failure to do so would be below the standard of care?
A. As defined, yes.
Q. And that is again an opinion with reasonable medical probability?

A. Yes.
Q. When I ask that, you understand that we have evidentiary burdens of proof with regard to medical opinions and if your medical opinion is not more likely than not the case, then it is not admissible. I'm not sure if you're aware of that.
A. I'm not sure, but I think that given that these shunts do have a probability of not working or they cannot work, that it is within a reasonable medical practice to make sure that that is brought up, yes.
Q. Now, the surgery we've established I think was performed on November 21st, '96, right?
A. November 21st, yes.
Q. Now, is it fair to say that you probably did not attend the entire procedure?
A. If you include the skin closure and probably maybe the skin incision, although I think I was there -- I think I was there based on my usual practice to be there for the skin incision, but very likely for the skin closure I was not there, yes, during the skin closure.
Q. Now, in this type of procedure what is your standard practice in preparing an operative note?

To clarify that, what is the timing in which you prepare it, how long after the operation do you usually prepare an operative note?

A. It depends. Often I will accumulate anywhere from two to five to ten and do them at one time. If it is something which I feel was out of the ordinary or unusual or not a standard practice, I will usually do it within one to two days maximum. Otherwise I often will collect maybe five to -- hopefully no more than five or so and then do them at once. And that may be several days afterwards, it may be a week afterwards even if it's a routine.

Q. Now, in this case at least the operative note that we've been provided was dictated I believe in April of 1998. Do you recall doing that?

A. I don't recall the -- I don't recall doing the dictation. I mean, I recall seeing the date in the chart, but I don't recall the actual -- that it was that date that I did it.

Q. Let me just refer you to my record. It is bate stamped 217, just so we can move this along a little bit.

A. Here is the date.

Q. Okay. Was that dictated by you; do you know?

A. Yes. Well, it says dictated by Mark Luciano.
Q. And that was dictated on April 24th?
A. It says April 24th, 1998.
Q. All right. Now, that is not your standard practice to dictate an operative note that long after the surgery?
A. No, it's not the usual practice. Whenever I'm asked to dictate a note which cannot be found and is an incomplete chart, it can be later than that. It can be months or later. It's unusual though. Most of them are done within a few days or weeks. But whenever I'm asked based on finding of an incomplete chart, 1 will dictate things even that are longer past.
Q. Do you know who advised you that there was an incomplete chart?
A. No, I don't recall.
Q. Do you know how is it that you were either notified either in writing or by, you know, telephone, verbally, whatever it is that there was a need of an operative note for this case?
A. No, I don't. And that is because there are a lot of medical records and a lot of dictations of letters and a lot of signatures and so forth that I routinely go through on a pretty much daily

basis. I don't particularly recall the request for that dictation.

Q. This is not something that you probably would have recognized on your own in April of 1998 that there wasn't an operative note?

A. No.

Q. Who would typically bring that to your attention?

A. I assume medical records. My secretary as things come through, but through medical records.

Q. Is that done through a phone call or is there some e-mail or note sent over?

A. I don't know. It is on my desk with a notation for dictation. And, you know, this was back in '98, and I'm also not sure what the system was exactly at that point.

Q. I understand.

A. But it would be on my desk with a red tab saying there is an incomplete op note here to dictate.

Q. Now, your dictation of this note, at least the operative note as of April 24th, '98, that was not done from an independent recollection of the procedure; is that fair to say?

A. I think it is fair to say that it was done in a way that -- from the way I do the procedure and after reviewing the medical record. In other

words, it's not just from, oh, this is how I do the procedure and I just rattled it off.

What I do is I look at the chart and I see at the time of the procedure any other notations and remind myself of the situation, of the clinical situation to help remind myself of any problems at the time of surgery, anything that might say, oh, yes, you know, it was this issue. And I didn't have any recollection of any alterations from my usual procedure.

Q. And I guess it is only after you reviewed your chart you were able to put together this operative note?

A. When I go to the date of the surgery and look at this insertion of LP shunt, and basically then I also will often look at the presentation to remind myself who the patient is and how they presented and what we did.

Q. So just so I'm clear on this, when you dictated this operative note, okay, the one of April of '98, you were able to create this note by not only reference to the chart, reviewing the chart, in combination with what your standard approach would be, your technique, whatever it is during a procedure, putting those two together --

A. Yes.
Q. -- creating this document?
A. Yes.
Q. Now, it would be fair to say likewise that -- and forgive me for forgetting, but you told me your standard practice is to dictate an operative note within -- Is it several days or four or five days, did you say?
A. If there is something unusual often within a day or two, and otherwise I might collect them for a few days and then dictate them at one time, like five of them or so.
Q. It would be fair to say then the circumstances when you were dictating a note four to five days after the procedure or whatever that time frame might be --
A. There is one other thing I might mention is that initially when I came to the clinic -- I'm not sure when the transition period was, but the residents were dictating notes. I started dictating my own notes before. Right now it's a requirement that the staff dictates all notes. It may not have been back then. I'm not actually sure when the shift was. But in the first years of me being here, I think maybe up to '96, the

residents were dictating most notes.

So just to clarify the standard practice, currently that is what 1 do in terms of my own dictations. And when I do any dictations that is the way I've done them. I got here in '93 and for the first several years the residents as part of their educational experience dictated the note.

Q. Dr. Markarian was the resident in this case?

A. Yes, he was.

Q. So if that was still the procedure then at the Cleveland Clinic that the resident dictated notes then, I guess in this case he failed to dictate a note in this case?

A. That is a possibility. Although I do say that I dictated more of my operative notes before it was a requirement, but farther back the residents were dictating operative notes.

Q. But either way, it was either you or Dr. Markarian who failed to dictate a note?

A. I don't know that we failed. I know that it didn't appear.

Q. Okay.

A. I have no independent recollection of failing to dictate a note. I do know that there are

situations which I know I've dictated the operative notes and that they've not appeared through the system, perhaps even through an error in the numbers or something. So although it may not be frequent, I do know that op notes are lost and I've had to dictate op notes throughout the year several times. So I can't say that the op note was not dictated by Dr. Markarian or myself, but I can say that it did not appear.

Q. Okay. Those would be the only explanations here, that it either was lost in the system -- it was dictated and lost, or on the other hand it just wasn't dictated at all? That would be the only two --

A. That is the only two I can think of offhand.

Q. But you're not sure which one of the two it may have been?

A. That's right.

Q. All right. Now, when you dictate a note, in your standard practice, whether it's several days after the surgery, four or five days or a week, whatever the case may be that you've accumulated enough, if you will, operations in order to, you know, have the opportunity to sit down and dictate on each of those various operations, you

would agree that under those circumstances you typically have the chart, of course, what your standard practice is, but also an independent recollection of the procedure itself when it is done in that time frame?

A. When it is done within days, I would say I have independent recollection, yes.

Q. And certainly that independent recollection also is a part of creating the operative report --

A. Yes.

Q. -- in those circumstances?

A. Yes.

Q. So the logical conclusion would be then that a note dictated soon after surgery, which is typically your standard practice, however many days that might be, is probably a little more accurate, if you will, or more accurately reflects the procedure and how it went as opposed to one which is dictated a year, year and a half down the road?

A. With a procedure done in a standard way there may be no or very little variation between the two, but on a theoretical basis, obviously one a few days afterwards as opposed to one done over a year has a potential of being more accurate, yes.

Q. Now, I just want to come back to the question that I asked you about whether you were present for the procedure, what portions you were present for. I'm referring to what is bate stamped on my chart number 0002, and that is a procedure attestation form?

A. Uh-huh.

Q. You've checked on here that it says bill. How does that work? What does that mean when it says bill: right there (indicating)?

A. It's just because there is an option here do not bill.

Q. Okay. So there was a choice made to bill on the surgery, of course. You can't be doing this for nothing, right? Now, you checked off actually number 3 here that you were present during a critical portion of the above procedure and I or another teaching physician was immediately available for the entire procedure?

A. Uh-huh.

Q. Okay. And it says the critical portion is as follows, it's shunt placement?

A. Shunt placement.

Q. Is that your signature?

A. Yes, it is.

Q. And I see your name is printed next to it. Now, is there any other record, without obviously violating the patient privilege, to indicate how long you were in this procedure or whether you were attending a different procedure at some other point in time, either in the initial stages of the procedure or after the shunt placement had been put in?

A. Not to my knowledge.

Q. Okay. There is nothing in either the requisition forms or as a result of the Cleveland Clinic's billing practices which would reflect what times during the day that you were billing for or what times during the day you were involved in operations?

A. The times of surgeries are listed. I'm not sure what you're asking.

Q. Right. Well, the time of this surgery is listed here, when it commenced and when it ceased. But is there anywhere that would reflect maybe in the last fifteen or twenty minutes of the surgery where you were involved in a critical stage of it that you had left perhaps to attend something else or someone else while the resident may have wrapped it up, so to speak?

A. Not to my knowledge.
Q. But I suppose as you sit here today you do not have an independent recollection, that is a memory of your being in the operating room and conducting the surgery because it's been so long?
A. That's true.
Q. After the surgery and I take it based upon your review of this chart, what was Ms. Cimino's presentation at that time postoperatively?
A. Based on the chart, she had a postoperative pain, and at least in the postoperative day had complaints of right leg pain.
MR. MURPHY: You can certainly look at the chart if you want to.
A. Okay. Thank you. Let me look at --
Q. You can refer to the chart at any point in time.
A. Thank you. On November 22nd is the post-op note which says -- it says power actually 5/5, which refers to full strength, it has the vitals here, 36-9. These parameters are stable. Complaint of a constant frontal cephalgia, frontal headache, back pain, it says stiff neck, nausea. I can't read this lower word. Oh, photophobia. Okay. It says she's oriented, pupils responsive, extraocular muscles intact. It says here neck is

supple. That's a direct observation. As I said before, power 5/5.

Q. What is the power of 5/5? What is that referring to?

A. There is a rating of 5 being the normal strength.

Q. I don't mean to cut you off, but just the power of what?

A. Muscle strength.

Q. Of all extremities?

A. It's not independently listed here. Without independent listing, I would have to assume it would be all, but that would be an assumption. It says here power or strength 5/5, so that is a rating of strength and obviously it doesn't specifically say. I don't see -- There was a notation of a complaint of right leg pain and I don't actually see it in this post-op day note.

Q. Actually before we move on, can you help me go through the last part of that notation, progress note on 11/22?

A. Postoperative day one, status post lumboperitoneal shunt.

Q. This is not your note, I take it, right?

A. No.

Q. Do you know who that was done by?

A. No, I do not. It looks like that is not Dr. Markarian, but I do not know.
Q. Would it be another resident that was covering?
A. Yes, it would be another resident, another physician.
Q. And if you can't make it out, that is fine.
A. I can't make that out, to be honest with you.
Q. Anything else there, the remaining part of it?
A. No. Either it says flexor or power. I can't say.
Q. How about the HTN 2?
A. Hypertension with something. I'm not sure what that says either.
Q. Okay.
A. I referred that I felt there was a complaint of right leg pain and I saw that in the chart somewhere, but actually it's not --
MR. MURPHY: Recovery room.
A. It was in the recovery room that she had some pain, but not in post-op day one.
MR. MURPHY: This is why I tab them.
A. It says recovery room at 4:00 that day complained of right lower extremity pain.
Q. Actually, which part are you -- Okay, we're on the same thing. Mine is bate stamped page 0022.

A. And that is in terms of what I reviewed she noted she had right leg pain, but it is not noted on the post-op day one.

Q. Now, it indicates -- and this is still in the PACU, right?

A. Uh-huh.

Q. At 1500 on that same day, that would be the same day as the operation --

A. Yes, I guess 1:40, the day of operation, both legs and feet move -- well, it doesn't say move, but to command with good strength, denies numbness, tingling or pain in lower extremities. That is at 1:40.

At 3:00 agree with above, gave some medication for complaint of pain. Patient states pain relief obtained. Nausea. Droperidol was given for nausea. And then at 4:00 is the notation of right leg pain.

Q. When was Ms. Cimino discharged from the clinic after that operation?

A. She was discharged on the next day, November 22nd.

Q. Is it fair to say that you didn't get a chance to see Ms. Cimino after the surgery was completed?

A. I don't recall specifically a post-op visit, but

I can tell you my routine is to see the patient either that night post-op or the morning.

Q. Based on the record though, is there anything to reflect that you were able to do that?

A. Based on the record, I don't believe there is, no.

Q. What clinical presentation was brought to your attention after the discharge from the hospital? Actually I shouldn't say clinical presentation, but what symptoms, if any, were brought to your attention after the hospitalization?

A. Let me turn to the outpatient section.

Q. Actually let me step back. Let me finish one thing before we move on. I'm going to refer you to page -- actually 0044 of my record.

A. Okay.

Q. Who authorized the discharge of Ms. Cimino?

A. You're referring me to this page?

Q. Right. Can you tell?

A. I don't know. What is this page? Is it a nurses note.

Q. I believe it is nurses notes reflecting that at 1330 on November 22nd there is a discharge to home and family.

A. Uh-huh.

Q. Now, working backwards from this, do you know who authorized the discharge?
A. I cannot base the authorization on this note at all.
Q. Is there another note that we can --
A. No, but I would authorize the discharge of my patients through one of my residents, whether George Markarian or another one, saying that patient may leave. But 1 don't do that based on this note.
Q. All right. I understand. I'm just referring to it. What condition would you expect the patient to be in for a discharge order to be given?
A. Being one postoperative day there can still be significant pain, but I would expect her to be stable with respect to vitals, some pain which is controllable with medications, and no sign of wound problems or drainage and so forth.
Q. Obviously you indicated there is some pain postoperatively or post-op day one, which that wouldn't concern you. If there was severe pain or it was brought to your attention that there was severe pain of the back and right thigh pain, would that make a difference in your decision to discharge a patient?

A. If there was a progressive severe pain, if there was loss of function or weakness that was progressive then, yes, it would. But pain itself probably not in this acute period.

Q. What is it about the severe back or right thigh pain which would cause you some concern if it was brought to your attention?

A. Postoperatively I can expect sometimes moderate, sometimes quite severe back pain. So that, although of concern in terms of the patient, is not unexpected. Certainly if there was progressive weakness or neurological deficits or, as I mentioned, instability of the blood pressure or other factors such as that, certainly if there was drainage of the incision and problems with the incision or infection, those would be a concern.

Q. Hypothetically if there was in addition to severe back and right thigh pain, if there was also -- this is post-op day one -- a numbness or burning into both extremities, lower extremities up to the knees, would that cause you any concern?

A. I'm not aware of that occurring. Are you asking me a theoretical question?

Q. Hypothetical question.

A. Hypothetically *a* patient who we put *a* lumboperitoneal shunt in who has progressive --

Q. Pain and also a burning and/or numbness in the thighs going right to the knee.

A. If you said someone had progressive loss of sensation, yes, that would be of concern.

Q. Why would that be of concern?

A. Because a progressive neurological deficit might imply in a postoperative period a hematoma or some acute problem which may require attention.

Q. The hematoma being that it is causing -- in other words, it would cause you some concern, and tell me if I'm right or not, because there may be some neurologic component, the etiology of which is unknown?

A. Yes, that's right.

Q. So then if that is brought to your attention you automatically register potential neurologic problem, etiology may be one, from the surgery itself?

A. Possible, yes.

Q. The shunt may be impinging upon the nerves near the spinal cord?

A. It's possible, yes.

Q. A hematoma may have developed?

A. Possible.
Q. And perhaps any other reason which may explain a potential neurologic problem?
A. Yes.
Q. I want to keep adding to the symptoms. In addition to the severe back pain, severe right thigh pain, a burning or a numbness sensation in both extremities up to the knees and a severe pain in the groin area. With that additional symptom, a severe pain in the groin area, would that mean anything to you?
A. In the immediate post-op period there can be severe back pain, so it is hard to tell wnether a person would be having extension of pain and whether it's truly a neurological origin. If I felt that a person was having progressive symptoms due to neural effects, it would be of concern to me. If I felt it was a wound problem or a severe back pain which was radiating, that's another issue.
Q. What symptoms would you be concerned about which may be related to some neuro effect? What symptoms would you expect to see?
A. Radicular pain, by that I mean pain which shoots down the leg, progressive numbness or weakness.

Q. And this is something that when you say progressive, would that be progressive because we're still in a hospital in the post-op day one, or would that apply to even after the discharge?

A. That would apply to after the discharge as well.

MR. MURPHY: Tony, can we take about a two-minute break?

MR. TSAROUHAS: Sure.

(A brief recess was had.)

BY MR. TSAROUHAS:

Q. Again, I want to stick with the hypothetical patient we've talked about so far, post lumboperitoneal shunt placement, the symptoms that the patient is demonstrating are at least severe pain in the back, severe pain in the right thigh with a numbness or burning sensation in both extremities up *to* the knees post-op day one.

In addition to that, immediately after discharge from the hospital, that is over the course of the next two weeks, assuming that scenario, or even just to say that over the course of the next week, one week post discharge, that the patient has shooting pain going down one of the extremities, at least one of the extremities, what would that mean to you?

A. It would mean that there may be nerve root irritation. It's called radicular pain.
Q. Would that be of some concern to you at that point?
A. Patients who slip a disk can have nerve root compression and have shooting radicular pains and it is commonly seen after surgery. So I would suspect that it could be a radicular pain concern at that level, yes.
Q. It would be of concern to you because it could be potentially related to the surgery?
A. It could be -- potentially be related to surgery, yes.
Q. And that is the concern here when you're seeing radicular symptoms or neurologic symptoms post lumboperitoneal shunt placement procedure, one of your concerns is that there isn't some neurologic effect or neurologic damage which may be ongoing?
A. One of my concerns after a lumboperitoneal shunt is radicular symptoms, yes.
Q. And that is because the shunt itself can somehow be affecting the neurologic structures?
A. Because it is physically there, yes, in the spinal canal.
Q. Now, if in addition to the symptoms we've been

talking about in that one-week post discharge that there is also weakness, that is a difficulty walking, weakness in both legs, but more so the left leg starting to drag, that when a person is trying to walk that the left leg is not coming along at least like the other leg is doing, what would that mean to you if a patient were to tell you I'm having that problem?

A. It would potentially be a radiculopathy. Again, compression of a disk would not be my most concern in this situation obviously postsurgical, but in a similar fashion to a compression with a disk, development of severe radicular pain and weakness either caused by the pain or independent would be a consideration. It would be a consideration there might be a nerve root problem.

Q. If a patient were to advise you of those problems, the ones we've talked about, that is, if you will, a progression of the following symptomatology: Severe groin pain, back pain, right thigh pain with shooting pain going down that extremity, the right extremity, a generalized difficulty walking with the numbness again or burning going into both knees, and the

left foot "dragging", if you will, when attempting to walk, what would you want to do?

A. If the patient comes to me postoperatively after a spinal procedure with progressive symptoms of radiculopathy, I would want to observe the patient, and depending on the severity or progression, get imaging studies, and depending on how far postoperatively, get imaging studies to rule out nerve root injury or hematoma or compression.

Q. What would you want to see from that symptomatology? Can you be a little more specific as to at least in your mind what is necessitating an imaging study? I mean, what is the breaking point where at some point you say, okay, I've heard enough, I've seen enough, I think we need to do some imaging studies to make sure there is not a problem here?

A. If it is a radicular pain essentially --

Q. Meaning?

A. Meaning of pain down the leg, and other pain associated with the surgery would also, of course, in the post-op situation be acceptable, then I would not necessarily do an image. I would of course follow the patient closely to

make sure that there is no progression of weakness, but I guess my threshold for concern for imaging would be a progression of primarily weakness, although definite increase in even radicular pain could warrant an imaging in this context.

Q. Okay. I think I lost that last part. So your threshold -- and I like that because that is exactly what 1 meant. What would be your threshold to getting the imaging study? *Go* ahead and tell me again.

A, Would be progressive neurological deficit -- 1 guess we'll leave it at that -- which may be due to radiculopathy, but that is what I would be ruling out or looking at with an imaging study of some kind.

Q. So I understand a progressive neurologic deficit, would that equate to the scenario, the hypothetical we've been talking about where a patient post-op day one develops the right thigh pain, severe back pain, numbness and/or burning in both extremities up to the knees, and then following that week, that is post-op week one after discharge, has difficulty walking, the left foot "dragging", and having shooting pain down

the right extremity, severe shooting pain down the right extremity, and to the point that this patient is unable or has very great difficulty in walking, would that fit your category under that hypothetical?

A. Yes, a progression of weakness and persistence or progression of radicular symptoms would reach the threshold of my concern, yes.

(A discussion was had off the Record.)

BY MR. TSAROUHAS:

Q. So under that scenario that hypothetical would at least concern you enough to require imaging studies?

A. You're repeating this question?

Q. I'm not repeating it, but just sort of following up.

A. Yes.

Q. And under that hypothetical situation, the standard of care, at least at that point and as you understand it, would require that the physician in charge work that patient up radiographically to begin ruling out the etiology of the neurologic progression?

A. That would be my work-up.

Q. And I just was trying to establish what the

standard of care would be, and you believe that would be the standard of care?

A. Yes, 1 believe that patient should be imaged.

Q. And that again is a belief with a reasonable medical probability?

A. Yes.

Q. Is that a yes?

A. Yes.

(A discussion was had off the Record.)

BY MR. TSAROUHAS:

Q. And just following up, the failure to do that would be below acceptable medical standards in your opinion?

A. Within the definitions that we discussed before, yes.

Q. And that is an opinion with reasonable medical probability?

A. Yes.

Q. And the reason why that prompt attention has to be given to that neurologic progression of that hypothetical patient is because there is a potential that there may be -- if not worked up, there can be permanent neurologic consequences?

A. If a patient has progressive neurological problems, then there is concern that there is an

ongoing process which is causing neural injury, yes.

Q. And at that point in this hypothetical situation it concerns you again -- and not to repeat it, but it would concern you or a reasonable physician, for that matter, because of the type of surgery that was performed on this patient?

A. Yes.

Q. So January 6th of 1997 you had performed a revision on Ms. Cimino?

A. Yes.

Q. Do you know why that revision was performed?

A. Do I know why that revision was performed?

Q. Right. I imagine you do.

A. Yes.

Q. Why was that revision performed?

A. That revision was performed because she had persistent lower extremity pain, primarily with the right leg, and because of complaints of bilateral numbness. And these were severe enough that she was willing to undertake the risk of manipulating the shunt system.

Q. When you performed the operation did you at that point determine the etiology of the lower extremity radiculopathy?

A. The etiology, no, I did not.
Q. Do you have an opinion as you sit here today as to the etiology of the lower extremity right radiculopathy?
A. I don't have a definitive opinion because there may be several causes, but I felt it was likely enough to be a result of the catheter to attempt to move it.
Q. And you believe it is more likely than not that was the case, that the catheter was actually --
A. I believe that is a likely cause. I considered that to be a likely cause. Whether there are other ones, there may be other likely causes, but I felt since I had done the surgery and the catheter was there that it was a likely cause.
Q. And that is an opinion with reasonable medical probabi1ity?
A. 1 believe so, yes.
Q. Now, what is it about what you saw when you referred to your operative -- and you can refer to your operative note if need be or your discharge summary. Actually, I have your operative note. Why don't we just look from this one so you don't have to keep looking around.
A. I'm sorry. I didn't hear a question.

Q. Okay.
A. What was it about my operative note?
Q. Is there anything in your operative note which at least reflects what you may have seen during the procedure to explain, if you will, the likely cause of her symptomatology?
A. No. And that is because nothing is essentially seen at the procedure. The catheter was simply pulled back essentially in a blind fashion to move its position within the spinal canal.
Q. How did you move the catheter position? What position was it in and how did you move it?
A. The catheter was in the spinal canal and it went up, I believe, to the T12 region. This was based on imaging studies done on her admission in December.
Q. From what position, what level to what level?
A. I believe it was the T12, the original position, and I retracted it back I think five to six centimeters. The note would be right here. Six centimeters. And that would be disconnecting the shunt system at its connection to the abdominal incision, pulling back six centimeters, cutting that portion off, the excess, and reattaching. So that is an operation in the -- just

essentially subcutaneous, relatively superficial area, so I did not have any direct visualization of the spinal nerve roots.

Q. So there are two maneuvers here, one pulling back the catheter, then cutting off the excess and then reconnecting it, essentially?

A. Yes. More than two but, yes, that is the process.

Q. Making an incision and --

A. Yes.

Q. If you can, I'm just going to have you draw that portion of the spine that is involved here. And just, if you can, show me the shunt placement and what levels we're talking about.

A. Does she document this?

Q. We'll just mark it as an exhibit, if you don't mind, and we'll attach it just so I have a better understanding.

A. This would be the spinal canal, so to speak. This would be the entry of the catheter. This will be T12 level (indicating). Of course this drawing is not entirely accurate.

Q. It's not to scale or accurate.

A. Yes. But I extend it up this way. And there was a bend or loop in the catheter within the canal

something like that. Afterwards the catheter was pulled back six centimeters so that is something like that (indicating) farther down, and this being approximately at T12 level.

Q. And that is being at T12 as well?

A. Yes, although I would have to look at a radiological record to know exactly where the tip ended up in relation to T12, but it was a pull down six centimeters.

Q. Actually, can you just tell from the interpretation or do you need to see the radiographic films?

A. I may be able to tell from the interpretation.

Q. Let me see here. The x-ray reports, flip through that and see if you can see anything that works for you.

A. Fluoroscopic imaging was provided during the course of this procedure. No films were obtained. No, I can't tell. But my intention was to pull it down enough so it would be away from nerve roots.

Q. So in other words, if you can show me here -- Actually, if you don't mind, I'm going to put before and then sort of after, and this is the 1/6 revision. All right. At what level was the

catheter placed?

A. L3.

Q. At the L3?

A. Uh-huh.

Q. All right. Do you want to go ahead and put that on there?

A. (Witness complied.)

Q. All right. And then how many centimeters do you believe of cath from the original surgery was placed in the spinal canal?

A. I don't have the centimeters.

Q. Well, it would obviously be more than six centimeters?

A. Yes. Something on the order of perhaps twelve, ten to twelve, something like that.

Q. Okay. Now, what is it about the clinical presentation that necessitated the revision and your maneuver in drawing back the catheter? How is it that that made a difference in the neurologic symptomatology?

A. Yes. In the imaging work-up done in December there was contact between the distal end of the catheter seen there and the nerve roots on the right side. So my hope was that in pulling it back I would change the position of that distal

end, bring it away from those nerve roots on the right side.

Q. And which nerve roots were those? At what levels?

A. I don't believe it could be determined what levels. Because of the nerve roots of the cauda equina, you can't say which nerve roots there are. But it was at the upper level.

Q. So it would be at the T level nerve roots there or you can't really say that at all?

A. Or upper lumbar.

Q. Upper lumbar nerve roots?

A. Yes. But I can't be certain what level at all was affected, but I do know that the catheter -- I do know by the radiographic study that the catheter crossed over to the right side at the level of L1. So for right-sided radicular symptoms, it had to be above the L1 level, so I would assume upper lumbar or the T12 lower thoracic region, because of the CT myelogram I'm basing that on.

Q. Let me just bring your attention -- Is that the one of December 14th?

A. That's an MRI.

Q. Then it is probably the next one. I'm sorry.

MR. MURPHY: December 18?

A. We have it. This is dated --

Q. That's bate stamped 0079 on my chart. December 18th --

A. December 18th, yes.

Q. -- of '96. And what was it from that report that you're able to gather the levels that may be involved?

A. At least it extends to T12 level, although the superior aspect of the catheter is not included in the field of view. The dorsal nerve roots are to the right of midline which tethers the cord dorsally, so on the right side the nerve roots are being contacted. And that is above the L1 level, because up above it says it enters on the left side, extends superiorly within the subarachnoid space to the left of the midline, and then ultimately courses to the right of midline at the L1 level.

That loop that I drew is just above the last cut of the CT, so they can't see that. But they see that at the end of the catheter it is against the right nerve roots. And so I felt that 'chat corresponded potentially to her right radiculopathy or right leg pains, and that is why

I felt dislodging it would have an effect.
Q. Was it successful; do you know?
A. I believe it was, yes.
Q. Some of her neurologic symptoms had ceased?
A. I can refer to the post-op visit. It says that she did not have the right leg pain.
Q. Did you note in the hospital record, if you recall, whether or not Ms. Cimino, after her December 14th admission -- Do you recall that admission from the record?
A. Yes.
Q. Do you recall whether or not she did have, in fact, neurologic symptoms associated with her left extremity, left lower extremity?
A. Yes, I see that noted in the chart.
Q. Can you tell me whether you agree or you recall that there was complaints of left lower extremity weakness?
A. She came to the emergency room on the 13th and on the 14th complaining of right leg pain and on the 14th with numbness as well. On testing, she was felt to have a weakness in the proximal left leg.
Q. Do you have an opinion that is more likely than not as to the etiology of the left leg weakness?
A. I was uncertain in the context of severe pain

whether this was weakness associated with pain or was true weakness, so the etiology of the pain I would be uncertain of. Often patients with severe pain are weak secondary to pain, of course.

Q. Okay. But at least the pain that was documented at that time was right leg pain?

A. Right. The severe pain she was having was right leg pain, although let me check on that and see if there is any further --

Q. I think on --

A. I don't see any notation of other pain here.

Q. Actually, I just have the benefit of a little summary that I put together. On page 0067 and 0068 I think we have progress notes from 12/14, and at least there is documentation there we have a left lower extremity weakness, there is a complaint there.

A. Upon awakening was -- I can't read that word. I can't read the words. I'm sorry. But secondary to weakness in legs. It says legs.

Q. Okay.

A. So it says here she has weakness in legs. So I'm not sure that would be specifically referring to weakness of the left proximal flexors or if that

just is a reflection of general pain as well.
Q. Actually, let me refer you to page 0068, the next note of that same progress note, I believe. Is there a complaint of left extremity weakness?
A. Yes, denies right lower extremity pain.
Q. Let's address that for a moment. Can it be sometimes that you can have neurologic symptoms which will wax and wane, even though there is some --
A. Certainly.
Q. Even though there is an ongoing neurologic problem?
A. It's possible for them to wax and wane. If they wax and wane, that reflects reversibiliry, so that is a very good sign.
Q. Or on the other hand, also on occasion sometimes there are mistakes made on the record, whether the patient says it wrong to the --
A. There can always be confusions in the medical record.
Q. Whether the patient may not relate the appropriate symptom at the time, or the person who is writing the complaints may have heard it differently?
A. Yes. But if it does wax and wane and there is no

right lower extremity pain, that would be a good sign actually.

Q. Now, I want you to assume further, just to move this along a little bit, that there was left lower extremity weakness. Okay?

A. There was a report of 4/5 weakness in the left proximal legs. There is no description of whether it was related to pain or not, but yes.

Q. Now, those two clinical findings, one, the complaint and, two, the finding on exam of the left leg weakness, how does that correlate to either the shunt revision or to the neurologic symptoms that she was having?

A. I'm sorry. Could you repeat the question? I'm a bit confused by the no right leg extremity pain and I'm trying to put that together with both legs pain and then no pain. Would you repeat the question?

Q. There are some contradictions, and that happens from time to time?

A. Yes.

Q. Now, my question to you is we understand or at least we've established the most likely cause of the etiology of the right leg pain, the right neurologic symptomatology?

A. Reasonably probable, yes.
Q. Is there any explanation for the neurologic findings in the left leg that is more likely the cause?
A. Again, I don't definitively know. My concern always in a post-op patient is that similar thing, that it could be secondary to a catheter. It was interesting to me that it was on the left side, whereas any nerve root involvement -- of course, this goes through the cauda equina in this space, as many catheters do, so it is hard to predict what the pattern will be. But this weakness was on the left side and the severe symptoms and the catheter seemed to be on the right side.

It did enter on the left side, so a guess -- and again, this is a speculation and I don't know what probability to attach to it -- but if there is a true weakness on the left side which is not related to pain, it could be to an injury on the left side which is lower, in other words, at the point of insertion. That could indeed be an injury caused at the time of insertion, because certainly a needle is more likely to cause an injury than a catheter. The

catheter is quite supple.
Q. And this is the benefit of the record that we have at least a documented symptom at that point on December 14th, about three weeks postoperatively?
A. It was not documented before and there are records of strength before, but --
Q. I understand that, but I want you to assume for the purposes of this hypothetical question that were post-op -- immediately after a post-op day one and that week, the first postoperative week that in this hypothetical situation there were indeed complaints of left leg weakness and actually a left leg dragging while trying to walk.
A. You're asking me to accept a hypothetical?
Q. Accept that as being true.
A. Accept it as a hypothetical or true, true in this case or a hypothetical? I could accept anything as a hypothetical.
MR. MURPHY: I think he is posing it as a hypothetical.
A. You're saying if I see a patient with left-sided weakness in the post-op of a lumboperitoneal shunt placement?

Q. Right, and I'm trying to explain to you that at least one of the descriptions hypothetically are that the left leg was dragging.
A. Okay
Q. Now, under that scenario what would be the most like y cause of that?
A. Under the hypothetical or under the --
Q. Hypothetical.
A. Would be a nerve root irritation or injury.
Q. Okay. Related to --
A. Likely related to the surgery. Whether it is due to the insertion or due to the catheter as it is continuing in the canal can't be certain, but I think it is a reasonable possibility that it is related to either of those.
Q. But again, more likely being to the procedure itself, to the lumboperitoneal shunt placement?
A. Yes.
Q. If that is the case, in the hypothetical situation if that is the case, that would be -- that injury would be iatrogenic in nature, it was because of the insertion of the needle at that level?
A. An insertion in the spinal canal can cause an injury to a nerve root. If it is done during the

procedure, it is iatrogenic.

Q. Now, if the symptoms of the left weakness postoperatively, you know, in the immediate postoperative period, the first several days, a week, two weeks, continue to progress, that is the weakness in that left leg or left extremity continue to progress, then what would that mean to you? I mean, what would be the cause of that when we have a progression --

A. Yes, I think we talked about this before. Progression of neurological symptoms, deficits, is a concern of progressive problem or injury or irritation of nerve roots.

Q. And in all likelihood, either from the procedure or the shunt?

A. Well, an injury at the time of insertion due to the needle would not likely progress further because it is due to that injury. An injury to a continuing process like the -- like a catheter or any other subsequent process may progress. I would think that if we see an injury immediately at the time of surgery it may be due to the procedure as opposed to an ongoing process. In other words, it may be static as opposed to progressing.

Q. And, again, not to repeat what you said, but if it is progressive, it is a progressive symptom which continues, the left extremity weakness continues to increase as time goes on, that means that it is more likely related to the shunt or perhaps that the shunt may have moved from its original position or slowly has been aggravating or, if you will, impinging upon the various nerve structures or nerve roots in that level?

A. I think any of those things you mentioned are possibilities, yes.

Q. Is there one that is more likely than not in your mind under that hypothetical situation?

A. Under a gradual progression?

Q. Correct, of the left extremity weakness.

A. You mentioned catheter migration and so forth. These things are possible. I don't think it is really known how often these catheters really move. I think that is probably less likely in terms of migration, so probably continued contact with nerve roots.

Q. Again, I think we discussed that earlier, but the reason why a clinician would want to move quickly on that if that is the presentation that is brought to their attention is because of the

potential of permanent neurologic damage?
A. That is a concern with any progressive neurological problem, yes.
Q. Now, do you know from your review of the record postoperatively since January 6th, 1996, whether or net Ms. Cimino has any or sustained any permanent neurologic dysfunction?
A. The left leg weakness that is -- the mild left leg weakness which was initially noted, I'm not sure that could have been detected in the context of the immediate postsurgical and the operative pain there afterwards. I can't say definitively whether there was an injury which is static and created at the time of surgery.

I do know from the post-op PACU note that she had right leg pain and radicular symptoms immediately afterwards, and that is the only radicular or nerve irritation or nerve injury sign that we have. So I have that. In terms of weakness, I don't have any evidence either way of there being any injury at the time of operation or immediately thereafter, the day thereafter.
Q My question is a little Sit different though. Do you have an understanding of whether or not she

has any -- or at least it was documented from the records you reviewed -- permanent neurologic impairment?

MR. MURPHY: Currently you're asking?

Q. Currently as what is reflected in the records you reviewed.

A. Currently I do not know. She was scheduled to come to a follow-up after this replacement. She came for a stitch removal and was said to be having no more radicular pain, right leg pain and be improving otherwise. She was scheduled to come back in March, she did not come back. So my last contact with her was at that time.

I had felt at that time that the radiculopathy had resolved and she was doing better and that was my last contact and knowledge. So to my knowledge, I did not know she had any permanent deficits.

Q. You indicated you had the chance to review Dr. Mars -- well, what you could read --

A. I could read Dr. Ruch's typewritten notations and they're contradictory a bit. It talks about at one point 5/5 strength. It talks about giveaway weakness. Giveaway weakness is when you try and pull and someone gives way because of pain or

discomfort, perhaps, but gives way as a matter of effort as opposed to weakness. There are also maybe descriptions of weakness.

So I don't know because I don't have direct observation and there is some conflict in my mind in what is said in those brief notes about her condition. So I honestly don't know her condition right now.

Q. Do you know whether Dr. Sahgal or Dr. Ruch, for that matter, had diagnosed Ms. Cimino as suffering from a foot drop, left-sided foot drop?

A. I know that Dr. Ruch got a series of imaging studies from the lumbar spine to try and diagnose thoracic and I believe brain, in other words, a full MRI, and she could not diagnose any neurological injury. I don't know of Dr. Sahgal's efforts and diagnosis.

Q. Do you know whether or not she was diagnosed with a clonus, a positive clonus?

A. I know that clonus is mentioned I believe in the later evaluations, probably Dr. Ruch, because that is the one I could understand. So, yes, I did hear about a clonus.

Q. What can be a cause of a clonus? I mean, what is that?

A. Clonus is usually involved with the nervous system above the nerve roots, and that is brain or spinal cord itself. It's very unusual from a lumbar procedure.

Q. You know, I'll just read this to you and just ask you to comment. One of Dr. Ruch's notes indicates that the clonus and spinal cord damage that she has is probably secondary to one of her shunts.

A. That is interesting. I note that in a letter just before that she says that she has been unable to detect any spinal cord injury. So I know that she hasn't made that diagnosis based on any radiological studies or diagnostic studies.

As I said, clonus, this type of phenomena is usually due to some injury of the upper motor neurons, which includes the brain and spinal cord. So I assume that she is making that statement that there is "damage" based on the fact that she has clonus and something of the upper motor neuron. However, that is a statement without making the diagnosis based on the MRI, of course.

Q. All right. Is there --

A. And certainly injury to neural elements can occur

with lumboperitoneal shunting, so it is a reasonable possibility that a lumboperitoneal shunt can cause injury to these elements.

Q. All right. In a hypothetical patient we've talked about before where this patient at least postoperatively develops the neurologic symptoms that we discussed with the severe right extremity pain, you know, the numbness coming down through both extremities up to the knees, a left leg weakness where it would cause someone to drag their left foot, I suppose drag it behind because of the weakness in an immediate postoperative period, the first week, then that patient going on and developing foot drop, my first question to you is can the foot drop be consistent with the location of the shunt?

MR. MURPHY: Is the foot drop right or left?

MR. TSAROUHAS: Left foot drop.

A. So you have a left foot drop.

Q. Left foot drop, and this hypothetical patient that has a progressive weakness in the left extremity as time is going on, the weakness continues and gets worse and worse.

A. A foot drop is usually caused by lower lumbar

nerve roots. Certainly all the nerve roots pass by this catheter as it is going in. I think you're asking me if a foot drop can be caused by a lumboperitoneal shunt inserted at L3. It's possible, but it is not very likely in that with an insertion at that level the level of a foot drop is a lower level than level 4. It's a level 5. So it is less likely, but since all the nerve roots do pass that, yes, it's possible.

Q. It potentially can be consistent with, even though we're at a higher level at T3 level --

A. Yes, because all the nerve roots pass through there, yes. So your question is can a foot drop be caused by a lumboperitoneal shunt placed at the L3 or L4 level?

Q. Correct.

A. Yes.

Q. Would you agree then -- Now I'm going to apply this hypothetical person to this case. I want you to assume for the moment that in this case Linda Cimino is that hypothetical patient where postoperatively week one has left leg weakness -- left extremity weakness develops, begins progressing as the days and weeks persist with an inability to -- with difficulty walking and with

the left leg being weak and dragging, if you will, as she walks, and that persisting through to a point where she is then diagnosed with a foot drop.

Assuming that for a moment, for some neurologic injury which is the etiology of the foot drop, under that scenario if that is true, accepting that as being true hypothetically, would you agree with me that the most likely cause of the foot drop is associated with a complication arising from the lumboperitoneal surgery of November 21, '96?

A. Let me just rephrase it. I believe the answer is yes.

Q. Sure. I want to make sure we're communicating.

A. Yes, I believe if a weakness develops in the left leg and persists, progresses, and then eventually develops into a foot drop and that progression started at the time of a lumboperitoneal shunt placement, that it most likely is related to some aspect of the procedure. But it is uncertain whether that is the catheter, the insertion, a remote myelitis or any other conditions.

But I would say, yes, based on the time link and the fact that this obviously

started and progressed at the time of surgery that there was a relationship. Is that --

Q. Right. And that is an opinion with reasonable medical probability?

A. Yes.

Q. More likely than not?

A. I believe *so,* yes.

Q. Again, taking that situation, that scenario, if the physician in charge of the patient, that information is brought to their attention that there is this left leg weakness which is progressing and persisting, how long should one wait prior to going in and working up this patient?

A. I believe with the identification of a weakness a work-up including imaging should progress -- there should be an admission for observation and a radiological work-up on that admission as expediently as possible.

Q. And I guess I suppose -- I mean, maybe you don't have an answer for this, but if this post-op day one, two, three, four, how long of a progression and persistence would you expect before you say, okay, I've heard enough, that threshold, if you will, and say, all right, I've followed this long

enough, I think we ought to intervene?
A. I'm not sure of a hypothetical here or not.
Q. The hypothetical.
A. Hypothetically when a progression of a weakness is known to me, I would recommend the admission immediately. I would not wait for a continued progression of weakness. If I can go to a specific, when I learned of her presentation to the emergency room with not only the right pain that I knew of, but of some other complaints, although I didn't quite understand their etiology or their relationship to the right leg pain, I felt that this would warrant an admission and observation to make sure that there is not a progressive weakness and a work-up.

So as soon as I felt that there was something possibly progressive or something besides the pain that we had known about when she had good strength, then I would recommend an admission, observation and a work-up.
Q. And you indicated before that you don't see anything in the record reflecting any left-sided weakness, at least postoperatively in the acute period?
A. Not postoperatively, no. I don't know whether it

is there or not, but I don't see a record of it.
Q. But you don't see any record of it in the first week or the second week or as the time progressed?
A. Although with severe pain, of course, from her back pain, a mild weakness can be hard to detect. We have to take that into account. But, yes, we see no documented record of it.
Q. However, if a resident was advised of that, whether it was in person during the hospitalization or whether it was done by telephone at some point or one of your staff came to know that information and failed to communicate that to you, that would be totally unacceptable?
A. I think failure to communicate neurological conditions is not what we want, of course.
Q. All right. In a scenario where, again, we have a situation where there is the progression of the left extremity weakness going on to persist for up to a month and a half, a month and a week, which then -- again, accepting all these things as true -- developed into a foot drop, assuming that being the scenario --
A. This is a hypothetical?

Q. That is the hypothetical we're talking about. If that is indeed the case, at what point in time do you believe that the injury would become permanent? I mean, is there some time frame between that you would expect, one week, five days, a month?

A. I don't believe that is known and I think that may depend on the severity of the weakness. Certainly we see with cervical disks or lumbar disks, we see weaknesses which can be restored if they are mild. Certainly a plegia of an arm will cause residual weakness if it is there for a significant period of time. But a mild weakness may recover fully.

Q. So I suppose there is some correlation as to the degree of the deficit as to whether or not the chances of recovering fully or for the most part decreases. So the more severe the deficit, the less likely or the less chance of full recovery?

A. It's a severity time function, yes. And if there are any episodes where it is intermittent, as we talked about earlier, that might play a role in the processes as well.

a. Again, that is a good point that you brought up about intermittent deficits or signs where the

one day there may be a weakness, the next day not, the one day a severe pain, the next day not, those things can change indicating that there is a --

A. They may be reversible, that's right.

Q. And, again, the other explanation as to why we can have the intermittent neurologic deficits or symptoms is because the mechanism of that neurologic deficit or symptom may change?

Maybe that is not artfully stated, but where the etiology of that deficit may wax and wane, if you will, where at one point you have the notation, the next point you don't, as it relates to the shunt --

A. Certainly if it waxes and wanes, that means it can be reversed. In other words, when whatever is there is not there, it goes away, it is reversible and is not a permanent injury. Is that what you're asking?

Q. No. Actually, I guess what I'm asking you, is there some relationship between intermittent neurologic deficits and the cause of those deficits? I mean, is there --

A. Well, that is speculation, I guess. Certainly a disk may get worse and may make the problem -- a

problem may worsen or it may retract and become smaller. Yes, I suppose intermittent -- one explanation of intermittent symptoms is changing etiology, yes, that's true.

Q. And I guess just so I understand, like in the case where we have a shunt placement, lumboperitoneal shunt placement, that if the shunt is indeed the cause of the neurologic deficits, can it be the shunt changing location sort of explaining why there is a more severe deficit on one day as opposed to another?

A. I think it is possible for catheters to change position, although I've never documented that or known that to be the case. Catheters in other locations can change position. It's conceivable, I just don't have any information how frequently that happens.

Q. Do you believe that the shunt in this case migrated at all?

A. I think it is unlikely or migrated relatively little. But, again, I don't know.

Q. Any evidence here in the record that Linda Cimino was a noncompliant patient?

A. Noncompliant, no.

Q. Did she do something --

A. That I know of.
Q. Right, that you know of, that she did or did not do something which led to her own problems or harm?
A. Not that I know of, no.
Q. Did you discuss this case with anybody else other than Mr. Murphy or the attorneys that have been provided for you?
A. No.
Q. Let me just look at one more thing.
A. Can I add to one statement you asked about?
Q. Sure.
A. You asked about things that might have contributed on her end to injury, and the only thing was my concern -- and this *is* kind of a complex issue -- it is a difficult thing of balancing between pseudotumor and the treatment of that and radicular pain. I'm not saying anything about negligence or causing.

What I'm saying is one thing I had to weigh carefully and discuss in detail with her is the risk of doing a second procedure to manipulate a catheter to relieve the leg pain, and the fact that a reasonable possible outcome of that might be that we have to remove the shunt

completely or it might get infected.

I was very concerned that the treatment of her severe pseudotumor would be compromised. I was pleased that she had relief of her headaches or almost, you know, resolution, maybe not entirely, but good relief eventually in her papilledema and so forth, she did not have any of the blackouts and visual changes.

I was very concerned and went over with her before that revision of the shunt that these symptoms were severe enough for her to go ahead and risk the other symptoms or the other possibility of a compromise of her treatment of her pseudotumor.

And once that was established that these symptoms were bad enough that we're going to risk, I did tell her that I felt I could -- had a good chance of changing it so that maybe it wouldn't be near a nerve root and might make her feel better and still keep the shunt.

But I had to let her know that we might have to remove the shunt eventually or the manipulation might cause infection and we have now a working system and that's very important for overall care.

So it's a complex thing, but I had to make sure that she wanted to take the risks of manipulating that catheter, which is of concern because the other disease that we were treating is severe.

Q. You were recommending taking that risk though to revise the --

A. After consultation with her I was recommending it, because I had to feel that her symptoms were severe enough and bothersome enough for her to go ahead and take it out. I noted that in Dr. Ruch's later assessments she says some of these problems were annoying but she did not recommend any further removal of the catheter system which was working and has not touched it.

I'm not saying that this was just annoying and that this has not been a big problem, but what I'm saying is that the fear of pseudotumor and the concerns about that disease are real and have to be weighed into the overall decision-making.

Q. And that might even explain that -- Do you know whether or not sometime in December of '96 that after a potential discussion you had with Ms. Cimino that she, in fact, canceled the surgery

and then rescheduled?
A. I don't recall that directly.
Q. Okay.
A. Are you saying that is a potential discussion or it was a theoretical real discussion?
Q. It may have been a discussion that initially she was scared of the surgery and then canceled and then may have talked to you again and then rescheduled it.
A. About the revision?
Q. Right.
A. Not to my knowledge. I don't recall that.
Q. Okay. Do you have any opinion as to if you noted I think in Dr. Ruch's notes from electromyography that there was evidence of a possible or partial denervation of the L2-L3 area on the left?
A. I recall seeing that from the record.
Q. What is that?
A. That is consistent with injury of the nerve roots at that level.
Q. And this time it was found the denervation was on the left side though?
A. Yes, I believe so. You have it in front of you.
Q. Let me find the page. Right there, the last line there.

A. Yes, left side.
Q. What would be the cause of that?
A. Again, I'm certain, as we discussed before, the lumbar on the left side, since the catheter was seen on the CT to go in on the left side, as a reasonable guess that would be due to the time of insertion and would be an injury that is fixed at that time.
Q. What would that type of injury -- What kind of symptoms would you expect to see if there was an injury to the L2-L3 nerve root system?
A. You would see a proximal weakness of the legs.
Q. Both legs?
A. Left side.
Q. Left side?
A. Left side.
Q. But again, if the weakness in the leg progressed, then again it would be related to the L2-L3 insertion, but that there was a progression of the symptoms?
A. It would not progress in the direction of a distal weakness because that is a different nerve distribution. So it would not progress in the sense of a foot drop.
Q. What kind of weakness?

A. Increase in weakness at the flexion of the hip. Perhaps the knee, but primarily the hip. But it would not progress to a foot drop.

MR. TSAROUHAS: Very good. Doctor, that is all the questions I have. You have the right to review this deposition or you can waive that right. You can consult.

MR. MURPHY: If it's written up, I'll get a copy and send it out to you to review and see if it's taken down accurately or if there are some things that need to be changed.

(Whereupon, signature was not waived by the witness.)

(Plaintiff's Deposition Exhibit 1, Drawing, was marked for identification.)

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(Deposition concluded at 12:15 p.m.)

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C E R T I F I C A T E

I, MARK LUCIANO, M.D., do hereby certify that I have read the foregoing deposition in the case of LINDA A. CIMINO, Plaintiff, versus CLEVELAND CLINIC FOUNDATION, et al., Defendants, and said deposition constitutes a true and correct transcript of my testimony given at the specified time.

_____
MARK LUCIANO, M.D.

Subscribed and sworn to before me this _____ day of _____, 1999.

_____
Notary Public
My commission expires _____

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C E R T I F I C A T E

STATE OF OHIO)
) SS
STARK COUNTY)

I, Christine Leisure, a Registered Professional Reporter and Notary Public in and for the State of Ohio, duly commissioned and qualified, do hereby certify that the within named Witness, **MARK LUCIANO, 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 given was by me reduced to Stenotypy and afterwards transcribed upon a computer, and that the foregoing is a true and correct transcription of the testimony so given by him as aforesaid.

I do further certify that this deposition was taken at the time and place in the foregoing caption specified.

I do further certify that I am not a relative, counsel or attorney of 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 Canton, Ohio, on this 1st day of November, 1999.

Christine Leisure, RPR/Rodriguez
Christine Leisure, RPR & Notary Public
My commission expires April 1, 2002.