IN THE COURT OF COMMON PLEAS
LUCAS COUNTY, OHIO

AUSTIN SYBERT, etc., et al.,	:	CASE NO. C10200003311
Plaintiffs,	:	
		De bene esse
		deposition of:
VS.	:	
	:	PETER KOLLROS, M.D.
DR. AMELIA ROUSH, et al.,		

T R A N S C R I P T of the stenographic notes of the proceedings in the above entitled matter was held at the Airport Mariott, One Arrivals Road, Philadelphia, PA, on January 29, 2002, commencing at 9:00 AM, before ANGELA R. WATERS, a Certified Shorthand Reporter and Notary Public of the State of New Jersey, and a Videographer, pursuant to Notice.

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I N D E X

E X H I B I T S

(No exhibits marked.)

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VIDEOGRAPHER: We are now on the video record.

My name is Kevin Montgomery. I'm a videographer employed by Esquire Deposition Services, 1880 JFK Boulevard, Philadelphia, Pennsylvania.

This is a video deposition for the Court of Common Pleas of Lucas County, Ohio. Case No. CI20003311. Today's date is January 29, 2002. And the time is 9:13 AM.

This deposition is being held at the Marriott Hotel, Philadelphia Airport, One Arrivals Road, Philadelphia, Pennsylvania, in the matter of Austin Sybert et al versus Dr. Amelia Roush, et al.

The deponent is Peter R. Kollros, M.D. This deposition is being taken on behalf of the Plaintiffs. Present today for Plaintiffs, Mr. Michael F. Becker on the telephone. Present for Defendants, Mr. Anthony Dapore, also on the telephone. And present in person for Defendants, Mr. E. Thomas Maguire.

You may proceed, Counsel.

MR. MAGUIRE: Just one correction. This is Tom Maguire. Mr. Dapore is representing Dr.

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Roush. And I'm representing St. Luke's Hospital.

Doctor, will you waive my qualifications as a Notary so that I may swear you?

DR. KOLLROS: Yes.

MR. MAGUIRE: I understand that all Counsel of record will waive my qualifications as well?

MR. BECKER: Correct.

MR. DAPORE: Correct.

MR. MAGUIRE: Is that correct? Okay. Doctor, raise your right hand.

Do you agree to tell the truth, the whole truth, and nothing but the truth as you so shall answer to God or so affirm?

DR. KOLLROS: I do.

MR. MAGUIRE: Go ahead, Mr. Becker.

MR. BECKER: Thank you.

DIRECT EXAMINATION

BY MR. BECKER: (via telephone).

Q Doctor, for the record would you give us your full name, please.

A Yes. My name is Peter R. Kollros.

Q And what is your business address?

A It is -- it's the Section of Child

Neurology and Development, Temple University Children's Medical Center, 3509 North Broad Street, Philadelphia, PA 19140. I'm sorry.

Q Doctor, have you ever had your deposition taken before?

A Yes, I have.

Q All right. I just want to review the ground rules so that we understand each other.

A Certainly.

Q And because I am taking this deposition by telephone, it's sometimes important to give me an extra second after I finish my question, just to insure that I am done so we don't speak over one another. Fair enough?

A Fair enough.

Q This is a question/answer session under oath. It's very important that you understand the question that I ask.

If a question does not make sense or is inartfully phrased, you stop me and tell me so. And I will be pleased to attempt to rephrase, or restate the question. Fair enough?

A Fair enough.

Q However, unless you indicate

otherwise to me, I am going to assume that you have fully understood the question that has been posed. You were given your best and most complete answer today. Fair enough?

A Fair enough.

Q Please kind of retrict your answer to verbal responses. And if possible, avoid the uh-huh, ugh-ugh sound so that there's no question as to what you mean at a later date. Fair enough?

A Fair enough.

Q What-- Doctor, I have a copy-- Mr. Maguire was kind enough to send me a copy of your CV. And I have a date in the upper left-hand corner May of '98.

A Okay.

Q Do you have any more current Vitae?

A Yes, I do.

Q Did you bring one with you by chance?

A No, I did not. But I will be happy to forward one to Mr. Maguire.

Q Let's talk about anything that you've published, author'd, or coauthor'd since this May '98 CV that I have in hand.

Are there any articles, or chapters of books you've author'd or abstracts you author'd or coauthor'd?

A I'm not sure what the last publication on that CV is.

The most recent works would be a publication on language development and something called Landau Clefner Syndrome. And it was in one of the developmental journals. I think that came out in maybe'97,'98 or '00. There was--

Q To help you out--

A Okay.

Q -- the last article -- I guess these are abstracts.

A They're abstracts. And then there are articles in front of the abstracts.

Q All right. And the last article I have is entitled Acquired Billy Five Left Deformed Dysphasia. Current Concepts and Controversies published in the Journal of Developmental of Learning Disorder?

A Right. Right.

And then since that time there have been two other publications. One was published in,

I believe, the European Journal of Pediatrics, or the European-- I believe it was European Journal of Pediatrics. And it also has to do with Landau Clefner Syndrome, and EEG's with Landau Clefner Syndrome. The first author on that paper was Richard Boles, and other authors were Wendy Mitchell. And a neurologist by the name of Edna Botany.

Q Okay.

A And then --

Q Are those more recent articles potentially relevant to the subject matter and/or your opinions in this case?

A No. No. The only other one was a published lecture on dyslexia.

Q All right. You went to the University of Chicago-- or strike that.

Are you originally from the Illinois area?

A I grew up in Iowa. I did my undergraduate work at Northwestern University in Evanston, Illinois. Then I went to the University of Chicago for medical school where I earned an M.D., with honors, and also a Ph.D in pathology.

From there I did a pediatric internship, and a year of residency in pediatrics at Children's Memorial Medical Center in Chicago. And then from there I went to the University of Michigan where I did child neurology training.

After finishing that training I stayed on at Michigan for one year as a lecturer. And did research, and then from there I moved to Philadelphia, and joined the faculty at Jefferson Medical School.

About two and-a-half years ago I left Jefferson, and joined the faculty at Temple University Medical School.

Q What was the reason you left Jefferson?

A The reason I left Jefferson was -- they were basically phasing out their Department of Pediatrics, and out-sourcing it all to the A.I. DuPont Institute. And the terms of employment at DuPont were not as favorable.

Q Let's back up, doctor, to your days in Chicago at the University Chicago where you became, not only a Ph.D., but also the MD degree. Explain that program to me.

How was it that you were able to take two different study courses at the same time?

A Well, there is some overlap between what you need to do to get an M.D., and the requirements for a Ph.D in the biological sciences. It was basically a program that I took seven years to do. I did two years, the first two years of medical school. Then I took off for medical school, and did three years working on the PhD. Then I finished up the last two years of medical school.

Q All right. What was the reason that you wanted to obtain a PhD in pathology?

A The reason I wanted to obtain a PhD in pathology because at the time I thought I wanted to do medical research and have the qualifications in order to do that.

Q Since obtaining that doctorate in pathology, have you done any research in pathology?

A I've done medical research. The pathology is the study of disease processes. And the research I have done has been in the study of disease processes, yes.

Q Okay. I mean are you actually-- since you started your clinical practice, have you

been in a pathology lab looking at slides, those kind of things?

A No.

MR. MAGUIRE: Mr. Becker, we're not going to use this expert for any pathological testimony in the case.

MR. BECKER: Okay. That will save me some time.

MR. MAGUIRE: Yeah.

MR. BECKER: Thank you.

BY MR. BECKER: (Continued).

Q Looking under "Major Research Interest" on your Vitae, doctor, it says, "Mechanisms of Perinatal Service System Injuries."

What does that mean? I think I know what that means, but what does that mean?

A That would be mechanisms of brain injury at or around the time of birth.

Q All right. What type of research have you done on that issue?

A The research done on that issue has largely been clinical research in terms of following babies who have had perinatal insults.

And we published a paper in that

area in regards to their problems with hearing.

Q And who was your author -- who is the lead author in that article?

A I believe it was Shuby Dasai.

Q And the name of the article was Sensitivity and Specificity of Neonatal Brain Stem Auditory Voc. Potential?

A Correct.

Q Is that the only article you published secondary to your particular interest in "Mechanism of Perinatal Nervous System Injury"?

A Yes. That's the only article I published specifically in that area.

Q All right. Can you just give me a thumbnail sketch of that article of what kind of a syllabus as to what it stands for, or what the upshot of the article was?

A Yeah. One the of the problems that premature babies have is they have late-- there's a certain percentage of them who have late hearing loss.

And the question then becomes: Are there ways of predicting which babies are likely to have that, and whether or not the brain stem

auditory of Vogt's potentials are useful in that regard?

And basically the thought is, is that they're not useful in predicting which children will have late hearing loss.

MR. MAGUIRE: Just a minute, Mr. Becker. The court reporter has come in. She's set up. And I'd like the record to reflect that she'll take it along with the videotape at this time. She's agreed to transcribe, not only what she's going to take down, but also what's been taken down by way of videotape.

MR. BECKER: All right. For the record I would ask that the stenographer identify herself, her firm, and her firm's phone number for everyone at hand.

COURT REPORTER: Yes. My name is Angela Waters. I'm with Esquire Deposition Services. The phone number is 215-988-9191.

MR. BECKER: I'm sorry. I didn't get the end of that.

COURT REPORTER: 215-988-9191.

MR. BECKER: Thank you.

COURT REPORTER: You're welcome.

DIRECT EXAMINATION

BY MR. BECKER: (Continued)

Q Doctor, just a few more questions off of your Vitae.

A Certainly.

Q There's an article entitled "Intrauterine Onset of Mono-Neuropathy"?

A Right.

Q What does that mean?

A That was an article that I published with Dr. Jones and Dr. Herbison in which we described a baby who had a perineal nerve palsy. That's a nerve in the leg.

And we were able to demonstrate that the nerve injury had to have occurred in utero. And that's an isolated nerve injury to a particular nerve into the leg.

Q How did that baby-- what were the symptoms and manifestations of that nerve injury?

A The baby didn't really move the effective leg appropriately. There were not reflexes in that leg. There seemed to-- the baby acted as though there were some sensory deprivation in the leg that

the baby didn't feel things as well in that leg.

Q How were you able to utilize an EMG to assist you in timing of injury?

A Basically with the EMG you -- it takes time to show evidence of lack of nerve input to a muscle. That's called "denervation."

When a muscle losses its input from the peripheral nerve, there will be changes in the muscle. The muscle will become more irritable. Electrically it will have spontaneous discharges. And that's something that takes time, generally, two weeks. And we were able to show those late changes in the baby's EMG on the day of birth.

Q Well, has there been any studies that demonstrates that -- I'm assuming you're applying the adult time for intervention -- innervation to approximately two weeks.

Has there been any studies that have, for whatever reason -- I'm not sure how they would ever do this-- determine or test to see if a baby, a newborn has a different time span for innervation process?

A A different time span to show the late changes?

Q Yes.

A That's -- that's a good question.

That question can be answered indirectly, in that there have been some studies and abstracts, some of which were done by Dr. Konensberger which show that if-- that children who have a peripheral nerve injury need not have the late changes. And then over time, they will develop the late changes.

So whether or not the time, a course of two weeks is the correct time, the course for neonates is not known. But there is evidence to show that those late changes do not occur immediately in neonates.

Q One more question on your Vitae, and then we'll move onto your medical/legal experience.

The No. 14 on your Vitae talks about--"do not cross the blood brain barrier, and when you use the phrase "blood brain barrier," what do you mean?

A The blood brain barrier is anatomically the endothelial cells. Those are the cells that line capillaries. In the brain they are very tightly connected one to the other. And that's important

for controlling the chemical environment of the brain. The chemical environment of the brain is much more regulated than the chemical environment of other organs. And this is what the blood brain barrier is and does.

Q All right. Doctor, let's talk about your medical/legal experience.

How long have you been reviewing cases?

A I think I started reviewing cases probably in 1991, or 92, or 93. And for the first several years those were limited to vaccine injury cases for the United States government.

Some time, a few years after that, I began to do an occasional case in other medical/legal venues.

Q All right. Let's say approximately in 1995, how many cases a year were you reviewing?

A I would probably-- when I first started out it was maybe 10.

At this point it probably is somewhere around 20 to 30.

Q A year?

A Yeah. I've trailed off some this last

year.

Q And have you ever testified in federal court?

A In federal court?

Q Yes.

A No. I've given depositions for federal court. And and the vaccine injury is also a federal hearing.

Q All right. Well, as you may or may not know, in federal court, medical/legal witnesses are required to a very list of their previous medical/legal experience, including name of case, attorney, et cetera, for the previous four years.

Have you ever done that?

A Yes, I did that for the depositions in one case.

Q Do you still have that list?

A Um, yeah, I believe I probably do.

Q Would you be able to retrieve it and send it to Mr. Maguire?

A Certainly.

Q In addition to that you-- some experts keep a list of their active cases, or all cases for that matter, on a computer, disk, or

anything like that.

Do you do that, sir?

A I have records on computer disks. I don't know that it's complete.

Q What would be included on that list?

A It would -- it would be the cases that I have worked on at different times.

I've used different computers, and some of the cases may have been lost.

Q All right. Can you give me a breakdown of the percentage of cases that you review on behalf of the medical provider versus the patient?

A The majority, the large majority for them are for the medical provider.

I have done a product liability case for a Plaintiff and testified in the Philadelphia County Court for that. I have also reviewed a case for an attorney in Pittsburg, Mr. Cappano, I believe. I've actually reviewed two cases for him, one of which we did provide an opinion for. And there is a case in Orlando that is active right now where I've worked for a Plaintiff.

Q What's the Plaintiff's name in

Orlando?

A Workman.

Q And the name of the Plaintiff's attorney?

A I would have to check that for you.

Q Have you given a deposition, or written a report in that case?

A I've written an Affidavit.

Q All right. What's the subject matter of the Orlando case?

A It's a-- it's a case where they're alleging perinatal brain injury. And it has to do with the timing of the brain injury.

Q What is your opinion in that case if you remember, in the Workman case?

A My opinion in the case was that there was a brain injury that was caused, or significantly exacerbated within the many hours that the mother had been seen by the doctors in Orlando there prior to her baby being born.

Q An asphyxia injury?

A Yes.

Q All right. And the case in Pittsburg?

A The case where I offered an opinion was a case where a -- I don't remember the name -- but I remember very well the -- the facts. The mother had a heart valve lesion and was going into heart failure. And for the days prior to -- for the day prior to the baby's birth, kept showing up in the Emergency Room with heart failure. And it was worsening and worsening. And she was having trouble breathing in the Emergency Room. Just kept sending her home until the baby ultimately was delivered hours late. And there was a brain injury where the time corresponded to the time that -- after the mother had been to the Emergency Room.

Q So it was an adult neurological injury?

A It was a neurological injury in the baby. The mother was undergoing heart failure, and the baby ultimately ended up in distress.

Q Okay. Doctor, would it be any trouble for you to check your computer to see what kind of an active list you have of cases and run that list off and provide that to Mr. Maguire's law firm?

A Sure I can do that.

Q Doctor, would you kind of give me a sense as to your-- well, first of all before I talk about your clinical practice, have you actually -- how many depositions, in total, have you given medical/legal ones, excluding the vaccine cases?

A Number of depositions?

Q Yes.

A I would say two or three depositions.

Q So this might only be your fourth deposition?

A Yes, this might only be my fourth deposition.

Q All right. Now, do you advertise your services, doctor?

A No, I do not.

Q Do you know how it was that Mr. Maguire came to contact you?

A I believe that he got my name from a couple of people that he had used, or had tried to use otherwise.

Q On this case?

A I think in general.

I've worked on probably three or four cases for his firm.

Q Have you actually written a report, or given a deposition for him prior to this?

A I-- I wrote one report for him just last month.

Q And what case was that?

A I believe it was Canfield.

Q That was the name of the Plaintiff?

A Yes.

Q What city; what state?

A It's in Ohio.

MR. MAGUIRE: It's Canfield against-- Flower I'm sorry-- Flower Hospital. It's in Eerie County.

BY MR. BECKER:

Q Do you have any knowledge, doctor, whether or not any other pediatric neurologist, or pediatric neuro-radiologist have reviewed this case?

MR. MAGUIRE: Now, wait a minute. Wait a minute. I'm going to object to this. You're getting into my work product, and we're not--

MR. BECKER: No, I'm not. I'm not asking for any--

MR. MAGUIRE: Just a minute.

MR. BECKER: I want to know if he has any knowledge.

MR. MAGUIRE: Just a minute, Mr. Becker. You're getting into my work product. And we're not going to get into this.

MR. BECKER: You can instruct him not to answer.

MR. MAGUIRE: You can ask him if he has personal knowledge, that's fine. But if he's heard it through me, we're not going to do this. You're not entitled to my work product.

MR. BECKER: Once I get--

Q First of all, do you have any personal knowledge whether Mr. Maguire, based on reports or anything else you've seen, has had this case reviewed by either any other pediatric neurologist or pediatric neuro-radiologist?

A I've seen no expert reports from any pediatric neurologist, or any pediatric neuro-radiologist.

MR. BECKER: Okay. And then I will ask the question-- and, Tom, you can direct him not to answer--

BY MR. BECKER:

Q Do you have any general knowledge whether or not any other pediatric neurologist, or pediatric neuro-radiologist have reviewed this case?

MR. MAGUIRE: I will object to the question. He may answer it over my objection which I will reserve for the Court.

A My understanding is that certainly the treating child neurologist has reviewed the case.

And my understanding is that the co-defendant has a neuro-radiologist who has reviewed the case.

Q Okay. Doctor, can you give me a sense as to your current clinical practice?

A Yes. I am headquartered at Temple Children's Hospital in Philadelphia which is a teaching institution. I also am the co-neurology course director. So I am in charge of teaching the medical students neurology.

I see patients -- and it's a hospital-based practice -- at Temple Children's, three and-a-half days a week. I see patients one half day a week at Lower Bucks Hospital as an outpatient clinic at the Lower Bucks Hospital in

Bristol, Pennsylvania. And I also consult extensively for school districts in the Delaware Valley.

Q And you see-- give me the age range of your patients?

A We start from premature babies. And I think at this point probably my oldest patient is about 23, or 24. He's a patient that I followed for a number of years, and doesn't want to move on.

Q Doctor, do you have any -- do you have a file on this case?

A Yes, I do.

Q Did you bring your file with you here today?

A Yes, I did.

Q Would you deliniate for the record everything that is in your file?

A Sure.

I have the office records of Dr. Roush. I have records of Dr. Marlowe. I have the St. Luke's OB observations from 7/20/99. I have the St. Luke's admission from 7/22/99 to 7/25/99 for the mother. I have the St. Luke's admission for 7/22/99 for the baby. I have the ETM transport records, and

I have the St. Vincent's Hospital admission 7/22/99 to 8/2/99 for the baby. There are also X-rays, CT, and MRI scans.

Q Did you do any research, either for today's deposition, or before you reached your final decision?

A Um, I'm sorry. I don't understand the question exactly.

Q Before reaching your ultimate opinions on this case and/or before today's deposition, did you engage in any research such as looking at textbooks, looking at journal articles, consulting with maybe a pediatric neurologist-- that kind of thing?

A I mean I do that in the course of my work all the time.

Q For this case, doctor?

A For this case, specifically? Nothing out of the ordinary.

Q All right. I just wanted some-- do you have any research articles within your file?

A No.

Q I mean do you have a specific recollection of doing research for this case on a

certain issue?

A No.

Q Okay. And did you consult with any type of radiologist or neuro-radiologist with film?

A No.

Q All right. Do you have any notes?

A No.

Q Did you ever generate any notes?

A No, I do not generate notes.

Q Did you ever generate a report on this case?

A No, I did not.

Q Was there any written communication between you and Mr. Maguire that was ever generated by you?

A No.

Q Is there any electronic communication by you, such as E-mail through Mr. Maguire?

MR. MAGUIRE: I don't have an E-mail.

A No.

Q All right. Why is it that you don't have notes?

A Because what I generally do is I will put stickies on the record at areas that I think are relevant. And then I can always go back and find out the information from the original source.

Q All right. And do the records have Post-Its on them?

A Yes.

Q Is there a great number of them, or just a few?

A Oh, I don't know. There's --

MR. MAGUIRE: There are about 50 of them, Michael. Let's move on. I got to catch an airplane.

Q All right. Can we agree, doctor, that you'll give-- have someone, at my expense, photocopy the pages that you have a Post-It on so I don't have to go into them?

A Certainly.

Q All right. Doctor, you understand that the purpose of today is to give me an opportunity to know, in detail, all the opinions you're going to render in this case at trial?

A Correct.

Q Okay. And also to give me an

opportunity to discover the bases for those opinions as well, correct?

A Correct.

Q All right. Doctor, why don't you-- I'm assuming, doctor, you're not going to have an opinion on standard of care?

A Um, not -- not in terms of the obstetrical care, no.

Q Well, what-- do you have any opinion on standard of care?

A No.

Q You-- I suspect you're going to have an opinion on causation, correct?

A Correct.

Q Are you going to have an opinion on life expectancy?

A No.

Q All right. So your opinions for trial will strictly be limited to the topic of causation, right?

A Yes.

If I might amend an answer to an earlier question--

Q Yes, sir?

A In response to pediatric neurologist reviewing the case, my understanding is that there will be a life expectancy expert pediatric neurologist as well. And I omitted that from my previous answer.

Q Okay. All right.

Doctor, the -- I'm gathering, doctor, that you feel this child sustained some brain injury before he arrived at St. Luke's Hospital on January 22nd; is that correct?

A That is correct.

Q I have July 22nd.

A July 22nd.

Q Okay. And was this a permanent brain injury that he sustained?

A Yes.

Q Okay. And what was the etiology for that brain injury?

A I'm not certain what the etiology for that brain injury is.

Q Do you have an opinion in terms of probability as to what the etiology of that brain injury was?

A I would suspect that it was a problem with

placental fetal unit.

The MRI scans show that they have periventricular leukomalacia. And we know that occurs prior to the 35th week of gestation.

Q We'll talk about the scans in a moment. But I just wanted to make sure as to the etiology, if you have an opinion, more likely than not, in terms of probability, or is it a bit simply one-- one that you really have simply a possible explanation?

A It's-- I don't really have an explanation as to what the cause of the earlier injury was.

What I do see is a pattern of injury which indicates that this occurred prior to the time of the baby's birth.

Q Okay. So the record is clear, we can move on, you don't have an opinion as to etiology, you simply see a pattern of injury that tells you the timing occurred before the 35th week?

A Correct.

Q And a pattern of injury is based on an MRI or CT film?

A Yes, it's based on the imaging studies. And the opinion is also based on the clinical record

at the time of birth in which there were problem -- clinical problems. But the-- the extent and the pattern of those clinical problems do not support permanent brain injury occurring at that time.

MR. MAGUIRE: Mr. Becker, I just want a point of clarification, just so we're all on the same page.

It's my understanding, he's just testified that he has no medical probability opinion as to the etiology of the injury. But he is stating with medical probability with respect to the pattern of injury as supported by the clinical evidence after birth.

Is that correct, doctor, just so we're all on the same page?

A Yes.

Q MR. MAGUIRE: All right.

BY MR. BECKER:

Q All right. Let's deal-- let's deal, first of all, doctor, with the evidence on the films.

Are we talking CT or MRI, and which CT or MRI?

A We're talking several things.

First of all there was a CT done on the day of birth, or the day after birth. And that CT scan did not show evidence of edema.

Q Okay.

A And if there was significant brain injury at the time of birth, then you would expect to see evidence of edema on the CT scan. There were then two MRI scans.

Q Let's deal-- before we talk to the MRI's let me ask you a couple of questions about the CT scans.

A Certainly.

Q Are MRI's more diagnostic than CT's as far as picking out edema?

A Yes. In general, MRI's would be, but there was no MRI scan done at a clinically relevant time to find edema.

Q Okay. Right now when-- with the CT scan, if there was a deep brain injury, would you expect edema always to be appearing on a CT film?

A If there was a deep brain injury, yes, you would expect to see edema.

Q Always?

A Yes. If there was significant brain

injury, you would expect to see edema.

Q And what is the basis of that opinion?

A Because if there is an injury, there is a breakdown in the blood brain barrier. And there is going to be reaction to the injury with swelling, an influx of water, you're going to have breakdown of the cells. And you'll see water there as well.

Q If a pediatric neurologist would opine with CT cells, particularly the deep brain anoxic insult you may very well not see edema, would you defer to a pediatric neuro-radiologist on that issue?

A No, I would not defer to a pediatric neuro-radiologist.

I would say that it's possible to have a brain injury in an area that is so small and so limited that a CT scan would not pick it up. But I would not defer to say that you would not have edema.

Q Well, do you consider yourself to have the same level of expertise and competence as a pediatric neuro-radiologist in interpreting newborn and early child film studies?

A I believe that the knowledge base of pediatric neuro-radiologists is different than my knowledge base. And I think that we both bring relevant information to the interpretation of films.

Q Did you -- in fact I think I've already asked you this -- just to clarify. You didn't -- you didn't look at these films with anyone else, correct?

A Correct.

Q All right. When did you first see these films?

A I would imagine, judging from when the records were sent to me, probably sometime in February or March of 2001.

Q Okay. So I'm ready to move away from the CT films.

Other than the absence of edema is there any other support for your opinions for the CT film?

A The-- that's the major finding on the CT.

Q Okay. I'm ready to move away from the CT films then and go onto the first MRI.

A Okay.

Q Incidently, did you bring the films

with you today?

A Yes.

Q What is the date of the first MRI?

A It is 8/20/99.

Q And you indicated earlier that from your observation you see periventricular leukomalacia on that film; is that your testimony?

A Yes, there is single abnormalities that are consistent with periventricular leukomalacia in the periventricular white matter.

Q What is your definition of periventricular leukomalacia?

A Well, that would be an injury to the white matter. The white matter is the wires of the nervous system that connect one part of the brain to other parts of the brain and the spinal cord. And that would be the area around the ventricles. And that is a damage to that white matter. It is associated with cerebral palsy.

Q Is it deep within the brain?

A Yes.

Q Okay.

A Because the ventricles are deep within the brain. And this is the area just around the

ventricles.

Q Is it your opinion, doctor, that if there was an anoxic or a severe hypoxic insult at a 37 or 38-weeker, they would not have injury in that area of the brain?

A Yes. It wouldn't show up in this-- in this way.

The literature shows that periventricular leukomalacia is an injury that occurs earlier in gestation somewhere from around probably the 27th week to the 34th or 35th week.

Q I don't know that you answered my question.

MR. BECKER: Miss Reporter, would you read back my question, please.

(Court Reporter reads back the following:

"QUESTION: Is it your opinion, doctor, that if there was an anoxic or a severe hypoxic insult at at 37 or 38-weeker, they would not have injury in that area of the brain?")

A Yes. If there was a severe hypoxic injury you would not see that pattern of injury at that time in gestation.

Q So it's your testimony, doctor, that at-- term babies can not have an injury to the thalamus?

A I thought we were talking about periventricular leukomalacia.

Q Could you hold on one minute, doctor?

A Okay.

MR. BECKER: Off the record for a second. Be right back.

VIDEOGRAPHER: Stand by, please. The time is 10:02 AM. We're going off the video record.

(A recess was taken.)

MR. BECKER: Back on the record.

VIDEOGRAPHER: Stand by please. The time is 10:02 AM. We are on the video record.

BY MR. BECKER:

Q Doctor, what are the structures -- the names of the structures deep within the white matter, what are their names? There are some names of structures within the deep white matter?

A In the deep white matter?

Q Yes.

A Well, you have the internal capsule. You have the corona radiata.

Q That's fine. Thanks.

Do any others come to mind?

A Well, those would be the -- those would be the areas that are white matter that's relevant to this injury. You see the periventricular leukomalacia and the corona radiata.

Q Do you see any injury in the basal ganglia, or the thalami?

A Yes, there is also injury in the basal ganglia and the thalami.

Q What is the-- did the other radiologist call it periventricular leukomalacia who read the films?

A You mean the person for the clinical record?

Q Yes, sir.

A They talked about white matter signal abnormalities.

I can -- give me a second. I can find the exact wording.

A Okay. This is from the radiology at St. Vincent's Mercy Medical Center for the procedure

8/20/99.

They say that the -- "there's diffuse signal in the periventricular white matter super- tentorial-- tentorially would suggest a lack of demyelination. And I think they really mean a lack of myelination. And the ventricular system is not enlarged. There's diffuse signal in the peri-ventricular white matter region which could, from the absence of myelination -- and this should be correlated with the patient's gestational age."

Q Now, was there any developmental disorder in this child's brain in the utero?

A I believe that -- I'm not certain what you mean by "developmental."

Q Was there any malformation of the brain structures?

A The only thing which could suggest a malformation of brain structures is on the initial neuro-radiology studies they talk about an under opercularization of the brain. What that means is a little bit controversial. And it may mean that there's a mild formation, or it may be a developmental problem. And you do see some of that--

Q All right.
A -- on the earlier studies.
Q -- MRI show that the development in that area has completed?
A Yeah. I don't think that that's nearly so prominent on the subsequent areas, on the subsequent MRI's.
Q Okay. So essentially no malformation?
A Nothing that one can be definitive about.
Q Well, is there anything that you have an opinion in terms of probability that there was a brain malformation in this child in utero?
A No, I don't have any opinion that there was a brain malformation.
Q Okay. Now, can PVL be detected in an adult or-- strike that-- in a full term-- strike that.
Q Let's start again.
Can PVL come about via an insult at term in a baby?
A No.
Q Are you familiar with any literature that speaks to that issue?

A Yes. And PVL is a pattern of injury which is a -- seen in premature, or occurs in premature babies.

Q Here's my question, doctor.

Are you familiar with any literature that indicates that PVL can and does occur from an insult at term? Are you familiar with it, yes; if you're not familiar with it the answer would be no.

A Well, I think that you can have injuries to white matter at that time. But what you're talking about really is, is a pattern of injury. And I don't know of any literature which says that you have that pattern of injury, or that says that you have that differential susceptibility to injury in that area of the brain at term.

Q Well, when you say "pattern," maybe I'm not following what you mean by "pattern."

What do you mean by a pattern of injury here?

A Okay. By what I mean by a pattern of injury is there's different parts of the brain that have a differential susceptibility injury from hypoxia or ischemia, or a combination of hypoxia and ischemia at different times of gestation.

So that in the premature, they're much more sususceptible to injury in the periventricular white matter than full-term babies.

So if you have an injury that is from hypoxia or ischemia that would affect the white matter in a full-term baby, then you would need to see injury in other structures as well. So you have to look at the entire pattern of the brain injury.

Q Well, when you look at the most recent MRI, where is the significance -- what part of the brain has the most significant damage?

A Okay. There are -- there's damage in the basal ganglia. There's damage particularly in the palatum. And there's also damage in the thalamus. And there's also some white matter signal problems suggestive of periventricular leukomalacia.

Q So based on your interpretation, where does the significant brain damage lie of those five or six areas you just highlighted for me?

A Well, I think it lies in all of those areas.

Q Is there any one more definitive than the other, or significant than the other?

A No. But I think that the pattern is

suggestive that this is an injury that occurred probably around 34 weeks or so.

Q Okay. And I just for purposes of my expert, my pediatric neuro-radiologist, I need to know each and every basis for that conclusion?

A Okay. The basis for that conclusion is that you're seeing white matter problems that would be consistent with periventricular leukomalacia.

Secondly, you're seeing evidence of lesions in the palatum in the basal ganglia which tends to be more sususceptible earlier during gestation than full-term. And your--

Q What's the basis for that opinion?

A It's basically clinical experience from seeing a lot-- seeing MRI scans on a lot of babies and following these children.

Q Specifically what injury can you admit that supports that conclusion?

A Yeah. There is literature and suggestions in the literature that that's the case. I don't know that everybody subscribes to it. But in my experience there is certainly tendency toward that. And you also see thalamic injury and you can see volemic injury both pre-term and full-term.

Q Are you familiar with Barkovich's textbook on pediatric neuro-radiology?

A Yes.

Q Is it authoritative?

A What do you mean by "authoritative"?

Q Is it reliable and helpful to someone like you, a neurologist?

A Um, there's useful information in there. I don't know that everything in there is correct, or I would agree with everything. You know, it's a textbook.

Q Well, isn't it the leading textbook in pediatric neuro-radiology?

MR. MAGUIRE: Objection, Mr. Becker. You got your answer. Move on.

BY MR. BECKER:

Q Answer my question, doctor.

To your knowledge is it the leading textbook in pediatric neuro-radiology or would you defer to a pediatric neuro-radiologist on that issue?

A It's a widely recognized textbook, but it is a textbook.

Q Right. Do you have it within your

library?

A Yes, I have it. I don't have it in my personal library, but I certainly have it available to me.

Q Well, in your personal library, do you have any pediatric neuro-radiology textbook?

A I have some older textbooks on CT scans in my personal library.

Q What are the names of those?

A I think there is something by Ruth Ramsey, many, many years old.

Q All right. We talked about -- I want to make sure we covered each and every basis for your opinions here on the PVL. We'll talk about the clinical situation in a moment.

But as to the films, specific timing, you told me about the thalami and the basal ganglia. Anything else?

A No. It's basically the fact that you have the periventricular white matter abnormalities. And then you have this differential pattern of injury in the basal ganglia, and the thalamus which in my experience would place this injury before 37 weeks.

Q Doctor, in all fairness, don't you

think a pediatric neuro-radiologist would be in a better position to comment on what these films actually show and the significance of those than you?

MR. MAGUIRE: I object. He's already answered the question that he would not.

Go ahead.

MR. BECKER: Tom, if you start answering questions for him one more time-- I'm tired of this shit.

MR. MAGUIRE: Now, listen, Mr. Becker, you're-- you don't like his answers--

MR. BECKER:-- It's going to be over. And you're going to have to make another trip to Philadelphia. I will let you-- I gave you a lot of leeway at yesterday's deposition. I rushed through yesterday's deposition for you to accommodate you. I'm not going to tolerate.

MR. MAGUIRE: I'm going to put the objection on the record because he's--

MR. BECKER: When you hear the objection, don't tell the doctor how to answer, or I'm going to seek sanctions against you.

MR. MAGUIRE: He's already answered

the question. That's the basis for my objection. Now go ahead and ask your question.

MR. BECKER: Don't say what the answer is, or what you think it should be, or what you thought he said.

MR. MAGUIRE: Well, you're not going to keep repeating the same question. That's improper. Go ahead.

MR. BECKER: You got your objection.

MR. MAGUIRE: All right. Go on.

MR. BECKER: I am not going to tolerate it anymore, Tom.

MR. MAGUIRE: Go on.

MR. BECKER: You're on notice.

MR. MAGUIRE: Okay.

MR. BECKER: Let's go back to my question which I've long forgotten before I lost my temper.

Ms. Reporter, can you find that question. I think it had to do with deferring in all fairness.

(Court Reporter reads back the following:

"QUESTION: Doctor, in all fairness,

don't you think a pediatric neuro-radiologist would be in a better position to comment on what these films actually show and the significance of those than you?"

A No, I do not. And the reason is, is that neuro-radiologists are not in the position of putting all of the clinical information together. That's not part of their practice.

Q Okay. Doctor, what is it about the clinical information that supports your opinion?

A Okay. The clinical information that supports my opinion is that the severity of the brain injury, or the severity of the insult that the infant had at or around the time of birth is not sufficient to cause this degree, or a severe brain injury.

Q What in the world is your basis for that opinion?

A Okay. The basis for that opinion is No. 1, the Apgar scores on this case were at 10 minutes. The Apgar score was 4.

Q You're not suggesting that the criteria for 163 is the basis for your opinion, are you?

A I'm sorry, the criteria for what?

Q A.C.O.G. 163?

A Well, the A.C.O.G. 163 criteria were also adapted by the American Academy of Pediatrics. And those criteria are scientifically based. And the --

Q Okay.

A If I can go through my opinions, there are some aspects of the A.C.O.G., criteria which are relevant.

Q The A.C.O.G. 163 criteria, what is missing, the 10-minute Apgar is 4 instead of 3?

A Correct.

Q Anything else, sir?

A Yes, there is not evidence of other tissue damage.

Throughout the time that the baby was at St. Vincent's, there was no elevation in liver enzymes. There was normal BUN, normal creatine. There was no blood in the urine. There was good kidney output from Day 1. And we don't really have the evidence of other organ damage here.

Q You're saying multi-system organ injury?

A Correct.

Q All right. Now, are you aware of any literature that says -- stands for the proposition that when there is a sudden catastrophic insult, such as a ruptured uterus, there very well may not be multi-system organ injury.

Are you aware of any literature that stands for that proposition?

A Yes. There is some literature that stands for that proposition. Nonetheless if you look at susceptibilities of different organs, the brain is metabolically not more sususceptible than some of these other organs are at term.

And there is literature that suggests that the best indicator of brain injury is renal output. There was good kidney output. And there was no blood in the urine.

Now, there are other things that also suggests that the severity of the injury was not such that it should cause a devastating neurological injury. And those other things include that there was an elevation of nucleated red blood cells. That was only one time, and was not sustained. And there was also the EEG --

Q How would you suspect it to be sustained?

A I'm sorry. What?

Q Why would you suspect the NRBC's to be sustained?

A Because if you have a severe injury, then they're going to be more likely to be sustained.

Q What was the hour that the NRBC's were withdrawn or sample taken?

A It was at the first St. Vincent's-- when the child arrived at St. Vincent's. And I can get you the time right here. It was at 9:45 on 7/22. That would be 9:45 AM.

Q When did the NRBC sample begin?

A On 7/23 at 4:00 AM. And there were none at that time.

Q That was almost a day later?

A Correct.

Q And what would you have suspected that to be?

A Generally if you have a severe brain injury, then you're going to be more likely to have continued NRBC's.

Q Above what level?

A Well, they should -- I think that the level a day after birth is not necessarily established. But in general you at least see some.

Q All right. So we have the 10-minute Apgar, the NRBC's, the multi-system organ.

A And then you also have the EEG's. The initial EEG was a burs suppression pattern. The subsequent EEG's were not burs suppression, and although not normal, got much, much better very quickly.

There is evidence from the ECMO literature that a single burs suppression EEG is not indicative of an increased chance of brain injury. That you need to have two burs suppression EEG's to have a significantly increased chance of significant brain injury.

You have the blood gas data. And although the initial ph was 6, the baby was very rapidly resuscitated, and the baby was easily weaned. And that also goes against a severity of injury that would be likely to cause a severe brain damage.

There is evidence in the literature that suggests, just because you do have the

acidosis, that is not sufficient to say that there certainly is going to be a brain injury at that time. And the majority of babies who have a ph of less than 7, actually ends up at 2 years of age or so being and looking normal.

So based on all of those things, you do not have the medical-- the clinical indication to say yes, definitely that there is a severity of injury to cause a severe brain damage at this time. And then when you put it with some of the imaging, and you see a pattern of imaging, and a pattern of injury which looks like the injury occurred more like 34 weeks or 35 weeks, that is what the basis of my opinion is.

Q Do you have an opinion whether or not this child demonstrated HIE in a newborn period and recovered consistent with an HIE pattern?

A Yes. The child wasn't cephalopathic in the newborn period and the child recovered.

Q Consistent with HIE?

A Yeah.

Q Just for the record, HIE means what?

A Hypoxic ischemic encephalopathy.

Q Okay. What was the hypoxic-- what

was the cause of that hypoxic ischemic encephalopathy?

A I believe there was an abruption.

Q Was the abruption-- matter-- did it proceed or did it occur concurrently, or subsequently to the rupture if you have an opinion?

A That's really out of my area of expertise.

Q Has there been any effort to modify 163 A.C.O.G., to your knowledge?

A I'm sure there has.

Q Do you know what the basis of the reasons and the steps to modify are?

A I can't speak to that in detail. But I think it's that not everybody agrees with all of the criteria.

And the-- and part of the problem is that you do have a certain number of babies who have injuries that are difficult to explain.

Q Doctor, are you familiar with any studies by perinatologists on diebacks and ruptured uterus and bradycardia in causing brain injury?

A Yes.

Q What is the essence of that literature stands for? What's the proposition of

that literature?

A Well, the essence of that literature is that basically abruptions are bad for babies. And you need to act in a timely manner.

And there are criteria by the American College of Obstetrics and Gynecology as to how quickly you need to get a baby out.

Q What is your understanding of that criteria?

A My understanding is that you need to be able to do a C. Section within 30 minutes of when a stat C. Section is called.

Q Or sooner?

A Or sooner, yeah.

Q And sooner has to do with the capability of that particular institution; for example, whether they have in-house anesthesia, et cetera?

MR. MAGUIRE: I'm going to object to this, Mr. Becker.

MR. BECKER: Okay. You can object.

BY MR. BECKER:

Q Go ahead, doctor, you can answer.

A I don't know in detail what the basis of

those crit-- deciding what criteria are appropriate to what institution.

I do know that it is 30 minutes to get a C. Section accomplished after a stat C. Section is called.

Q Was there any evidence of-- back to the multi-system organ injury, is there any evidence of lung injury?

A I don't think there is any evidence of lung injury.

Q But excuse me--?

A Basically by the X-ray and by the fact that the child weaned very quickly.

Q And you don't find any evidence of kidney, or liver injury?

A Correct.

Q Do you have occasion to consult with pediatric neuro-radiologists in Philadelphia?

A Yes, on occasion.

Q Who do you consult with?

A Generally, I consult with radiologists and neuro-radiologists in our own institution, who do both adult and pediatric, and in particular, Dr. Boyco. In Philadelphia Dr. Zimmerman at Children's

Hospital and Dr. Farber is at St. Christopher's.

I've consulted with Dr. Zimmerman on occasion.

Q Okay. And is he authoritative?

A Dr. Zimmerman has useful knowledge. I don't find his opinions to always be correct.

Q Okay. How about Dr. Farber, is he authoritative?

A I would have to say the same thing about Dr. Farber.

Q Now, going back to the films -- and feel free to look at them if you have a box. Do you have a view box in the room?

A No, we do not.

Q Was there any difference in the suggestion white matter signal abnormalities between the first and second MRI?

A I'm sorry. The court reporter didn't hear the question.

Q Comparing the first and second MRI is there any difference between the white matter signal abnormalities?

A Well, there-- there's evidence of abnormality on both the first and second MRI scans.

There has been some maturation, and some myelinization of the white matter. But there is still abnormality on both studies.

Q Okay. And in lay terms, I want to understand what you perceived to be the difference between the two?

A Well, there is some development that has occurred between the two studies. Babies are not completely myelinated. The nerves in their brain do not have all the insulation around them that they will develop as they get older.

What's happened here is, is you have an insult to a particular area of brain that is sususceptible at 34 weeks. Those nerves become damaged. And then they will continue to develop, but there is already damage there that is not reparable.

Q All right. Again, just for the record, which area of white matter?

A This would be in the corona radiata coming down into the internal capsule.

Q And how does it appear on the second MRI, that is the corona radiata going into the internal capsule?

A It continues to be abnormal.

Q But what specifically as to the second MRI is abnormal?

A There's an abnormal signal in that area suggesting a problem with myelinization.

Q What else could that abnormal signal suggest besides the problem with myelinization?

A I don't know what the abnormal signal would suggest other than a problem with myelinization.

I think the other thing that you see in the second MRI scan, which is a little bit more prominent than in the first MRI scan, is is that ventricles appear to be a little bit prominent, kind of borderline large.

Q That's not surprising, is it?

A Not with periventricular leukomalacia because there's going to be substance loss. And there's generally going to be larger ventricles with the periventricular leukomalacia.

Q Are you telling me that if a baby has an insult at full term, a hypoxic ischemic injury at full term, and you take an MRI a year or two years later, you would be surprised to see an enlargement of the ventricle?

A It depends on the extent of the -- of the insult in the areas of the brain that are damaged.

You can also see substance loss in enlarged ventricles a year later with an insult at full term.

But what I'm saying is, is that you have periventricular leukomalacia in the prominence of the ventricles six months later is consistent with having had some periventricular leukomalacia.

Q Is it-- is there anything inconsistent about it?

A I'm sorry. I don't understand the question.

Q Is there anything inconsistent about him having periventricular leukomalacia?

A No.

Q Can you give me a sense as to how often you read films?

A Yes. I generally look at films every-- every Tuesday, every Thursday, every Friday, and sometimes on Mondays.

Q Well, I mean how often during the day, those days, would you be looking at films?

A Well, when there are films on my patients

that are relevant, then I will look at them.

Q Right.

A And we have a neuro-radiology conference every Friday morning that lasts an hour to an hour and a half that I attempt.

Q I'm assuming that's done by the neuro-radiologist?

A That's done by the neuro-radiologist, the neurologist, and the neurosurgeons.

Q And as to who is interpreting, is it the neuro-radiologist that has the final input as to what the films actually show?

A No. I think that it is a conversation, because we all bring different backgrounds, and different information to the-- to the forum.

Q Okay. Would you say that you're actually looking at films about 1/20th of your actual clinical time per week actually looking at films?

A Something like that, yeah, or a little bit less.

Q All right. Was this child asphyxiated at birth?

A Yes, to a degree.

Q Would you consider it mild asphyxia then?

A I would consider it to be moderate.

Q All right. And can moderate asphyxia cause brain damage?

A It -- it can, but I don't think it did in this case.

Q Okay. Do you have an opinion in terms of probability whether the ruptured uterus and concomitant of rupture of the placenta cause any damage whatsoever in this case, brain damage?

A Well, I think that what you have here is a pattern of injury that suggests something that occurred more like the 34th or 35th week.

Certainly the abruption of the uterus did not enhance or help the baby, but the extent to which it made the baby's brain injuries worse or more severe, is necessarily, you know, uncertain, and very speculative if it did at all.

Q Okay. Well, that's my question. It was a long answer. But here's my question.

Do you have an opinion, in terms of probability, whether or not this child sustained any permanent brain damage from the ruptured uterus and

the placental abruption at or around the time of birth?

A My opinion is that the child probably did not.

More likely than not -- the child more likely than not did not suffer brain damage at -- permanent brain damage at or around the time of birth.

Q So this child's significant brain damage occurred at about the 34th week?

A Yes.

Q Would you expect the child was significantly brain damaged at the 34th week to be born with evidence of microcephaly?

A Not necessarily.

Q How about more likely than not?

A No. Not if it's at the 34th week, because you don't have enough brain growth say between the 34th and 37th week.

Q How about the thirty-third week?

A Well, at some point if you have significant brain injury, and you may or may not have problems with microcephaly, but you get into a lot of factors that affect head size.

Q All right. Doctor, let's go back and--

MR. MAGUIRE: Just a moment

Q Almost 38 weeks--

MR. MAGUIRE: Mr. Becker, you cut him off. I don't think his answer was completed.

Q I'm sorry, doctor. I didn't mean to cut you off.

A Okay. I think you have a lot of things here that will affect head size, including the amount of fluid in the brain, as well as the amount of brain tissue, itself.

Q Okay. Are you done?

A Yes.

Q Do we agree that this child was delivered almost at 38 weeks?

A Somewhere in the 37th week.

Q Okay. And what week, if there was brain insult, whether it's 28, 29, 30, 31, 32, would you expect there to be some impact on the head size at birth if we're assuming a significant brain injury?

A I would expect say at the 30th week.

Q All right. And what's the basis of

that opinion?

A It's basically, you know, a guess, and an understanding of how long it takes for the growing brain to manifest to the point where you're going to see something that you would recognize as being clinically significant.

MR. BECKER: All right. I got to take a break to get some water. Be right back. Could we go off the record for about five minutes. Five minutes.

MR. MAGUIRE: Michael, are you pretty much done?

MR. BECKER: I don't know, Tom. I have to look at my notes. Assuming you covered a brief majority of this.

MR. MAGUIRE: Because I'm getting to that point.

MR. BECKER: Well, we can finish the deposition later if you have to catch a plane.

MR. MAGUIRE: Okay.

VIDEOGRAPHER: Stand by, please. The time is 10:42 AM. We're going off the video record.

(A recess is taken.)

VIDEOGRAPHER: Stand by please. The time is 10:47 AM. We are on the video record.

BY MR. BECKER: (Continued)

Q Doctor, it's your opinion that this child sustained brain damage between what gestational age; what week?

A I think it's probably around the 34th -- 35th week.

Q And what's the basis for that conclusion: 34th or 35th versus 29th and 30th?

A The reason for that is, is that you are showing periventricular leukomalacia. You are seeing palatum lesions, and you're also seeing some thalamic lesions. And it's basically-- you know it's got to be before the 35th week to have the white matter involved to this extent. And generally if you're seeing the thalamus this involved, my experience is that it tends to be a little bit earlier, and also the palatum.

Q Okay. But why the 34 -- 35 versus 29 or 30?

A Basically because you're beginning to see the palatum and the basal, and the thalamus involved. And that tends to be, I think, a little

bit more -- little bit later than what you see with the very early periventricular leukomalacia.

Could it be the thirty-third week? Yeah, I think it could be the thirty-third week. It's hard to say exactly. But you know, people will say that you stopped getting periventricular leukomalacia between the 32nd and 35th week.

So I think you need to begin to put-- I think you need to put it before the 35th week.

Q Just so the record is clear, you don't know the etiology of the--

A I don't know.

I mean could it be hypoxic ischemic? Yes. Could it be infectious? Yes.

But I can't from the pattern of injury, or from the records I reviewed say what exactly the etiology of that injury is.

Q What caused the mechanism of injury to stop?

A I don't know.

Q If there was hypoxic, would you have expected it to continue?

A Sometimes those things stop, and -- and the

fetal placental unit can repair itself.

Q If it was infection, would you expect it to continue?

A It very frequently stops, because there's an immune system that fights and kills off the infection.

Q Now, it's your opinion that the child cerebral palsy came about from an insult of some type at 34 to 35 weeks; is that fair?

A Correct.

Q What about the child's cognitive impairment at insult?

A I think that insult occurred at the same time. I think--

Q What's the basis of that opinion?

A And the basis of that is that you have the thalamic injuries and you have the palatal injuries.

Q Okay.

A And you have the peri-ventricular leukomalacia.

Q Well is PVL more associated with cerebral palsy than with cognitive impairment?

A It is more so associated with cerebral palsy, but if you have cerebral palsy, you can also

have cognitive impairment.

Q Well, I guess that's true.

Is it likely that this child's cognitive impairment is due to the thalamic basal ganglia-- and you-- I think you used the word that started with a P?

A Periventricular-- palatal? That's part of the basal ganglia.

Q Is it likely that that's the unit that's caused this child cognitive impairment?

A Along with the PVL, yes.

Q Do you have any understanding as to whether or not there were any placental abnormalities detected?

A I have no knowledge of that one way or another.

Q Would you've expected if there-- if this-- well would you have expected there to be evidence?

A Well, let me put it this way. Let me put it this way.

My understanding is that there is evidence of the abruption.

Q Okay.

A Okay. And that would be a placental abnormality.

Q Does that occur at the time of birth?

A But that placental abnormality occurred at the time of birth.

Q Okay. We talked about PVL on the first MRI report.

Is PVL referenced or implied in the second MRI report of the radiologist?

A I would have to--

Q Feel free to look at it.

A -- look to see.

No, I'm not seeing the radiologist commenting on PVL on the second report.

Q Okay. Are you done?

A Yes. I don't --

Q Have you written on the subject of nucleus red blood cells?

A No, I have not written on that subject.

Q Have you written on the subject of multi-organ injury--

A No.

Q -- secondary to a perinatal insult?

A No, I have not.

Q Have you done research on either of the nucleus red blood cells or multi-organ injury secondary to perinatal insult?

A No original research.

Q Well, that implies you did some research?

A That implies I keep up with the literature in those areas.

Q Okay. All right.

The EEG you said is -- you said this child is easily resuscitated?

A Correct.

Q What do you mean by that?

A By that I mean that -- that the child's ph was fairly rapidly corrected.

Q Well, what intervention did you utilize to correct the child's acid level?

A They ventilated the child. They gave the child epinephrine to start-- or to enhance the heart function. And they also gave four doses of bicarbonate.

Q Okay. And were those appropriate?

A Yes.

Q And what would--

A And--

Q Trying to get a sense of--

A And what happened-- I believe it was with the-- maybe the third blood gas, you actually saw there was some dip in the ph as the blood circulation reestablished itself. But that dip was only transient.

Q Right.

A Often times if you have a severe injury what happens is you see the ph go down and stay even, even with repeated doses of bicarbonate.

Q How long should the ph have been down?

A What do you mean by "should"?

Q What would you have expected if there was a severe injury?

A If there's a severe injury then often times what happens is you can give several doses of bicarb., without a positive response in the ph because there is so much tissue buffering of the acid. You don't really--

Q You don't usually participate in neonatal resuscitation?

A I don't usually at this point. I have in the past.

Q When was the last time you engaged in a neonatal resuscitation?

A Probably about 12 years ago.

Q What's your authority for the proposition that this resuscitation was unusually easy, or that -- or state it another way, the child was responsive?

A It's because I look at resuscitations all the time in my daily practice.

Q You what?

A I look at resuscitation records all the time in my daily practice.

Q Of newborns?

A Yes.

Q So that's the basis-- how many newborns do you see a month that are resuscitated?

A I see a number of children who are resuscitated as newborns every month.

Q Do you see them in the first month?

A Yes. We cover intensive care nurseries.

Q Can you give me an idea how many resuscitated newborns reports you see?

A Well, I think most of the newborns-- a large number of the newborns I see are resuscitated. And I see several every month. Three.

Q All right.

A Four.

Q I just want to understand.

How long would you-- if there was a significant insult brain damage, how long would you have expected this ph to remain abnormal, significantly abnormal?

A Well, I think it's hard to put a specific number on that.

But my point was is that with each of the bicarbs, with the exception of one, is you got the sequential blood gases, the ph was always getting better. The one where it did not get better it was really very similar to the one before it. Often times--

Q -- with resustation to get the ph better? Isn't that your goal?

A Right. That's obviously what you hope for.

But in difficult resuscitations is

you reestablish blood flow to tissues that had been hypoxic. Then you can actually get a decrease in your ph. And you're not really seeing that in this case to any -- to any great extent.

Q Well, does that always occur, that there is a worsening of ph after resuscitation, or does that occur sometime?

A That occurs frequently in cases where there is severe brain damage injury.

Q Most of the times? 50 percent of the time?

A I don't have an exact percentage. But it's something that occurs frequently. The fact that you do not see it is what my point was in saying that the child was easily resuscitated.

Q That's what you meant by-- was it specifically the fact that the ph didn't get worse-- that's what you mean-- by the child was easily resuscitated?

A That's right. And as you had perfusion-- as the perfusion of the child got better, you did not see an increase in the acid load in the blood.

Q Well, what time did they start giving bicarb?

A They started giving bicarb as soon as they got the umbilical lining. They gave saline and then they gave bicarb.

Q Is bicarb make the acid level-- improve the acid level?

A Right. The bicarb will improve the acid level.

Q Are you taking that into consideration the fact that they gave bicarb as to whether or not you would expect ph drop?

A Yes, that's-- that's-- that's-- that's what people do in resuscitations.

Q Well, if you expect to see ph drop, and know that after resuscitation but know that this child has already received bicarb, wouldn't the continued same range tell you that but for the bicarb administration, that second gas would be lower?

A That's true. But frequently even with bicarb the second or third gas is lower because you are reestablishing perfusion to asphyxiated tissues. Acid is coming out of those tissues and lowering the ph. And that is something that you do not see here.

Q Going back to the Apgar score at 10 minutes. Do you appreciate that there's not a whole lot of difference between a 4 and 3 at a ten-minute Apgar?

A There's a difference of one, and the scientific basis for the Apgar score is based on the perinatal collaborative study which showed that you did not have a significant increase in a severe neurological impairment unless you had Apgar scores of three or less at the 10-minute Apgar.

And it's important to note that even the majority of the children who had Apgar's at three or less at 2 years of age were neurologically normal.

Q Doctor, if you had the size this case and hear that a child had a ruptured uterus anywhere from 15 to 25 minutes pre-cardia, sudden abruption, would you expect the child to have serious brain damage?

A I think it's uncertain.

Frequently children who have a-- who suffer from abruptions do have brain damage, but not all of them do.

Q Right. Well, are you familiar with

the literature by an obstetrician/gynecologist by the name of Paul from Los Angeles?

A Yes.

Q Okay. Do you agree with his writings on that subject?

A In regards to what specifically?

Q With -- with rupture of the uterus -- complete rupture of the uterus. You have anywhere from 18 minutes after the complete rupture of the uterus, 18 minutes of bradycardia before you will get a likely irreversible brain damage?

A I think that if you have complete rupture of that, and a sustained bradycardia for that period of time, then you are much more likely to have brain damage, yes.

VIDEOGRAPHER: Counselor, on the telephone. You have 10 minutes left on the first videotape, sir.

MR. BECKER: Go ahead and switch it.

VIDEOGRAPHER: Stand by please.

MR. BECKER: I've got to go in 10 minutes, Michael.

VIDEOGRAPHER: This concludes Video Tape No. 1. The time is 11:05 AM. We're going off

the video record.

Stand by please. This begins Video Tape No. 2. The time is 11:06 AM. We are on the video record.

MR. BECKER: Miss Reporter, would you read my last question.

(Court reporter reads back the following:

"QUESTION: With a ruptured uterus, a complete ruptured uterus you have anywhere from 18 minutes after the complete rupture of the uterus, 18 minutes of bradycardia before you will get a likely irreversible brain damage?"

MR. BECKER: And did he answer that question. Would you read me that answer back.

A Excuse me. I thought I did. But I will answer it again.

The answer is if you have a sustained bradycardia for that long, and the bradycardia is severe, and if you have a complete rupture of the uterus, and a complete abruption of the placenta for that long, yes, I believe that is sufficient to give irreversible brain damage.

Q What do you mean by "severe

bradycardia"?

A I would say probably below 60.

Q Was there severe bradycardia in this case?

A I don't believe that it was sustained.

Q Why do you say that?

A Because I don't believe that the records show that. I don't believe that you had heart rates below 60 that whole 18 minutes.

Q Well, the records demonstrate a heart rate below 80?

A At times certainly, yes.

Q Do you have an opinion whether or not this child had a heart rate above 80 at any time after 4:00?

A No, I don't because that would be getting into the obstetrical area of expertise.

Q All right. We were talking about Apgars.

Would you agree with me that Apgar scoring is subjective?

A There are criteria that are used to give Apgars.

Q So you feel that it's subjective or

objective?

A I wouldn't say it's completely devoid of subjectivity, but there are objective criteria there.

Q You said that there was a relative to--

A And in one of the areas that is least objective, in terms of the Apgar scores is the heart rate. In terms of tissue injury, that may be one of the more important issues with Apgar scores. And the heart rate at 10 minutes was 2.

Q Doctor, if a -- hypothetically, assuming there is no PVL in this case, would that cause you to state, more likely than not, that this child sustained some brain damage from the events of the ruptured uterus and abruption at or around the time of birth?

A Yeah. If you take away the PVL, that does not change the opinion, because the opinion is also based on the clinical data around and at the time of birth. And it's also based upon the relative involvement of the basal ganglia, the palatum and the thalamus which puts the injury a bit earlier in my experience.

Q Would there be any support -- would you expect to find any support in Barkovich's text on the fact that the the injury to the basal ganglia and thalamus generally occurs earlier than-- did you say the 34th week?

A Well, I said the 35th week, or earlier.

Q 35th week or earlier?

A Basically, I'm saying that due to the relative involvement of the palatum compared to the thalamus that to my mind tends to be earlier than 37 and six-seventh weeks.

Q I'm sorry, doctor. You cut off on me. Repeat that please.

A I'm saying that based on the relative involvement of the different parts of the basal ganglia and the thalamus, in my experience, that puts it earlier than the 37 and six-seventh weeks.

Now, I think that, you know, you can look at different textbooks, and different people subscribe to different parts of this. And I think there's a certain amount of controversy about that. But that's what my experience is. And there is some literature out there that suggests that.

Q Well, what's the controversy?

A Well, the controversy is that not everyone believes that you can get the deep nuclear problems without cortical problems later on. And whether or not, you know, the whole idea that you have a basal ganglia injury and a thalamic injury without cortical injury is helpful for timing or not.

But there is literature out there that suggests if you have palatal injury that that's more prominent in newborns-- in prematures. That if you're getting more involved with the caudate that that tends to be more prominent in full terms. And it's been my experience that as you get more caudate abnormalities you tend to get less thalamic abnormalities.

Q Is there any type of symmetrical appearance of the brain injury in the basal ganglia?

A The basal ganglia are affected on both sides, yes.

Q Is it symmetrical?

A Relatively, yes.

Q Would you expect to see a symmetrical injury if that injury was caused by infection?

A It -- it depends on what the impact of the

infection was to other organs: Heart, and the placental fetal unit. If it was an infection of the placental fetal unit, rather than of the brain, itself, certainly it could be symmetric.

MR. MAGUIRE: Michael, please try to wrap this up. I've got to go.

BY MR. BECKER:

Q One second.

Doctor, have we covered all of your opinions in this case?

A I think so.

Q And do you plan on doing any more research before trial in this case?

A I plan on staying abreast of the literature, yes.

Q I think the last topic I have is the EEG.

You said that the -- with an EEG with a significant brain injury you would expect to see more than one burs suppression pattern?

A That's correct. And that's based on work done by Graziani in severe hypoxic ischemic infants. Basically showing that if you have a burs suppression on two EEG's over the course of three

days, then you are more likely -- then you are at an increased risk of having a permanent brain injury that you do not have a significant increase to that risk if you have just one burs suppression EEG.

Q Well-- but that doesn't necessarily follow that you're at an increased risk, or you can rule out just because you have one burs suppression EEG that you didn't have any significant perinatal insult, does it?

A No. It doesn't say that there was no perinatal insult. And it certainly doesn't rule out a prenatal insult either.

Q Well, you're not suggesting mainly because what has only one burs suppression EEG, that that rules out, or speaks against a perinatal insult, are you?

A I think that that speaks to a severity of the perinatal insult in that the EEG recovered rapidly.

And we know that although the perinatal insult is not good for the child, that the large majority of children who have one burs suppression EEG's go on and look normal when they're two or three years old.

Q And you cited somebody by the name of Graziani?

A Correct.

Q Spell that for me?

A G R A Z A N I. Leonard Grazani. He was my associate at Jefferson.

MR. MAGUIRE: He's Italian.

Q Where is that published?

A I believe either in the Journal of Pediatrics, or in Pediatrics. I'm not sure. It's about five years old-- six years old maybe by now.

MR. MAGUIRE: I got to go, Mike.

MR. BECKER: You have to go?

MR. MAGUIRE: Yes.

MR. BECKER: That's what you said?

MR. MAGUIRE: Are we done?

MR. BECKER: I don't know that I'm done.

Do you have any questions?

MR. DAPORE: No. I'm well on my way to finishing up. I am looking over my notes here.

MR. MAGUIRE: Okay.

BY MR. BECKER:

Q Relative to the EEG studies, are you

aware of any literature that says what you might expect if, in fact, the insult was sudden and catastrophic versus a difficult run-of-the-mill partial prolonged asphyxia?

A Yeah. I mean that's been looked at certainly.

Q What is your understanding as to what the literature is on that issue?

A Well, my understanding is, is that the literature would suggest that the EEG recovery might be quicker.

Q In what scenario?

A Well, the EEG is something that looks really more at cortical function, rather than deep deep function; although the background is affected by thalamus in that.

Q Which-- I didn't follow you, doctor, which would be quicker?

A I think that if you have a -- a sudden catastrophic problem, you are more likely to have a recovery, and you're also less likely to have significant brain damage on a statistical basis.

Q So if you had a sudden catastrophic injury around the time of birth, you would less

likely expect to see multiple burs suppression EEG's?

A That's right.

Q That's all I have.

MR. MAGUIRE: Thank you.

MR. BECKER: I'd like this as soon as possible. What's your turn-around time?

VIDEO OPERATOR: Stand by, please. This concludes the Videotape No. 2. The time is 11:21 AM. We're going off the video record.

(Deposition concluded.)

C E R T I F I C A T I O N

I, ANGELA R. WATERS, a Certified Shorthand Reporter and Notary Public of the State of New Jersey.

I DO FURTHER CERTIFY that the foregoing is a true and accurate transcript of the testimony as taken stenographically by and before me at the time, place, and on the date hereinbefore set forth.

I DO FURTHER CERTIFY that I am neither a relative nor employee nor attorney nor counsel of any of the parties to this action, and that I am neither a relative nor employee of such attorney or counsel, and that I am not financially interested in the action.

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