#484

State of Ohio,)
)
County of Cuyahoga.)

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IN THE COURT OF COMMON PLEAS

- - -

THOMAS M. GILBERT, etc.,)
)
Plaintiff,)
) Case No. 315,071
vs.)
) Judge William Coyne
EMAD DEAN NURTA, M.D., et al.,)
)
Defendants.)

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DEPOSITION OF MARK JUDSON BOTHAM, M.D.
Wednesday, January 7, 1998

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The deposition of MARK JUDSON BOTHAM, M.D., a witness, called for examination by the Plaintiff under the Ohio Rules of Civil Procedure, taken before me, Diane M. Stevenson, a Registered Merit Reporter and Notary Public in and for the state of Ohio, by agreement of counsel, at Mt. Sinai Medical Center, 1 Mt. Sinai Drive, Cleveland, Ohio, commencing at 5:10 p.m., the day and date above set forth.

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APPEARANCES:

on behalf of the Plaintiff:

George E. Loucas, Esq.
George E. Loucas Co., LPA
600 Standard Building
Cleveland, Ohio 44113

On behalf of the Defendant, Dr. Nukta:

William A. Meadows, Esq.
Richard A. Vadnal, Esq.
Reminger & Reminger Co., LPA
The 113 St. Clair Building
Cleveland, Ohio 44114

On behalf of the Defendant,
Fairview General Hospital:

Kris Treu, Esq.
Moscarino & Treu Co., LPA
812 Huron Road, Suite 490
Cleveland, Ohio 44115

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MARK JUDSON BOTHAM, M.D.

A witness, called for examination by the Plaintiff, under the Rules, having been first duly sworn, as hereinafter certified, was examined and testified as follows:

CROSS-EXAMINATION

BY MR. LOUCAS:

Q. Good evening, Doctor. We have just been introduced. My name is George Loucas, and I represent the estate of Janice Gilbert, as you know.

I am going to be asking you some questions relative to the expert opinions you have been retained to provide in this case. Mainly, my goal here today is just to find out what opinions you have, the bases for those opinions, what opinions you will be providing at trial.

Fair enough?

A. Yes.

Q. I take it you have had your deposition taken before, correct?

A. Yes.

(Thereupon, Plaintiff's Exhibits 1 and 2 were marked for identification.)

Q. I have handed you two exhibits, Plaintiff's Exhibits 1 and 2. No. 1 is your CV. Does that appear accurate and up-to-date?

First of all, is that what it is?

A. Yes, it is.

Q. Is it up-to-date, or would you like to make any additions?

A. No, this is up-to-date.

Q. Is there anything in publication or pending that is not on there?

A. No.

Q. No. 2 is the report that you have prepared in the case?

A. Yes.

Q. Would you like to make any changes or supplement that in any way today?

A. No.

Q. You stand by what is written there, correct?

A. Yes.

Q. Relative to the CV, I would like you to please go to the articles and tell me whether any have application directly or indirectly relative to the subjects today, namely to the opinions you will be providing?

A. No, they do not.

Q. Number 4, "Dissociation Between Epicardial and Transmural Function," et cetera, any application there to the end event or the infarct that we are going to talk about today?

A. No.

Q. Under "Societies," you list "International Association for Cardiac Biological Implants, 1991." First of all, was that the only year you were involved in that society?

A. No. I am a member of that society today.

Q. What is the nature of that society?

A. It is a society of cardiac surgeons that are involved in discussions, talking about the risks/benefits of utilizing biological implants for valve surgery rather than mechanical valve implants.

Q. Does it involve only surgeons, or also cardiologists?

A. Primarily surgeons.

Q. So it also involves cardiologists?

A. I am sure there are some cardiologists who are members of the society, just as there are cardiac surgeons who are members of cardiologic societies. I wouldn't know the actual mix.

Q. Does it involve biological implants other than relating to the valves, such as stents?

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A. No. It involves specifically related to implantations of valves.
Q. Do you know any of the experts that are going to be testifying in this case?
A. No, I do not.
Q. Do you know of Morton Kern?
A. I don't know him personally, no.
Q. You know of him, however?
A. The name sounds familiar, but I don't know him, personally.
Q. How about Dr. Nukta, do you know Dr. Nukta?
A. I do not.
Q. You have never met him directly or indirectly?
A. No.
Q. Have you ever had had any conversations with him?
A. No, I have not.
Q. Relative to this case I mean.
A. No, I have not,
Q. Have you conversed or talked with any of the other experts in this case?
A. No.
Q. Do you know Dr. Bowman?
A. No, I do not.
Q. How about Dr. Tice, have you heard of Dr. Tice?
A. No.

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Q. Likewise Dr. Feit. Have you ever heard of Dr. Feit?
A. No, I don't know him.
Q. How is it you became involved in this case?
A. I was sent a packet of information by Mr. Meadows and asked if I would be willing to review this case for his defendant.
Q. You were just cold called, received a packet in the mail, or was there a telephone call first --
A. I suspect probably a package arrived, and then I received a phone call from Mr. Meadows.
Q. You have to wait until I finish my question just so that Diane can get it all down before you start. I was going to ask you: Or did somebody make contact with you to see if you would accept a package upon its arrival?
A. I don't know whether there was a phone call before or whether the material arrived before the phone call.
Q. Do you have some relationship with Bill Meadows where he could just send you things in the mail and then accept a phone call as to whether you would be willing to take them?
A. No, I do not.
Q. I mean, I just find it odd that you would receive

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a package in the mail without at least having talked to somebody about whether you are interested in taking the case. That is what I am getting to.
A. No, I have that happen relatively frequently.
Q. Have you worked with Bill Meadows on any other case other than this?
A. No, I have not.
Q. Do you know Bill personally?
A. No.
Q. Do you know any members of his firm, Reminger & Reminger, personally?
A. You mean as personal friends, or outside of the physician-attorney --
Q. On a social level.
A. No, I do not.
Q. How about his former firm, Gallagher, Sharp?
A. No.
Q. Professionally, then, have you worked with any other members of Reminger & Reminger, consulted?
A. Yes.
Q. Who would that be?
A. Stephen Crandall and Jim Malone.
Q. Any other attorneys over at Reminger, past or present?

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A. I do have a case that I am working with Stephen Walters.
Q. What case is that?
MR. MEADOWS: I am going to object and caution you, Doctor, if it is a case where you have not issued a report or have reason to believe that reports or your identity as an expert haven't been made known to the other parties, it would be considered a work product situation.
A. It is a work product. No report has been issued. In fact, I haven't really had a chance to discuss it with Mr. Walters yet.
Q. About how many cases, then, to the best of your recollection, have you worked on for Reminger & Reminger?
A. Probably half a dozen.
Q. And have you ever testified in any of those cases, either deposition or trial?
A. I don't believe so.
Q. In each of those cases that have been presented, and it did reach the point that you actively consulted, how many have there been where your opinion was that it was a meritorious defense?
A. On probably two occasions, yes. On one occasion

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I think the discussion revolved around the fact that I could not provide them defensible testimony.
Q. Have you had that type of professional relationship at all with Gallagher, Sharp?
A. I have not.
Q. Have you consulted with any other defense firms here in Cleveland?
A. Yes.
Q. About how many, or what other firms?
A. Jacobson, Maynard is probably the one that I have done the overwhelming majority for.
Q. Were you a PIE insured?
MR. MEADOWS: Show an objection.
A. At one time I was, yes.
(Thereupon, a discussion was had off the record.)
Q. About how many years have you been doing consulting work?
A. Ten years.
Q. On medical malpractice issues?
A. Yes.
Q. About how many do you take on a yearly basis?
A. It varies. Anywhere between 10 and 12, maybe 15 on a busy year.

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Q. May I ask what your rate is?
A. For hourly consultation?
Q. Yes.
A. $250 an hour.
Q. How about for deposition testimony?
A. That depends upon whether it is a half day loss of work or full day. Half day is usually $4,000 or $5,000. Full day is $10,000.
Q. Trial testimony?
A. Samething.
Q. What will you be charging, then, for this deposition testimony?
A. $250 an hour.
Q. Thank you. Of the range that you gave me, 10, sometimes 15 per year, are you able to give me a breakdown or percentage of how many would be on behalf of the patient versus the medical care provider?
A. I believe you asked me how many defense cases I do, and I told you about maybe 10 or **12.** I probably do another five or seven for plaintiff's counsel.
Q. On a yearly basis?
A. Yes.
Q. How often do you find yourself testifying in a courtroom on a yearly basis?
A. Once or twice.
Q. I am relating that to medical malpractice.
A. Total, yes.
Q. Have you worked with any of the plaintiff's firms here in town?
A. Yes, I have.
Q. What firms would that be?
A. Nurenberg, Plevin. I have worked with Steve Charms on a couple of occasions.
Q. Is that when Steve was with Jacobson, Maynard, or since then?
A. No, as a plaintiff's counsel.
Q. On the occasions that you are consulted by plaintiffs on behalf of the patient, are you able to give me a percentage of times, approximately, where you find that it is a meritorjous case versus not being the case?
A. I would say 50 percent of the time.
Q. Have you ever had occasion to consult in a case with issues relating to an aortic dissection?
A. Numerous.
Q. When you say "numerous," about how many?
A. Two this year alone. It is a very frequent source of litigation.

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Q. Is it a frequently occurring complication?
A. It is a frequently occurring problem. I wouldn't say frequently occurring complication.
Q. What is the basis your distinction?
A. Well, if you are ascertaining whether or not it is a frequent occurrence in the general populous, the answer would be yes. As a complication of a medical procedure that is a complication, the answer would be no.
Q. So you are drawing a distinction between spontaneous dissection versus iatrogenic?
A. Yes.
Q. Are you able to give me a rate of this complication iatrogenically?
A. It depends upon whether it occurs during an invasive cardiologic procedure or whether it occurred during a cardiac surgical procedure.
Q. What is the difference, in other words, the percentage of each?
A. The rate in an invasive cardiologic procedure probably would be less than 1 in 10,000, I would suspect. In a cardiac surgical procedure it probably would be 1 in 1,000 or 1 in 700, somewhere in that range.
Q. You said "suspect." Why did you say "suspect"?

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A. It depends upon the surgeons involved. Some surgeons have a higher incidence of iatrogenic aortic dissection than others.

The reported rate is somewhere between 1 in 700 and 1 in 1,000.

Q. Is that something that you would expect cardiologists or surgeons who are doing interventional work to keep track of their complications?

A. No, because it happens so infrequently, a guy would have to do 10,000 or 20,000 or 30,000 cardiac catheterizations to have one or two develop. And he may do 30,000 and never have this complication.

Q. I am sorry, I didn't mean to interrupt. I didn't mean specifically the complication of aortic dissection, I am talking about complications in general, to see if there is a pattern or perhaps something is occurring more frequently than others.

A. In general, that is not something that a cardiologist himself would keep track of. Usually that is kept track of by the cardiac catheterization laboratory where the cardiologist is doing his work.

Q. Do you have a complication list that you keep for

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yourself?

A. No, I do not.

Q. I take it, then, the hospital would do that for you, as well, more likely than not?

A. They may or may not. We obviously have a peer review system where we review all of our complications, so it is kept track.

Q. So somebody keeps track, though?

A. Yes.

Q. Do you ever find yourself reviewing that complication list, just to make yourself a better surgeon?

A. Whenever I do have a complication that I feel was something that could have developed in the operating room, I always review that to see if there are other avenues by which I may have pursued a different course that resulted in a different outcome.

Q. Fair enough. But you have the ability to access that list and take a look if you want to. Fair enough?

A. Yes.

Q. I am still curious about your use of the word "suspect" for less than 1 in 10,000. Have you ever done an interventional procedure?

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A. An interventional cardiac catheterization?

Q. Yes.

A. No.

Q. Have you ever done an angiography?

A. No.

Q. Do you consider those one and the same?

A. Well, they are both ascertaining the same thing, looking at the character of a blood vessel in the body.

A cardiac catheterization relates specifically to those blood vessels that are pertinent to the heart. Angiography could be something related to an artery that travels anywhere else in the body.

Q. 'what is the basis for your opinion that iatrogenic complications occur more frequently in cardiac surgery?

A. Because, as a cardiac surgeon, we" are poking holes in the aorta on a much more frequent basis than would be a cardiologist with a cardiac catheter. I mean, we routinely make three or four or five holes in the aorta transmurally through the wall of the aorta in every operation that we do.

Q. Is that like to attach grafts and things like

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that?

A. Place on the patient cardiopulmonary grafts and hook up bypass grafts, replace the aorta.

Q. Can a dissection of the aorta occur then when you are poking holes to put a graft in? Is that how that typically happens?

A. They can occur at that time. They can occur from a cannulation site. They can occur from a placement of a cross clamp to separate one portion of the aorta from the blood flow. They occur from placement of the sutures in the proximal portion of the bypass graft.

Q. What is the most frequent of those mechanisms you have just mentioned?

A. Probably evenly divided between cannulation sites and cross clamp placement.

(Thereupon, a discussion was had off the record.)

Q. The reason I was asking you about the mechanisms for a dissection during cardiac surgery is I wanted to know what you believe to be the similarities and the nature of the dissections between cardiac surgery versus interventional cardiology.

A. The mechanisms are one and the same. It is a

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disruption of the intima that allows blood to enter the media, which is usually diseased, and allows the propagation of that false lumen to develop in either antegrade or retrograde fashion.
Q. Do you believe Janice Gilbert's aortic media was diseased?
A. Yes.
Q. In what way, please?
A. Well, for one reason or another, the media itself did not stay in the same measurable plane as the intima and adventitia. She developed a dissection from a small puncture site in the intima.
Q. I am sorry, can you repeat that?
A. The puncture site in the intima that allowed blood to get into the media in her case was not contained, it resulted in a dissection.
I puncture the intima thousands of times every year and don't get dissection. So there has to be something wrong in this woman's media that allows a simple puncture site to result in a dissection.
Q. What makes you believe that it was a puncture site? What do you mean by "puncture"?

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A. Well, you have to make a laceration in the intima somewhere to initiate the dissection.
Q. You said blood, "which allowed blood in the media." What makes you believe it was blood in the media?
A. That was what was being pumped into the heart out of the aorta.
Q. How about contrast medium?
A. Well, there is free communication between the true and false lumen, although there was contrast material within the wall of the aorta, it flows in and out freely, and it is admixed with blood.
Q. So we are talking about between the layers of the aorta there would be contrast material mixed with blood, correct?
A. That's correct.
Q. When you say "true and false lumens," to what are you referring?
A. The false lumen is that lumen that develops as a result of the dissection. It is blood traversing between the media and the adventitia of the aorta.
Q. Are you familiar with any of the equipment that was used by Dr. Nukta in this case, meaning the Judkin's catheter and the French, et cetera?

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A. I am familiar with it. I don't use it on a regular basis. I am aware of the terminology. I wouldn't be able to specifically tell you which catheter is which.
Q. Likewise, you would be unable to tell me the complication rates for the catheter he was using in terms of dissections of the RCA or the aorta?
A. In terms of whether one catheter has a higher complication rate than the other?
Q. Correct.
A. I wouldn't be able to tell you the exact numbers.
Q. Would you defer to an interventional cardiologist in that regard?
A. I don't know whether I would say "defer." They would have a better handle with the actual numbers.
Q. Do you know the name or the type of catheter that he was using at the time of the aortic dissection of Janice Gilbert?
1just wondered if you knew it off the top of your head. In a moment I will tell you to go ahead and look at the records.
A. No, I would have to look to refresh my memory.
Q. When you were reviewing this case, did you entertain any notion that that type of catheter

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was at increased risk for the complication?
A. No, I did not.
Q. Doctor, I am *sorry*, was known to have an increased risk of complication of the aortic dissection?
A. No, I did not.
Q. Assuming that to be true, would you agree with me that the interventional cardiologist would have a corresponding duty or responsibility to observe for that complication if there was an increased likelihood for it with that catheter?
MR. MEADOWS: Objection.
A. I ***think*** any time you do an invasive procedure it behooves you to be aware of the complications that can develop, and always be suspect for that complication should it arise, regardless of what type catheter you use.
If the complication did develop with catheter A or catheter B, it behooves you to have the same level of attentiveness, regardless of the type of catheter.
Q. That level of attentiveness, you would agree, would raise a duty or a responsibility on the part of the interventional cardiologist to keep that within the field of vision where the dissection

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may occur?
MR. MEADOWS: Objection.
Q. In other words, the junction of the right coronary artery with the aorta.
MR. MEADOWS: Objection.
A. I think it is always nice to have a completely wide field to be able to visualize everything during a cardiac catheterization. But that just doesn't happen. It is not a reality.
The camera is routinely up and down around the patient around the area where you are trying to visualize. It is not always focused specifically on one spot. That is why they have the ability in a cardiac catheterization lab to pan the camera, to move it around. It is never specifically directed in just one view at everything that you want to see.
Q. You said you were working on two cases this year of aortic dissections?
A. One is presently being looked at, and one has been actually settled.
Q. Would you tell me what side you were on in each of the cases?
A. Actually, there are three. I apologize. One was settled for the plaintiff. I was a defense

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expert.
MR. MEADOWS: Show a continuing objection. Again, I am going to caution you, Doctor, if there is an instance amongst one of these three where you have been consulted but not necessarily revealed as an expert to the opposing party, you should not mention that case by name or description, because that is work product.
A. The one that has been settled was settled for the plaintiff. I was a defense expert.
Q. Who were counsel, if you recall, please?
A. Bruce Vandevusse in Detroit, Michigan was defense counsel, and I don't recall the plaintiff's counsel.
Q. Was this a Michigan case, then?
A. Yes.
Q. How do you spell his last name?
A. V A N D E V U S S E .
Q. Was that an aortic dissection?
A. Yes.
Q. What was the mechanism of action in that case, or what were the facts in that case?
A. It was a young man who came into the emergency room with a spontaneous aortic dissection, and that was not diagnosed, subsequently sent home

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andexpired.
Q. Why did you believe it was a defensible case?
A. Because I was defending the emergency room physician who saw him, and I did not feel at that point in time that there was evidence within the medical record of his emergency room visit to point to an aortic dissection as the etiology of his complaint.
Q. Were there any laboratories in that situation, such as an echocardiogram or x-rays?
A. No.
Q. Or anything?
A. Chest x-rays and laboratory studies were all normal.
Q. How about the second one, if you could go ahead and talk about that.
A. That is one that I am presently working on that, again, as Mr. Meadows has alluded to, there is work product.
Q. In Cleveland, though?
A. That is a case being done in Cleveland.
Q. Have you been asked to consult on behalf of the defense on that one?
A. No. That is a plaintiff's case for Nurenberg, Plevin,

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Q. The third one?
A. That is a case that I just received, again from Bruce Vandevusse, which no suit has actually been brought, but he asked my opinion regarding it because he feels there is a relatively high likelihood that a case will be brought.
Q. Have you rendered an opinion yet in that case?
A. I have not.
Q. How many others? You talked about three that are currently pending. How many others have you consulted?
A. One that has been settled and two that are pending.
Q. I am sorry. Thank you. Other than these three, have you consulted medical-legally on any other aortic dissection cases?
A. In years past?
Q. Yes.
A. Yes.
Q. About how many, if you can recall?
A. I would say probably another five or six.
Q. Of those five or six, do you recall whether any of those were in Cleveland?
A. I don't recall specifically, no.
Q. Do you have a list, or have you ever maintained a

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list with regard to the work that you have done on cases?
A. No,
Q. How about with regard to the income generated for those cases?
A. I am sure I have W-2s dating back from -- but I don't keep a list of the income from it.
Q. You don't separate in any way? There is nothing we could look at to see --
A. No, I don't separate it.
Q. Of those five or six, approximately how many would be for the defendant, medical care provider, versus the patient?
A. All of the ones up until this year, anteceding this year's cases, have been for the defense.
Q. I missed a word.
A. All of the cases anteceding this year's cases have been for the defense.
Q. Thank you. You talked about the diseased aorta here. I notice under the pathology tab that there was no pathology. Have you reviewed pathology from the aorta here? Have you had a chance to go over it?
A. There was gross pathology. There was not microscopic pathology, no.

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Q. Did you review that gross pathology?
A. Yes.
Q. What role, if any, did that play, in your opinion, as to this being a diseased aorta?
A. The pathology report, as it was issued, did not describe the aortic wall itself, the character of it, to a degree that you would be able to ascertain whether or not there was disease within the media.

And microscopically there was nothing done to ascertain whether or not there was disease within the wall of the aorta.

Q. Upon what pathologic basis, then, are you attributing your opinion that it was diseased, if not pathology?
A. I am basing it upon the premise that I poke holes in thousands of aortas every year and don't get dissections.

I also do have instances where I have had iatrogenic dissections in the operating room. Those patients, by and large, have had diseased aortas when we have looked at the aorta pathologically. There is no reason to think that this woman, who had a laceration develop in the wall of her aorta, would have developed a

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dissection if she did not have a pathologically abnormal aorta,
Q. Would calcification be included within pathologically abnormal?
A. Calcification is included within pathologically abnormal. But it, in and of itself, did not predispose someone to the development of a dissection.
Q. *Are* you aware of what the standard of care is as to whether interventional procedures should be undertaken, if at all, with a diseased aorta, as you have so described?
A. Invasive cardiologic procedures are undertaken every day on patients who have diseased aortas.
Q. So you are not familiar with any specific standard of care, then, that says in certain instances it should not be undertaken with X disease?

MR. MEADOWS: Show an objection. Your question presupposes there is a standard of care.

A. I think you would need to delineate exactly what you mean by "disease" and the specific disease process that you are referring to.
Q. Do you think calcification played any role with

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her diseased aorta that would have caused or prompted the dissection?
A. I do not.
Q. Other than the premise that she must have had disease since it dissected, are you able to state whether, more likely than not, you were aware of any other pathological condition involving her aorta which would have caused it to be diseased other than calcification?
A. She has atherosclerosis in the aorta. That is the only pathologic tenet that is described in the postmortem examination.
Q. Is that the same as calcification?
A. It may or may not be.
Q. Did you review the September 12 films?
A. Yes. Heart catheterization?
Q. Yes.
A. Yes, I did.
Q. Did you find evidence of calcification on the September 12 film?
A. Calcification? You would have to be more specific. Where?
Q. You read Dr. Nukta's deposition correct?
A. Yes.
Q. And in it he references calcification appearing

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in the September 12 film of the aortic root. Did you see any of that when you reviewed that film?

A. You would have to show me specifically where you are referring to. There may be calcification in different areas of the aorta.

And I would have to actually, if I am going to reaffirm his notification of calcification, actually look at the film either with him or have somebody show me where he feels there is calcification.

Q. You would be unable to do it yourself, then?

A. I could show you if you put the film on whether see any calcification in the area, yes.

Q. We are going to talk about your expertise in interpreting the films in a moment. But as you sit here, you don't have any recollection of notably seeing calcification in the September 12 film when you reviewed it?

A. If I were to tell you that, I would have to actually look at the film and assure myself that I am, indeed, seeing calcification in the wall of the aorta itself.

Q. That is fair enough.

Have you ever seen a circumferential dissection such as the one in Janice Gilbert?

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A. Yes.

Q. On how many occasions?

A. It depends upon how circumferentially you are talking about. I have had them anywhere between 90 degrees involvement of the aorta to roughly 280, 290 degrees.

Q. And would you please describe for me your assessment of the extent of this dissection.

A. It was --

Q. At the time -- we may as well jump right on into it, then. When you first saw evidence of the dissection, was it smaller than that as set forth in the operative findings by Drs. Woodhall and VanBergen?

A. No. I think shortly after the dissection process originated, there was complete involvement of the entire tubular portion of the ascending aorta as well as the sinus of Valsalva, which resulted in the aortic insufficiency.

Q. Are you able to state more likely than not within what time frame that occurred, that dissection?

A. Very short time frame.

Q. Are you able to put a time on that? Seconds?

A. It would probably be within minutes, maybe even seconds. It is hard to tell.

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Q. That disruption that you just described that occurred within anywhere from seconds to minutes, do you believe that extended even further between that episode you just described versus at the time of the sternotomy and under direct visualization?

A. There is no way to know, because you don't have a scan that tells you how much of the entire thoracic aorta and abdominal aorta is involved at the time that the dissection process develops.

Q. Now, would you please describe for me the extent of her dissection, in your opinion.

A. The dissection involved the right coronary sinus of Valsalva and extended proximally in that sinus of Valsalva down to the annulus of the aortic valve. It then traversed in an antegrade fashion to involve the entire tubular portion of her ascending aorta up into the transverse aortic arch.

Q. You mentioned 90 degrees, 280 degrees before. What is your assessment here?

A. The dissection here evidently involved a fairly healthy portion of the circumference of the ascending aorta, as least in terms of how the surgeons that are there described it. And that

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is more the rule than the exception.

Q. Can you describe for me in lay terms what you mean? In other words, did it go around --

A. Dissection typically spirals as it develops a false lumen. It usually starts in a spontaneous dissection along the right lateral wall, and, as it goes up, to involve the rest of the ascending aorta posteriorly or spiral anteriorly.

Q. But this is not a spontaneous dissection, correct?

A. It is an iatrogenic dissection.

Q. And it is your opinion that, as an iatrogenic dissection, it still will spiral in such a fashion?

A. Yes, that is typical.

Q. More likely than not, correct?

A. The dissecting process is the same. The only thing that is different here is the causative factor. The initiating event, which is a tear in the intima, is identical.

Q. Are you able to find angiographic evidence of this spiraling dissection, or were you able to?

A. The only evidence that you see on an angiogram is the development of the false lumen, and you can see that. The actual spiraling aspect of it you

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don't really see unless you are there and you can look at the aorta on all sides.
Q. You mean under direct visualization?
A. Right.
Q. So it is your belief, then, you said it went down to the annulus of the aortic valve, that would be retrograde, correct?
A. Correct.
Q. It is your belief that the dissection first occurred in retrograde fashion?
A. I don't think there is any way you can ascertain whether it went retrograde first or antegrade first. I ***think*** it involved the sinus of Valsalva originally, probably in a circumferential fashion, and then traversed retrograde and antegrade with each contraction of the heart.
Q. Within seconds to minutes?
A. Correct.
Q. Would heart rate have anything to do with that? I am sorry, let me clarify that. Would it just be heart rate, or would blood pressure have a factor on that?
A. It is a combination of both. The most important aspect is the force of cardiac contraction, what we call DPDT, the pressure rate constant for

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time. That is the most important aspect in terms of a propagation of a dissection.
Q. There are ways to control the DPDT, correct?
A. *Yes.*
Q. Would that be through drug therapy?
A. Yes.
Q. What type of drugs could you use to control heart rate?
A. Primarily beta blockers, That is the mainstay of therapy for patients who have aortic dissection.
Q. Do you recall whether beta blocker was used here with Janice Gilbert?
A. I don't think they did, because her heart rate was already very well controlled. She had actually --
Q. Procardia, I do remember seeing Procardia.
MR. MEADOWS: Wait a minute. Let him finish his answer. I am not sure he was done with his answer.
A. At least at this point in time they had put a pacemaker in so they could control that as well as they wanted to, and her hemodynamic parameters were actually quite good.
Q. Could a pacemaker help control, then, a heart rate?

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A. No. It can if the heart rate is too low. But in this instance that is not the issue.
Q. It couldn't lower it, then?
A. That's correct.
Q. Procardia, is that a calcium channel blocker?
A. That is a calcium channel blocker which may lower the heart rate as well as the blood pressure.
Q. Would it be as effective as a beta blocker?
A. It may very well be. It depends on the clinical situation and the response that the patient has.
Q. How about if you are trying to lower the heart rate of Janice Gilbert in the situation with aortic insufficiency and an aortic dissection, which would be more effective, in your opinion?
A. Again, it depends upon the patient's response. I think different patients respond in different fashions.
Not infrequently I have patients who I put on calcium channel blockers whose heart rate gets too low and I have to stop that medication. The same thing could be said for patients with beta blockers. It really is a variable that you have to treat a patient and see what the response is before you can ascertain which medication they will respond to.

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Q. Do you have any reason to believe that either of those would not have worked with Janice Gilbert in lowering her heart rate?
A. No.
Q. You said circumferential tear, and I asked you based upon what you said about 90 and 280 degrees, are you able to state, even though you said spiral, give it a number, 360 degrees, or whatever, with her dissection?
A. The tear itself is not circumferential. The tear is a small area that develops in the wall of the aorta. Once the blood enters into the false lumen, then it can spread in a more circumferential fashion, and it can vary anywhere between 90 and 260 or 280.
Q. Do you have an opinion, though, as to what that number would be, approximately, with Janice Gilbert when it was all said and done?
A. I would have to look at the operative note and see if Dr. Woodhall and VanBergen describe the exact involvement circumferentially, how much of the aorta was involved.
Q. Would you please take a look.
A. They don't describe specifically how much of the circumference of the aorta was involved. All

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they describe is that the right coronary artery and the left main coronary arteries were involved in the dissection.
Q. So based upon that, you are unable to state the amounts of circumferential involvement that would be --
A. That's correct.
Q. Once that occurred, what, in your opinion, would be the risk of mortality in surgery to repair that?
A. It is the risk of any mortality for somebody who has developed an acute aortic dissection. The mortality rate, depending upon the experience of the surgeon, can vary anywhere between 7 and 10 percent to 30 percent.
Q. So when she presents at 7:30 is when the surgery started with that circumferential dissection all the way up through the transverse arch, including the right coronary artery, left coronary artery, retrograde down through the aortic valve, your opinion is her risk of mortality was 30 percent?
A. It depends upon the experience of the surgeon who is doing the operative procedure. It can vary anywhere between 7 to 30 percent, depending upon the operating experience.

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Q. I would ask you to assume for a moment that instead of that dissection she went into bypass surgery with just the two RCA dissections. What would be your opinion on risk of mortality with that procedure?
MR. MEADOWS: Objection. You are asking him to assume there is no aortic dissection?
MR. LOUCAS: Correct.
MR. MEADOWS: Objection.
A. An isolated dissection of coronary artery?
Q. Yes.
A. It depends on whether the patient was hemodynamically stable at the time admitted to the operating room.
Q. I am talking about Janice Gilbert. Assuming there was no aortic dissection, and Dr. Nukta had referred her over to the CT surgeons With just the two tears in the RCA to be repaired, that would entail, more likely than not, a right coronary bypass, correct?
A. Correct.
Q. Can you tell me what the risk of mortality is from that procedure alone?
A. One uercent.

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MR. MEADOWS: Show an objection to the hypothetical as it was phrased.
Q. I would next like for you to assume that upon presentation of the aortic dissection it had not extended, as you so described, in spiral fashion; rather, it was localized and did not extend circumferentially. Fair enough?
A. Is this a hypothetical? Because that was not the case here.
Q. Yes, it is a hypothetical. Would you assume that for me, please.
A. I *think* you have to understand that there really isn't such a thing as a localized dissection. I *think* dissections develop and propagate very quickly to the point where local repair of a problem that you feel is a dissection, if it is a localized problem, is probably that of a hematoma rather than a dissection itself.
Q. Doctor, have you ever heard of observation of an aortic dissection?
A. In a Type B dissection, yes. In a Type **A** dissection, no.
Q. What is the difference between Type **A** and B?
A. Type B dissection originates distal to the origin of the left subclavian artery, and a Type **A**

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dissection involves the ascending aorta.
Q. Have you ever read in the literature that a dissection as a result of angioplasty to the ascending aorta or the junction of the right coronary artery of the ostium with the aorta, have you ever read in the literature that that was treated conservatively via observation?
MR. MEADOWS: Objection.
A. I have never personally read of anybody observing an iatrogenic ascending aortic dissection without operating upon the patient.
Q. Have you any knowledge of a relationship, a proportionate relationship, between the extent of a dissection in the aorta and mortality, meaning the longer the dissection, the higher the mortality risk?
A. There is no question that the more of the aorta that is involved in aortic dissection process, the greater the mortality is both short-term and long-term.
Q. Would you agree with me that if it is zero to five millimeters, the risk of mortality is less than 50 percent?
A. No.
Q. Even assuming it did not extend from that length?

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A. I have seen patients and reviewed cases of patients who have had very, very limited aortic dissections, less than a centimeter or a centimeter and a half who have exsanguinated from pericardial -- or died from pericardial tamponade due to localized dissection in the ascending aorta. They are not to be treated medically.
Q. Perforation would have had to have occurred there; is that correct?
A. That's correct.
Q. Do you recall the name of the case that you had worked on for Bruce Vandevusse up in Detroit?
A. I don't remember the name of --
Q. Not the name of the plaintiff or the defendant physician?
A. No. It was an emergency room physician was the defendant that I was defending, and I don't remember the name.
Q. Do you know whether any photos were taken of Janice Gilbert in this case when she went for CT surgery?
A. Intraoperative photographs?
Q. Yes.
A. I am unaware of whether or not they took any photographs.

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MR. MEADOWS: Do you know of any, George?
MR. LOUCAS: What is that?
MR. MEADOWS: Do you know of any?
Q. You state in your report --
MR. MEADOWS: Let the record reflect George didn't answer me.
Q. I am going to be talking about your report, Doctor, so please feel free to look it over when we talk about it.
In the first paragraph on page one you have in the middle, "At that time she was found to have well preserved left ventricular function."
You are talking about after her MI, correct?
A. Subsequent to her myocardial infarction and receiving the TPA, yes.
Q. Do you know what her ejection fraction was?
A. I would have to look at Dr. Nukta's actual catheterization report.
Q. Do you recall whether it was within normal limits?
A. I would assume that if I wrote down here "well preserved left ventricular function" that she had left ventricular function that was either normal or closely thereby.

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Q. That is fair enough. I want you to assume that she just had the two dissections in the right coronary artery, and that she had then been referred over to surgery and it was successful with the right coronary artery bypass.
What is your opinion on what the length of her life would have been to a reasonable degree of medical certainty?
MR. MEADOWS: Show an objection. You are asking him to take into account all of her other risk factors?
MR. LOUCAS: Yes.
A. I think you would have to suppose that she would probably live into her 70s.
Q. Mid-70s?
A. 70 to 75, I would say.
Q. I had asked you a hypothetical, and I am going to ask you to assume it. I understand that you disagree with the contents of my hypothetical, the facts I am presenting, but there will be, obviously, differing opinions, so I am going to ask you to assume that it is true that at the point she had two RCA dissections, assume that the presentation of the iatrogenic aortic dissection was localized and did not extend.

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Had she been referred over for surgery at that point in time, first of all, what would the surgery have entailed, more likely than not?
MR. MEADOWS: Before you answer, I want to make an objection and a motion to strike that first part in terms of what you expect the opinions in this case to involve. And also I object to the facts that you are asking him to assume, because I think he has already told you that his opinions are that those are facts that can't be assumed.
But with that objection, you can go ahead and answer.
MR. LOUCAS: Fair enough.
Q. (Continuing.) Go ahead, Doctor.
A. I think that the time from when the dissection occurred until the time that the patient is actually operated upon, the overwhelming likelihood is that the entire ascending aorta would have been involved, regardless of the time frame with which she would have been transported from the cath. lab to the OR.
Given the sequence of events that you are constructing, if you are saying she has a limited dissection involving the ascending aorta, the

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mainstay of therapy for that would be to remove, completely excise, that segment of the ascending aorta that is involved in the dissection process, regardless of the extent that is involved, and utilize a Dacron patch or a Dacron tube graft to replace that segment of the aorta.

Q. And assuming further that it occurred at the junction of the right coronary artery with the aorta with Janice Gilbert, what would her risk of mortality be with just that procedure and the right coronary artery bypass?

MR. MEADOWS: Objection.

A. It depends upon whether or not it is an isolated localized dissection to just the ostium of the right coronary artery, or whether there is valvular insufficiency, or whether the dissection has propagated in any way, shape or form.

It is a hypothetical case that clearly was not present in this case at any point in time, and I have never been in a situation where I have seen it, a dissection that is localized like that to the ostium of the right coronary artery. So I am not sure that I could fairly answer that question.

Q. I understand. It is a hypothetical.

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Doctor, I am going to ask you to assume these set of facts and provide an opinion, if you are able. If you can't give me an opinion, tell me.

I am asking you to assume no valvular dissection, just the two dissections in the right coronary artery with an initial onset localized dissection at the junction of the right coronary artery with the aorta.

With just repair of that, as described, nothing else, what is your opinion of the risk of mortality to Janice Gilbert?

MR. MEADOWS: Object. He has already answered that, He just answered that.

Q. Go ahead, Doctor.

MR. MEADOWS: Answer it again.

A. I can repeat what I said, but I am not sure --

Q. Are you saying, then, that you wouldn't be able to do repair of just that?

A. I don't know that there is anybody who has any statistics on that. I don't think that that operation is ever done.

Q. Assuming, then, that it was just a patch of that area of the aorta with the right coronary artery bypass, do you have an opinion what the risk of mortality to Janice Gilbert would have been?

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MR. MEADOWS: Objection.

A. Well, you would have to patch the aorta. And then you would have to ligate the aorta at the proximal portion, ligate the right coronary artery at its proximal origin from the aorta, and then do a bypass graft.

And I don't know that there are any series of patients where that operation has been carried out so that you can actually state with any reasonable degree of certainty as to what the mortality rate for that is.

Q. So you are telling me you don't know of any limited aortic dissection that has been repaired?

MR. MEADOWS: No, no, he just said he doesn't know that there are studies.

A. That is not what I said, I said there is no series of patients who have undergone limited, repairable aortic dissection to be able to tell you with any degree of probability what the mortality and morbidity is.

Q. How about based on your experience?

A. I have never done an operation such as you are talking about. I don't know of any surgeon who has.

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Q. That would mean, then, that your opinion is that every aortic dissection extends and just does not remain localized, period, correct?

A. The only time I have ever treated a localized dissection is when the dissection has occurred to me in the operating room and I have literally been right there with the chest open and can deal with it right at the time it occurs.

And even so, in the overwhelming percentage of iatrogenic dissections that develop in the operating room, they are instantaneous and require complete excision of the entire ascending aorta.

Q. What is the mortality rate, then, for iatrogenic aortic dissections in your line of work?

A. It is the same as would be for somebody who has a spontaneous dissection. Again, it depends upon the degree of involvement of the aorta, of the coronary arteries, of the aortic valve, and whether or not there is propagation of the dissection into the transverse aortic arch and descending thoracic aorta.

Q. Well, I want to get through this. I want to know with your experience or knowledge with dissection of the ascending aorta and of the descending

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aorta that occurs iatrogenically in cardiac catheterization.
A. The reported series are between 5 and 30 percent. Some series are actually even a little higher.
Q. So it is your opinion, then, that the dissection occurred within seconds to minutes in antegrade fashion as well as retrograde involving the aortic valve and creating insufficiency, correct?
A. Yes.
Q. And what level insufficiency would you attribute to that dissection?
A. On a scale of 1 to 4-plus, 3 to 4-plus would be thenumber.
Q. And were you able to assess a level of insufficiency based on the films that you reviewed?
A. Yes.
Q. Did you do that at the time you noticed the initial dissection, in other words, assess a level of 3 to 4?
A. No, I think the assessment is made at the time where there is a root injection performed by Dr. Nukta.
Q. When you say "root injection," are you talking

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about the aortogram?
A. Correct.
Q. So prior to the aortogram, you were not able nor are you able to assess a level of insufficiency to her aortic valve, correct?
A. You can ascertain that there is aortic insufficiency at that time, and you are unable to ascertain the degree of aortic insufficiency, which is, I suspect, the reason that Dr. Nukta went ahead and did an aortogram, so that his surgeon would be able to ascertain whether or not he needed to do something with the aortic valve.
Q. In your opinion, after reviewing that film, did the level of aortic insufficiency increase at all during the procedure of September 14 by the time he was done with the aortogram?
A. There is no way to know that because you don't have a root injection at another point in time and another root injection at another point in time. You only have one study that is done to diagnose the degree of insufficiency in the aortic valve, and that is the one root injection that was done.
Q. At the conclusion of the aortogram, what is your opinion as to the urgency? First of all, do you

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believe she needed surgery at that point?
A. Yes.
Q. What is your opinion as to the urgency or the timeliness that that surgery should have been undertaken?
A. I think the more expedient you can get a patient to the operating room to treat an aortic dissection, the greater the likelihood that you will have a successful outcome.
Q. Did you believe that the conclusion of the aortogram with assuming successful CT surgery she would have survived, more likely than not?
A. Yes.
Q. Then how does timeliness come into play? In other words --
A. Well, it does only in one instance, and that instance being if while you are waiting to get a patient to the operating room the aorta perforates and you develop cardiac tamponade, and then you are all of a sudden taking a situation that is relatively well controlled with a relatively good likelihood of an outcome that is favorable and turned it into a situation where you have a problem where the outcome is much more problematic.

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Q. Excluding, then, perforation, and we go back to Janice Gilbert, what is the likelihood that she is going to survive?
A. Provided they remain hemodynamically stable during the interim time period from when the diagnosis is made and the operative procedure is begun, there really shouldn't be a dramatic difference in terms of their likelihood of getting a good outcome.
Q. So it doesn't really matter, then, without perforation, the time, whether she is referred to surgery in 15 minutes or three hours?
A. Once you have developed the dissection, and again it depends a lot upon the degree of involvement of the aorta, once you have developed the dissection, provided you don't have ischemia of the heart or cerebrovascular insufficiency or aortic perforation or some other evidence of end organ ischemia, the likelihood of a successful outcome should be the same.
Q. Generally speaking, the bottom line is the sooner you get in there, the better?
A. Well, it is a safer situation to be in an operating room, because if something bad happens, you can then put them on bypass immediately.

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Q. And the sooner you get in there, the likelihood is you would have an opportunity to prevent further extension, if there were going to be further extension?
A. It depends upon the degree of extension that there is at the time the dissection occurs. Sometimes the dissection process extends the entire length of the aorta in a very few heartbeats, so it is totally variable and based upon the patient that you are dealing with.
I have had dissections develop in an operating room where I have been standing there where the entire aorta has dissected within a matter of four or five heartbeats.
Q. When you have an entire dissection involving the aorta like that, what do you expect to be the clinical response?
A. You will have to be more specific about your question.
Q. How does the body respond to a dissection that goes all the way up the aorta and into the transverse arch? Hemodynamically, does it react at all? Does the heart rate increase? What do you typically see with that scenario?
A. In general terms of the hemodynamics, you will

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see a rise in the heart rate and a rise in the blood pressure.
Q. May we agree, then, once that occurs the standard of care is to keep the heart rate low to prevent the heart from extending it even further?
MR. MEADOWS: Once what occurs?
MR. LOUCAS: An aortic dissection.
Q. (Continuing.) That the standard of care would be to decrease the heart rate so as not to permit the beating of the heart to extend that dissection even further?
A. Yes.
Q. Page two, paragraph one, second sentence, the latter part, "The right and left main coronary arteries were involved with the dissection and deemed unacceptable for reimplantation."
What did you mean by that?
A. I am sorry, again, you are asking for which -- okay.
Q. First full paragraph.
A. At times when you are putting in a composite graft, that being a valved conduit, heart valve that has a Dacron tube that comes off of it, the best way to deal with coronary arteries are to take them off as buttons of the aorta and sew

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them back onto the Dacron graft. It maintains normal continuity. You don't have to put a bypass graft.
For one reason or another, the surgeons who were there at that time felt that the right coronary artery ostium and the surrounding area, which is the button that you, in general, would take off to sew back on, was unacceptably damaged from the dissection process to try to reattach it to the Dacron graft.
Similarly, the left main coronary artery was involved to the point where they were not comfortable reattaching it to the Dacron graft.
Q. Are you critical of the care rendered to Janice Gilbert by the cardiothoracic surgeons?
A. I am not critical. I probably would have done the operation a little bit differently, but that is -- surgeons do operations in different fashions.
Q. It is not your opinion, then, that they rendered substandard care in their treatment of her; is that correct?
A. No, it is not.
Q. Is it your opinion that had they done something differently, it would have increased or decreased

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the likelihood of her survival?
A. I would have carried the operation out in a different fashion. I have a relatively good track record in dealing with these sorts of problems. The fact that I do it that way is more of a personal preference than a criticism of their attempts to repair the problem they were met with.
Q. Would you go ahead and tell me what the difference is, meaning how you would have done it versus the way they did it, in your opinion.
A. I would probably not have replaced the aortic valve. I probably would have resuspended the valve. I probably would have done it under circulatory arrest, so as not to have placed a clamp on the aorta.
I would have utilized retrograde cerebral perfusion to perfuse the brain during the period of circulatory arrest.
And then, depending upon how diseased the coronary arteries were, I would have either bypassed them, as they had done, or tried to reimplant them, as they did not.
Q. Resuspending the valve, how would that have affected mortality, increased or decreased?

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A. It would have decreased the mortality had the valve resuspension worked such to the point where you wouldn't have had to replace the valve.
Q. What is your opinion as to why the valve could have been resuspended instead of replaced?
A. There is no way for me to know that without actually being there at the time and looking at the valve pathology.
These surgeons felt that at the time when they were there the valve was distracted enough from its supportive structure that it was not a repairable valve.
There is no way for me to tell you, without actually being in that situation, whether the valve was reconstructible or not.
The hypothetical situation you are asking me is: How would I do this differently? Ideally, the valve would be repairable and we would be able to resuspend it and be able to retain a competent valve.
Q. Is there any relationship between the level of aortic sufficiency, a 3 or 4, as you have described, to the degree of damage to the aortic valve?
A. No. Very frequently valves that are this

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insufficient due to a dissection are that insufficient solely because they have lost the supportive structure, the commissure of the valve.
And resuspending the valve or gluing the walls of the aorta back together can result in complete competency of the valve once it is repaired.
Q. Circulatory arrest, how would that have affected mortality, increase or decrease?
A. It decreases the operative mortality of this procedure.
Q. Why would you have done that?
A. It is a safer way to construct the distal anastomosis. It allows you to actually look into the transverse aortic arch to ascertain whether or not you have involvement and how much involvement you have. It allows you to ascertain whether or not you have a reentry point in the transverse aortic arch, and allows you to perform a tension-free anastomosis in a bloodless field.
MR. MEADOWS: Were you through with your earlier answer to the question as to if there was anything else you would have done differently?

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I think you asked him the significance of replacing or not replacing the valve in the middle of his answer to your previous question.
A. There are other things in terms of cardioprotection that I would do differently, for example, giving cardioplegia in a different fashion than which they did.
The other things would be based upon what they actually saw and had to deal with at the time that they did their procedure.
Q. Are you done?
A. Yes.
Q. I was going to ask you whether the circulatory arrest you were just talking about had anything to do with the method of giving cardioplegia?
A. No, it does not.
Q. Why don't you tell me about the ability or inability to administer cardioplegia to the right ventricle in this case. Do you have an opinion in that regard?
A. When I do cardiac surgery, Virtually 100 percent of the time I used retrograde cardioplegia. I don't give antegrade cardioplegia at all. It is, I think, a safer way to deliver cardioplegia to the heart, and results in a more uniform cooling

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and a more uniform protection.
Q. What did they do here?
A. They utilized antegrade cardioplegia.
Q. What is your criticism of that, if any?
A. It is a different manner in which surgeons give cardioplegia. There is a very high percentage of cardiac surgeons who use antegrade cardioplegia, and there is a significant number of surgeons who use retrograde cardioplegia, and there are some who use both.
Q. Did it make any difference in her outcome that they used antegrade?
A. I am not exactly sure that there was a difference. I don't think you can say specifically that the outcome was affected by the manner in which cardioplegia was delivered.
I think what you can say is that there are different ways to deliver cardioplegia that might have resulted in better protection to the right coronary and right ventricular chamber. But, again, that is purely supposition.
Q. Were they able to administer cardioplegia to the right ventricle?
A. They were able to administer cardioplegia in the left main coronary artery, but not in the right.

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Q. And the significance of that?
A. It depends upon the amount of cardioplegia that they administered, and it depends upon the amount of collateral flow you have from the left-sided vessels to the right-sided vessels.
Sometimes if you give a healthy dose of cardioplegia just through the left side it will percolate around through the collateral systems into the right coronary system and basically protect the right ventricle, as well as the inferior wall of the right and left ventricle that would ordinarily be taken care of by a right coronary injection.
Q. Do you know if she was right-side dominant?
A. I believe she was right-side dominant.
Q. Are you aware of the extent of collateralization of blood supply between the two systems with Janice Gilbert?
A. In her case the left-sided injection did not really result in a lot of fill of the right coronary artery.
Q. What is the relationship of what you are talking about with this cardioplegia to an infarct, a ventricular infarct?
A. Well, you can have an infarct from a number of

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things. By and large, an infarction develops when you have an absence of antegrade flow down a coronary artery for one reason or another.
Q. I am basically asking you -- I am going to bare my ignorance here, because I have heard "ventricular infarction," and I have no idea what we are talking about here.
A. Infarction is the end stage process in an ischemic event. When you occlude somebody's coronary artery, they develop ischemia. And as that ischemia progresses with time, the muscle becomes more and more'ischemic to the point where the muscle cells themselves become nonviable and die. That is the process when you then develop an infarction.
Q. So what do you think caused her death here, Janice Gilbert?
A. Right ventricular failure.
Q. Is that unusual? Is that something you did not expect to see in a case like this?
A. I think it is one of the -- it is a complication of any open heart surgical procedure. It can develop as a result of a multitude of different things, be it ischemia, in other words, not enough fluid, or it can develop as a result of

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inadequate protection of the heart. Cardioplegia can develop as a result of a problem on the left side of the heart. There are a number of things that can cause right ventricular failure.
Q. What do you think caused it here?
A. I don't think there is any way to ascertain that because we didn't really get an intraoperative transesophageal echocardiogram to look at the right ventricular chamber to ascertain whether or not it was indeed stunned or whether or not there was actually an infarction process going on. We don't know exactly what caused her right ventricular failure.
Q. Did you find any evidence of an infarct?
A. There is nothing that is stipulated specifically in the operative note itself. All it talks about is the right ventricle not pumping in an adequate fashion.
There are a number of things that you can do when you are in the operating room to ascertain what exactly the problem is with getting somebody off bypass.
I think most important is to use a transesophageal echocardiogram to actually look at all the chambers of the heart to see which

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chambers are beating and which are not. That then allows you to treat the patient in an appropriate fashion.
Q. Addressing the area of more timely importance?
A. What it does is allows you to assess which portion of the heart is not functioning in an adequate fashion such that it will allow you to separate the patient from bypass.
Q. When you say antegrade flow, which direction is that?
A. That is in a normal anatomic pathway.
Q. Was it your opinion that it was a ventricular infarction that did her in? I know I heard that someplace.
A. There is no way to know whether there was ventricular infarction or whether the ventricle itself was stunned.
Q. Is it your opinion that this would have been the end result, regardless of the extent of dissection, with this patient going into CT surgery?
A. No, I think that it is an unpredictable complication that developed as a result of the operative procedure. Does it happen? Yes, it happens.

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Q. Doctor, you say "It is the force of cardiac contraction along with the intraluminal pressure that results in the propagation of the dissection, not the instrumentation."
Are you saying that instrumentation can never propagate a dissection, extend it?
A. Instrumentation is the etiologic agent that allows for the dissection to develop. The propagation of the dissection is the result of the force of the cardiac contraction and the pressure with the lumen of the organ. It is in every instance, whether it is spontaneous or iatrogenic.
Q. That is assuming that it takes the path that you have so described, meaning that it is instantaneous and extended?
A. Regardless, you have to have an etiologic factor that allows blood to enter the media of the aorta. That then becomes separate from the dissection process, which is that which develops after the etiologic process begins.
Q. Do you consider contrast material to be an extension of instrumentality, in other words, contrast material being forced into that lumen, that false lumen, could act the same as the blood

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flow in causing a propagation of a dissection, correct?
MR. MEADOWS: Objection.
MR. TREU: Objection.
A. I think any time you have fluid in a false lumen where there is communication between a true and false lumen, be it either contrast material or blood, which in this case were admixed, the actual presence of the contrast material has nothing to do with the propagation of the dissection.
The dissection is propagated by the beating of the heart and the pressure on the wall.
Q. Contrast material, do you know whether it was hyperosmolar or not in Janice Gilbert?
A. Most contrast material is hyperosmolar. But there is so much mixing between the true and false lumen that the degree of hyperosmolarity within the false lumen at any one point in time is very, very small.
Q. Do you know what the hyperosmolality is of Optiray?
A. I do not.
Q. Doctor, you talked about three ways to diagnose an aortic dissection. Arc any of these three

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utilized in a situation like this that was happening with respect to Janice Gilbert?
A. I think the most expedient manner to diagnose the dissection was that which was undertaken, and in this case it was an aortogram.
Q. Why do you say the most expedient?
A. Because the patient was in a catheterization laboratory with a catheter in the aorta. It was a matter of injection of the ascending aorta to confirm the diagnosis and ascertain the degree of aortic insufficiency.
Q. Actually what you are worried about then in timeliness with regard to getting her into the hands of CT surgeons on an emergent basis is the level of insufficiency, not the extent of the dissection?
A. Well, you want to know the extent of the dissection, as well.
Q. Why is that?
A. Because it will tailor or make you tailor your operative procedure in one way, shape or form.
Q. And it perhaps may increase or decrease mortality on that basis?
A. Depending upon whether or not you have involvement of the valve with insufficiency or

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whether or not you have a localized dissection that involves just the ascending aorta and not the transverse arch.
Q. Of the three that you mentioned, and you have mentioned "the most expedient," which is the most expedient?
A. In this case, not in all cases -- the majority of cases, the most expedient way to diagnose these is either to be by CT scan or transesophageal echocardiography. But that. Again is in a situation where you are having a spontaneous dissection not an iatrogenic dissection.
Q. Janice Gilbert, the most expedient you said is aortography. However, he could have used one of the other two, as well?
A. There was no reason to.
Q. But the question was: He could have, however?
MR. MEADOWS: Objection.
A. He could have, but it would probably have been a deviation from the standard of care in the fact that he already had a catheter in the ascending aorta. There is no reason not to do the most expedient test to make the diagnosis. And that would be aortography.
Q. Which one is the most accurate in terms of

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identifying the dissection or the extent of the dissection?
A. I think that each type of modality has its benefits and pluses and minuses in terms of what it will tell you about a patient who has an aortic dissection.
The gold standard by which all other methods are compared against remains aortography. The problem is in spontaneous dissections it is not the most expedient.
Clinicians have had a tendency over the last few years to move more towards utilizing CT scanning or transesophageal echocardiography simply because they can get an answer very, very quickly.
Q. But my question was: Between the other two options, which one would be more accurate in defining the extent of the dissection with somebody like Janice Gilbert?
MR. MEADOWS: Asked and answered. Objection.
A. The most accurate, I feel, test to give a cardiac surgeon the most information that they can get is a transesophageal echocardiogram.
Q. What is the significance of the pulmonary

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arterial pressure recorded at 36 over 22. You mentioned that specifically.
A. Well, I think that it tells you at the time that the patient presented to the operating room that, from a cardiac contractility standpoint, she was in relatively good shape. She didn't have any significant ischemia involving either of the coronary arteries; that she didn't have any evidence of cardiac tamponade, as evidenced by the fact that her pressures were relatively normal, along with her hemodynamic parameters at the time that she entered the operating room.
(Thereupon, Kris Treu, Esq. leaves the conference room.)
Q. Upon what do you base the fact that she didn't have any ischemia?
A. Patients with abrupt occlusion of the right coronary artery, which is usually the artery that is involved in a spontaneous dissection, or in this case involved in an iatrogenic dissection, especially somebody who has a large dominant right coronary artery like this, will develop significant elevations in the pulmonary arterial pressures if they have global ischemia involving the right and left ventricles.

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Q. Level II surgery, it said in the records at Fairview when he undertook the angioplasty. What is a Level II procedure? Do you have any idea what that is or what that means?
A. Usually at a PTCA that is done. A Level III is one where you have an operating room available and a surgeon available at that time to take care of whatever problem might arise.
A Level II angioplasty is that you have a surgeon who is available within a half an hour or 45 minutes of the hospital, and that you have the facility by which to undertake an operative procedure should one be necessary in a reasonable facile fashion.
Q. So the half hour to 45 minutes means what, that the surgeon just has to be on the property within half an hour or 45 minutes?
A. That he Will be able to consult within a half an hour or 45 minutes.
Q. So it doesn't mean that the standby team should be able to begin surgery within 45 minutes?
A. No. It is very rare that even in emergent situations that you are actually able to immobilize a team and physically have the operating room set up such that you are able to

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transport the patient from Point A to Point B and start the operative procedure at that time.
Q. Let's take a look at that film, Doctor, and then we can finish up.
A. All right.
MR. LOUCAS: What I suggest, Bill, is that we go ahead and put the tape in, and I will go ahead and direct it to where I want to look, and you can size up the cine. film at the same location for clarity.
(Thereupon, a short recess was taken, and Richard Vadnal, Esq. has left the conference room.)
Q. (Continuing.) Doctor, as we begin to look at this tape, when you received the file materials, and I have gone through everything that you have reviewed, did you look at the tape first?
A. No, I did not.
Q. Did you read the material first and then review the tapes?
A. Yes.
Q. Did you find an inconsistency between your interpretation of the September 14 film and the operative report of Dr. Nukta of the September 14 procedure?

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A. No, I did not.
Q. Let the record reflect that I am going to go ahead and start this.
Doctor, would you tell me when you first see a sign of aortic dissection, and I will hit the pause button.
A. There.
Q. That is at approximately one minute and ten seconds?
MR. MEADOWS: That is where you stopped it. It might be --
Q. About a minute eight?
A. One minute eight, one minute nine.
Q. How is it that you define dissection?
A. I don't know that you can specifically say that there is a dissection. What you can say is there is an abnormal collection of dye in a concentric fashion that would make me concerned that there is a false lumen or an area of abnormal blood entry into the wall of the aorta.
Q. Would you agree with me that, more likely than not, at one minute and eight seconds when you see the abnormal accumulation, more likely than not, it had been there at some point prior to the one minute and eight seconds?

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A. I think the first time you see evidence of it is here. I don't think that there is a way that you can specifically state what has happened preceding that unless you can actually see the process, it would just be speculation.
Q. Well, I am going to ask you, with the benefit of hindsight, knowing what you see there, if you back it up before one minute and eight seconds, do you think, more likely than not, there was a dissection there?
A. I think you have entry of blood into a false passage at this point in time. As to how much the dissection is involved at this time, you can't say because you haven't been able to actually look at the entire aorta.
Q. *Are* you able to tell me more likely than not the extent of this dissection?
A. At this time, no.
Q. Why not?
A. Because you are not visualizing the entire aorta, nor are you visualizing the valve.
Q. Where is the valve?
A. The aortic valve should be right down in here, and the rest of the aorta should be coming up here.

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Q. Does it appear that that right there, that dissection that we are looking at at 1:10:02, has extended retrograde to the valve at that point?
A. You don't know that. And right here at this time you don't even know that there is a dissection. All you know is that there is an abnormal collection of contrast that is concerning.
What the next step then becomes is that abnormal collection of contrast, that is something I need to be worried and concerned about. What exactly is the etiology of this collection of dye?
Q. What is the standard of care, then?
A. Depending upon whether or not it is noticed at the time by the person who is doing that, what I would then do would be want to ascertain exactly what this is, which may entail an injection into the sinus of Valsalva to really see if there is an abnormality there or something that you are concerned about, and then perhaps go from that situation to try to ascertain whether or not you have involvement in the valve or involvement of the ascending aorta.
Q. You are saying the purpose of that injection would be to make sure there is a dissection, that

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that is just not a --
A. I think once you see an abnormal -- go ahead.
Q. In other words, the purpose of the sinus injection you are talking about is to make sure this is not a transient accumulation of contrast material, rather truly is a dissection?
A. As to delineate what the etiology or what the process is that is going on in the sinus of Valsalva that has resulted in this abnormal accumulation of dye here, because you don't really know at this time what that is from or what the extent of that process is.
Q. With a dissection, and two right coronary artery tears as it appears there, assuming this is an aortic dissection right here, is she a candidate for surgery?
A. You don't know from what you see here because you don't know what is going on. I would not operate on this patient with this film to look at. I would need more information.
Q. What information would you need?
A. I would need to know whether or not this is, indeed, an aortic dissection, whether or not the tubular portion of the ascending aorta is involved, and whether or not there is valvar

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insufficiency. And at this point in time we don't have any of that information.
Q. Let's assume it is an aortic dissection, but there is no valvar involvement.
A. But the problem is you don't know that from this picture.
Q. I am asking a hypothetical.
MR. MEADOWS: For this picture, on the record, we are talking about 1:10:02.
Q. Assuming this is an aortic dissection, but it has not extended into the valve, nor up the aorta, what, as a CT surgeon, would be your opinion on her surgical candidacy?
A. If, indeed, this was a localized dissection to the right coronary sinus of Valsalva and there was a problem with the right coronary *artery,* I would recommend that she undergo operative correction for that.
Q. And what procedure would have to be performed?
MR. MEADOWS: Show an objection, because you have asked and he has answered this.
A. What would be found at the time of operative intervention, more likely than not, if this was a dissection, it would have propagated and involved the ascending aorta and the aortic valve.

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If it was just localized, then we would have to tailor an operation based upon what was found at that time of operative intervention.
Q. We are at 1:14. Can you tell me whether, in your opinion -- first of all, would you describe for me what you see.
A. You see, again, an abnormal collection of dye in the right coronary sinus of Valsalva that is suggestive but not diagnostic for a problem within that sinus.
Q. Now we are at 1:14:12. Is that accumulation of contrast material larger, or does it appear larger than the last contrast injection we just viewed?
MR. MEADOWS: Objection.
A. No. I think you are visualizing it better. I don't think the process has changed. I think you have been able to fill the area of abnormality better and to visualize it better. But I don't think the size of it has changed.
Q. May we agree that once you see something on the film which leads you to believe, more likely than not, there is objective proof of an aortic dissection, there is a corresponding duty to place that into the field of vision?

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A. I think if you know that there is an aortic dissection, the answer to that question is yes.
Q. Thank you.
A. At this time I don't think we knew that, indeed, there was a dissection. We knew there was a problem with the sinus of Valsalva.
Q. So it is your opinion here at this point, 1:14:12, you still don't know that is an aortic dissection, correct?
A. Correct. You have a concern about this, and you know that there is something pathologically problematic within the sinus.
Q. What is your opinion on whether additional interventional measures should take place at this point when you have this concern?
A, In terms of what type of interaction?
Q. Trying to lay an additional stent, or continuing to try to conduct angioplasty, interventional measures versus diagnostic, like an aortogram.
MR. MEADOWS: I am going to object because you left out sinus injections, and I want to make sure you make a distinction in your question.
A. I think if you are concerned at any point in time about there being a pathologic problem with the

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wall of the aorta separate from what the procedure was that you were entering the case to do, then you need to abandon whatever other intervention on the right coronary artery is being undertaken, provided that coronary *artery* circulation is stable, and then evaluate the aorta to determine what degree of pathologic problem you have to deal with.
Q. In an effort to expedite this deposition, I am going to ask you to go to the cine. machine for lack of a better description.
A. That is exactly what it is called.
Q. Would you show me what you and Bill were looking at when I was out in the hallway, please.
MR. MEADOWS: For the record, he is going through -- do you want him to tell you what we looked at?
Q. Why don't we do that from the beginning. Tell me what you see in each injection.
MR. MEADOWS: I mean, that is a different question. We didn't necessarily do that in the five minutes we were here.
A. We are reviewing a catheterization dated 9/14/95, presumptively of Janice Gilbert, although her name I don't see on here.

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Q. If I may just intervene, you are right, Bill.
Doctor when you get to the point when I asked the initial question, would you show me what you and Bill were looking at?
A. Absolutely. We are reviewing the left main coronary injection performed by Dr. Nukta originally to ascertain whether or not the site of the prior angioplasty and the circumflex had a problem in it. And it appears to be satisfactory.
The second view, called the right anterior oblique view, to look at that same area. And that, again, looks quite satisfactory.
An injection is then made in the right coronary artery.
Q. And this is the third view, correct?
A. This is the third view, and a left anterior oblique fashion, and it shows a 60 percent, maybe 70 percent, stenosis in the proximal third of the right main coronary artery.
Q. Do you have an opinion as to whether that should have been angioplastied on September 12?
MR. MEADOWS: On the 12th. He is asking about the first procedure.
A. No, I would not have angioplastied this on the 12th. I think the patient developed clinical

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symptoms in the face of prior inferior infarction. I think it behooves the cardiologist involved to make sure this lesion has not become more unstable.
At the time Dr. Nukta felt this lesion could present problems for Mrs. Gilbert and felt an angioplasty was indicated.
Q. Do you have an opinion whether this RCA lesion was the culprit on September 14 that led to her coming down for the angioplasty?
A. I suspect it was the circumflex lesion, and that this was present and may not have cultured, but I *think* the actual culprit lesion was the circumflex.
MR. MEADOWS: Asking on the 14th?
MR. LOUCAS: The 14th before the discharge.
A. I am *sorry,* I have thought you meant on the 12th. I don't think there is any way to know whether or not that is causing the chest pain that she is experiencing.
Q. Is this the fourth view?
A. This is the fourth view.
The fifth view appears to be a percutaneous transluminal coronary angioplasty of the right

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coronaryartery.
Q. And what were those sheath marks? See these marks up here?
A. I suspect that is the markings on the balloon catheter that is doing the angioplasty.
Q. This is the sixth view?
A. The sixth view, and appears to show a dissection involving the proximal portion of the right coronary artery.
Q. Is that post-stent, number one?
A. No, this, I believe, is subsequent to the balloon dilatation.
Q. So there is no stent in there?
A. I don't see a stent being placed.
Q. Good enough. This is the seventh view coming up?
A. Yes. This may be a subsequent balloon dilatation of the same area. Again, without being there and knowing exactly what he is doing", I don't know specifically what portion of the procedure he is carrying out at this time.
Q. I am just concerned that we are losing track of the count here.
A. Do you want to go back and start again?
Q. Because I saw a sheath mark before, and I didn't see the balloon.

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MR. MEADOWS: You don't have to go all the way back.
A. This is the first view, second view, third View, which is the first injection of the right coronary artery.
Fourth view, which is the second injection of the right coronary artery. Fifth view, which appears to be the initial percutaneous transluminal coronary angioplasty of the right coronary artery.
Sixth view, which then shows an apparent dissection in the right coronary artery. And the seventh view, which appears to be a subsequent attempt to dilate the right coronary artery, as well, but I can't tell you whether Dr. Nukta had a stent in there that he was dilatating or was just doing a subsequent dilatation in an effort to attack back to the dissection.
Q. Eighth?
A. This is the eighth injection, which continues to show a dissection involving the right coronary artery.
The ninth view again continues to confirm the dissection involving the proximal third of the right coronary artery.

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Q. I am sorry?
A. This is the ninth injection, which continues to show a dissection involving the proximal third of the right coronary artery.
Q. But you don't see stents or --
A. I don't see a stent being put in here as yet.
Q. Do you know at this point whether the first stent has been placed?
A. I do not.
Q. Okay, please continue.
A. Tenth, a similar right coronary injection which continues to show the section involving the right coronary artery.
Q. Can you stop it there?
A. Yes.
Q. That catheter, the tip of the catheter, where would you describe that?
A. It is in the proximal portion of the right coronary artery.
Q. So it is not in the ostium, or would that be the wrong definition?
A. I think all you can say is that it is in the region of the ostium of the right coronary artery, but appears to actually be engaged into the proximal portion itself.

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Q. So what is your definition, then, of a sinus injection?
A. A sinus injection is where the catheter itself is outside of the orifice or the ostium of the coronary areas in which the sinus is being injected.
Q. What do you see in this tenth shot?
A. I see a guiding catheter in the proximal portion of the right coronary artery, and a wire down the right coronary artery itself, and a dissection involving the proximal third.
Q. Still one dissection?
A. Involving the coronary artery itself.
Q. Please go ahead. This is 11.
A. Here the guiding catheter appears to have come out of the ostium of the right coronary artery, And the right coronary artery is very poorly filled, really of no clinical benefit.
Guiding catheter, this is now 12th injection, this is now back in the right coronary ostium.
Q. Stop right there, please. What is this right here?
A. That is probably a conus branch coming off of the right ventricle or right atrial branch coining off

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the proximal portion of the right coronary artery.
Q. We are still on number 12, right?
A. Yes. Continues to show a dissection involving the right proximal third of the right coronary artery.
Q. Any idea whether the stent was laid down there?
A. No, I think this is the stent going in here.
Q. Now we are on number 13?
A. Yes. This, I believe, is where they put the stent. They are inflating the stent here.
Q. I am sorry. Stop. Is this still 13 or **14?**
A. No, this is a new injection. This is number **14.**
Q. What is that now?
A. This is what appears to be an abnormal collection of contrast material.
Q. Is it fair to state this is the first time you have seen it, then?
A. This is the first time when you have seen the abnormal collection of contrast material.
Q. And that is the 14th shot, correct?
A. Correct.
Q. What else do you see in there, please, Doctor?
A. You continue to see dissection involving the proximal third of the right coronary artery, and

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you continue to see reasonably good antegrade flow down that artery.
Q. And the stent is the first stent that has been placed, correct? You can't visualize it, but we assume so.
A. We assume it has been placed, and I think in this situation I think the second stent had actually already been placed. I think this one was the second stent going in.
Q. Where is the first one, then, if that is the second one?
A. Again, they are difficult to visualize on here. I can't tell you specifically where exactly the stent is that is being put in, but I think at this point in time the second stent has already been implanted.
Q. Is this the first balloon that we have seen?
A. No. If you recall back here -- I will go back and show you here.
Q. Now we are going to lose --
A. No, we will go back. We know where we are.
This appears to be, and I don't know whether this is the first stent or actually the second stent, you would need to talk with Dr. Nukta at what point in time in this catheterization film

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he is actually deploying the stents.
Q. Is this just where we were?
A. No, this is not where we were.
MR. MEADOWS: I mean, I have lost track of where you are at.
A. This is 12 here, guys, this is 13.
Q. That is why I wanted to use the -- --
A. This is the second injection here. We are comfortable with that?
Q. *Yes.*
A. Third injection, that is a diagnostic of the right. Fourth injection. Fifth injection is the dilatation and/or stent. I don't know if he put a stent in here or not at this time.
Q. And you see dilatation, but you don't see -- okay, dilatation.
A. Now, this is probably where he put the first stent in right here. That is the diagnostic, that is the fourth shot. Fifth shot is the initial angioplasty. Sixth shot shows the dissection.
MR. MEADOWS: Be clear in terms of --
A. Sixth shot shows the dissection in the proximal portion of the right coronary artery. The

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seventh shot appears to be placement of the first intracoronary stent in the right coronary artery in an effort to take care of the dissection involving the right coronary artery. The seventh shot is, again, of the right coronary artery.
Q. I am sorry, the last one you just said was the seventh.
MR. MEADOWS. Just for the record, I have totally lost track.
Q. Gentlemen, I hate to do this, I know this machine is better, but why don't we do it through the film. If we want to expound, we can do it correspondingly on here.
MR. MEADOWS: For the record, I totally lost track of the injections throughout the entire time we were looking through the cine. film.
In fairness to the doctor, we literally got the cine. film five minutes before we started.
(Thereupon, a discussion was had off the record.)
A. This film is actually better than the cineangiogram, it is more clear.
Q. Here is your "play" and "pause." Just go ahead and narrate it quickly up to where we were

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before, and I will just follow along.
A. The first injection is the diagnostic.
Q. That is at 15 seconds it began, approximately?
A. Yes. Two injections of the left coronary artery are made.
Q. Beginning at 21 seconds.
A. Right coronary artery is then examined at 28 seconds on two separate views up until 37 seconds.
Then an angioplasty is begun on the proximal right coronary artery at 38 seconds.
Q. Okay, Doctor, I am going to interrupt and ask you at 38 seconds to back up just to before 36 seconds and hit the pause, and I want you to define for me something that I see on here. Does it have single advance?
A. No, it doesn't. That is the problem With this. It is not my VCR, unfortunately.
Q. This is where we would need point of clarification. So if you want to -- 38:02, are you able to tell me what that is at the end of that catheter, that accumulation that I am looking at right there?
A. No.
Q. Could that be the beginnings of accumulation of

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contrast material?
MR. MEADOWS: Objection.
A. Contrast material where?
Q. Right here.
A. Well, there is contrast material there. There appears to be contrast material there.
Q. I am *sorry,* could that be consistent With accumulation due to an aortic dissection?
MR. MEADOWS: Objection.
A. There is nothing there that suggests that is the case.
Q. And before we get to each one, if you want, the best thing would probably be to hit pause and then say what frame. What shot we are looking at?
A. This is at 42 seconds.
Q. This would be -- I will go ahead and represent this -- the sixth shot. Go ahead.
A. It appears to show a dissection involving the -- sometimes it pauses and sometimes it doesn't. It is just not a good VCR.
This appears to be at 44 seconds, the first stent deployment, which would be number seven.
The next shot is at 47, and that would appear to be a diagnostic study that shows

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persistent dissection involving the right coronary artery.

MR. MEADOWS: You went back too far.

THE WITNESS: You can't control this thing.

Q. Does that look like a dissection to you?

A. No. This is 50, which should be number eight.

Q. I have number nine. What do you see in there?

A. 50 is number nine. You missed it, I was right, it is number eight. Number eight is a diagnostic study. Go back to number eight. It is a diagnostic study of the right coronary artery. That is at 48.

Now this is number nine, and that is another diagnostic study that shows persistent dissection.

Number ten is this one at 54, which continues to show the dissection involves the right coronary artery. This is, then, the 10th injection.

Q. That would be --

A. The 11th injection, which continues to show the right coronary artery dissection. I missed one.

Q. See if you can stop it at about 1:04.

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MR. MEADOWS: We are at 1:04:13.

A. This appears to be an injection in the right coronary artery.

Q. That is the first sign of accumulation of contrast material, correct?

A. No. This is a diagnostic study of the right coronary artery which continues to show dissection involving the right coronary artery. There is nothing to suggest any abnormal aortic pathology at this point.

Now, 1:08:25, this is the first time when you see contrast in the sinus that has not dissipated. This injection shows something abnormal within the sinus of Valsalva, the etiology of which you can't be certain.

The next injection is at 1:13:16, which is an injection of the right coronary artery, in the sinus of Valsalva.

Q. What does it show, a widening?

A. It shows an abnormal collection of dye in the right coronary sinus of Valsalva.

Q. Does the fact that it has widened since the previous shot mean it is in the intimal flap?

A. No. All it means is that the area that you visualized before as abnormal is now being better

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visualized. The size of it is irrelevant. You don't know whether it has changed in size. It certainly is better visualized here than before.

Q. Is that accumulating between the layers of the aorta?

A. You can't be certain. But that would be my concern, that this dye collection has developed between the adventitia of the aorta and the media of the aorta.

Q. And if you were injecting your guiding catheter right there into that space that you just described, what would you expect?

A. Well, nothing. The majority of the dye is going down the right coronary artery. As you say, there is no real excess pressure involved in the sinus injection itself or the right coronary injection. Most of the dye is running off to the right coronary artery.

What you do see is an abnormal collection of dye that appears to be in the wall of the aorta itself.

Q. What is your definition, or how would you define an intimal flap?

A. An intimal flap is any laceration or disruption of the intima itself that allows for separation

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of the wall, the intima perhaps from the media or the intima and the media from the adventitia.

Q. More likely than not, is that what we have here at 1:15:22?

A. What it appears to be is you have here a collection of dye that is accumulating in the wall of the aorta. Exactly where the wall is, you don't know, but you know that it is accumulating in the wall of the aorta rather than intraluminally.

Q. So, more likely than not, that is consistent with an intimal flap?

A. Correct.

Q. All right. Please proceed.

A. The next injection is at 1:17:23.

Q. Go ahead and tell me what you see.

A. That shows an aortic dissection with aortic insufficiency and involvement of the tubular portion of the ascending aorta.

Q. And that is what I wanted to ask you what is that circular appearing substance that we see there?

A. This right here? That is the sinus of Valsalva. This is the true lumen here, and this is the false lumen. And you will see it extends up through the tubular portion of the ascending

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aorta. And you will also see evidence of aortic insufficiency, the degree of which you aren't able to ascertain at this time.
Q. Would this be the circumferential 90 to 280 degrees you were talking about?
A. There is no way to know. You can't tell from a two-dimensional picture what the three-dimensional involvement is.
Q. Could this be consistent with the contrast material admixed with the blood filling space of an intimal flap, and that is the marking that we see?
MR. MEADOWS: Objection.
A. What you are seeing here is the sinus of Valsalva being filled with contrast, and a dissection within the sinus of Valsalva extending into the tubular portion of the ascending aorta.
Q. Can you see whether it is extending into the valve at this point?
A. Yes, there is evidence of valvar insufficiency.
Q. Do you see evidence of dissection into the valve? I mean, do you see visual evidence, objective evidence?
A. The dissection doesn't extend into the valve. What it does is remove the supportive structure

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of the valve, which is that in the sinus of Valsalva, that results in the leakage in the valve.
Q. The dissection described in the operative findings did involve the valve, correct?
A. No, it did not, it involved the supportive structure of the valves. The valves themselves don't get dissected because they are fibrous, the supportive structure of the valves does.
The next injection is at 1:22:13, and it appears to be a sinus injection that confirms the dissection. And you can see the false lumen here extending upwards, and this is the true lumen here.
The next injection is at 1:28:01, and that is an aortogram that delineates the full extent of the dissection and the degree of aortic insufficiency.
Q. But you cannot see the extent of dissection up the aorta?
A. Yes, you can.
Q. Can you show me?
A. Yes. This is the true human here, and the false human is out here. This is the aorta as it comes up here. This is where the catheter is within

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the wall, within the true lumen of the aorta and this is the false lumen of the aorta.
Q. The contrast material in this view only appears to proceed up about one-third to, say, 50 percent of the height of the aorta?
A. That is because the overwhelming percentage of the contrast material still is within the true lumen of the aorta. If the catheter were placed in the false lumen and then injected, you would visualize the entire false lumen.
Q. And what was it you wanted to bring to the attention of Bill in the cine. films?
MR. MEADOWS: Objection. It assumes that he did.
A. There was nothing else on the cine. films that we saw that was different than this. In fact, we were concerned that the character of the cine. films wasn't going to be as good as this, and, indeed, that is the case.
MR. LOUCAS: Did I forget to ask him anything?
MR. MEADOWS: I can't tell you.
MR. LOUCAS: Off the record.
(Thereupon, a discussion was had off the record.)

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MR. LOUCAS: I don't have any more questions.
- - -
(DEPOSITION CONCLUDED.)

MARK JUDSON BOTHAM, M.D.
- - -

CERTIFICATE

State of Ohio,)
) ss
County of Cuyahoga.)

I, Diane M. Stevenson, a Registered Professional Reporter and Notary Public in and for the State of Ohio, duly commissioned and qualified, do hereby certify that the within-wed witness, MARK JUDSON BOTHAM, M.D.. was by me first duly sworn to testify the truth, the whole truth and nothing but the truth in the cause aforesaid; that the testimony then given by him was by me reduced to stenotypy in the presence of said witness, afterwards transcribed by means of computer-aided transcription, and that the foregoing is a true and correct transcript of the testimony as given by him as aforesaid.

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

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

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my seal of office at Cleveland, Ohio, on this _____ day of _____ 1998.

_____
Diane M. Stevenson,RMR
Notary Public in and for
The State of Ohio.

My Commission expires October 31, 2000.