

Wednesday, 2 November 2022

(10.30 am)

(Delay in proceedings)

(10.50 am)

(In the absence of the jury)

Housekeeping

MR MYERS: My Lord, we're grateful for the additional time this morning. I'd be grateful if I can just raise with you later today, when we've dealt with the evidence, any issues arising. Thank you.

MR JUSTICE GOSS: Certainly. We will do, thank you. I'll apologise to the jury but not say anything about why we're late.

MR MYERS: My Lord, yes.

(In the presence of the jury)

DR SANDIE BOHIN (continued)

Examination-in-chief by MR JOHNSON (continued)

MR JUSTICE GOSS: Good morning, members of the jury. My apologies that we weren't ready to start at 10.30. Circumstances beyond my control. But we're now ready to continue. I apologise for the 20-minute delay.

MR JOHNSON: My Lord. Just one issue that I didn't deal with yesterday, Dr Bohin.

The jury heard evidence from Dr Sally Ogden concerning an examination of [Baby C] on 13 June. I'd like to put the page up if we can, please. It's on the iPads. It's page J1922.

For the record, this, if one were to go back to the previous page, would show that this is an examination conducted by Dr Ogden at 9.30 that morning. So what we can see there on the page is the second page of Dr Ogden's notes.

Towards the bottom of the page -- sorry, the middle of the page, by the second -- where the holes would be if this was a paper sheet, just parallel with where that cross is now, it says -- this is an examination, isn't it, that was undertaken by Dr Ogden, as we were told in evidence?

A. Yes.

Q. And on examination, various things are recorded, but the bottom two lines say:

"Abdo soft not distended. Bowel sounds heard."

So just concentrating on those two lines. In the context of the suggestion that was being put to Dr Gibbs yesterday that potentially [Baby C] had some form of bowel obstruction, what is the relevance of those two findings during the examination by Dr Ogden?

A. If a baby had a bowel obstruction, you would expect the abdomen to become distended and also, as part of the examination, it's customary to listen with a stethoscope over the abdomen to listen for bowel sounds. If the abdomen is working normally you can hear what is described as normal bowel sounds, gurgling type sounds. If there's an obstruction either there may be no bowel

sounds heard because the gut isn't working or there are abnormal, high-pitched sounds, classically called tinkling bowel sounds, which would indicate an obstructed bowel.

The fact that Dr Ogden has written "bowel sounds heard" but has not commented whether they were abnormal and tinkling bowel sounds would lead me to suppose that she has heard bowel sounds and they are normal and therefore the abdomen isn't obstructed.

Q. And therefore, so far as the suggestion that this might be a case where [Baby C]'s bowel was obstructed, what conclusion would you draw?

A. From the information that she's written, there is no obstruction.

MR JOHNSON: Thank you. Would you wait there, please, for some further questions?

Cross-examination by MR MYERS

MR MYERS: Dr Bohin, you told the jury yesterday [Baby C] managed really well in the period before his death; is that correct?

A. Yes.

Q. And that's your opinion, is it?

A. Yes.

Q. I just want to ask you a little bit about that period first. When I do, keep in mind of course we're not talking about an 8 pound, for instance, full-term baby, are we? He was a very premature baby?

A. Yes, he was.

Q. And extremely low birth weight?

A. Yes.

Q. Probably about the size of a bag of sugar at 800 grams?

A. Just below that.

Q. And at a high risk of complications?

A. He was at risk of complications.

Q. Right. Well, we have your opinion.

I'm going to ask you about some facts about the 24-hour period before his collapse. In fact, he never left intensive care, did he, the intensive care unit?

A. No.

Q. He never actually breathed unassisted apart from a couple of hours skin-to-skin contact here or there?

A. But he did breathe unassisted when he had several hours of skin-to-skin contact. So yes, he did breathe unassisted.

Q. I asked you, in fact, he never breathed unassisted apart from a couple of hours to skin-to-skin contact?

A. That's true.

Q. Yes. That was the exception, wasn't it, the couple of hours of skin-to-skin contact?

A. No. That would be something that would routinely be offered to a baby of any size or gestation if their clinical condition allowed it because there are a great deal of -- a great number of positive benefits to being allowed to have skin-to-skin with the mother, both for

the mother and the baby. So that would be routine care, not exceptional care.

Q. Can I just confirm, do you agree as a fact that for the majority of his time in intensive care, he never breathed unassisted? The majority of his time.

A. Well, for -- he wasn't having invasive support apart from very early on in his life when he was intubated. So he was receiving respiratory support in the form of CPAP and Optiflow, but that's not assisted breathing, that's respiratory support. He was breathing for himself.

Q. Then do you agree as a fact he never breathed without respiratory support apart from -- or rather for the majority of his time he never breathed without respiratory support?

A. Yes.

Q. Within the final 24 hours of his sadly short life, as a fact his CRP, C-reactive protein, was rising, wasn't it?

A. It had risen before that. It hadn't continued to rise, it had risen to 23.

Q. To a level that's consistent, as it happens, with infection?

A. It's consistent with infection or inflammation. That rise to the level of 23 is above normal, which would be about 10, but is not astonishingly high, in the hundreds. It is above normal but you can't tell in

isolation whether that's due to an infection or an inflammatory process; you need to take into account other parameters.

Q. It's a fact that his platelets had fallen well below what would be considered the healthy acceptable level, hadn't they?

A. Yes.

Q. His weight was down to 717 grams, wasn't it?

A. Yes.

Q. And feeding, enteral feeding, had not been able to commence, had it?

A. Well, it could have been commenced but they chose not to commence feeding because of the intrauterine growth retardation and the risk of necrotising enterocolitis, so the clinical team chose not to feed him.

Q. So as a fact his weight was down to 717 grams and he was not being fed?

A. That's correct.

Q. As a fact, within those final 24 hours, he vomited black bile at least once, didn't he?

A. He vomited once.

Q. So you agree with me then?

A. Yes.

MR JUSTICE GOSS: You said black bile.

MR MYERS: At least once I said, my Lord.

A. There's only one record in the nursing notes of a vomit that I can see.

MR MYERS: I said at least once.

A. Well, once.

Q. Over that 24-hour period he produced black bile consistently, didn't he?

A. He did produce bile. I think that needs to be put into context. There are entries where 0.5ml of bile or black bile or green bile, as it's been described, were aspirated from the nasogastric tube. That's a minuscule amount. So 0.5 of a millilitre is a drop or two, really. So he was not producing copious amounts of black bile, he was producing minuscule amounts.

Q. He's a tiny baby, isn't he?

A. Yes.

Q. Do you agree, any amount of black bile should be a worrying consideration?

A. Any amount of bile, regardless of colour, is something you should take note of in conjunction with the other clinical findings.

Q. Do you not regard that as worrying, a baby producing black bile consistently, in whatever quantity?

A. I think the quantity is crucially important. 0.5ml is a very small amount and in a child who's otherwise well I would note it, I would examine the child, and wait to see if that volume increased, if there was a change in clinical condition. As it happened, black bile was aspirated on a few occasions. The amount was -- the volume was not increasing at all. So on its own, in

isolation, it isn't necessarily a worrying sign.

Q. Is it a normal finding --

A. It's not a --

Q. -- black bile?

A. Bile's green. So if someone's describing a black aspirate I would be concerned that this was not in fact bile, this was altered blood because altered blood is black. I have not seen the description black bile before. There are other descriptions in the nursing notes of bile being dark green, which is much more in keeping with the colour of bile.

Q. Are you questioning that the notes say black bile?

A. I'm questioning what has been recorded may in fact be altered blood.

Q. Let's have a look then. Could we put up, please, page...

MR JUSTICE GOSS: I think we've seen this a lot of times and it says black bile. I think what the witness is saying is she's not challenging the fact that a black substance was aspirated but querying whether it's bile or whether it's altered blood.

A. That's correct, my Lord.

MR MYERS: And do you agree as a fact that by the time of death, [Baby C] had pneumonia?

A. He did.

Q. None of those matters showed that he was managing really well, do they?

A. I think he was managing well.

Q. Those matters looked at do not indicate he was managing really well?

A. I'm sorry, I disagree. He was managing well. He had stepped down his respiratory support from CPAP to Optiflow. His respiratory rate was stable. His saturations were stable. He managed time off respiratory support to have skin-to-skin with his parents. That is not a child who is deteriorating.

Q. Are any of the factors that I have set out for you there matters for any concern at all in your opinion, Dr Bohin?

A. The fact that he had a bilious aspirate needs to be noted, but, as I've previously said, it needs to be noted in the context of the rest of his clinical condition and not in isolation. They would be a concern if the volume was increasing or if he had abdominal distension or if the aspirates were -- if he was vomiting copious amounts, not small amounts.

Q. Do you agree a baby in [Baby C]'s condition requires very careful monitoring in intensive care?

A. And he was receiving very careful monitoring.

Q. Do you agree that when we look at the record for the aspirates, Yvonne Griffiths, the band 6 shift leader, appears to have failed to note on it aspirates that she took from [Baby C]?

A. Yes.

Q. That's not acceptable, is it?

A. That's poor nursing practice.

Q. Do you agree that when we look at the records of Sophie Ellis, the nurse who describes feeding [Baby C], has failed to record the one feed that he had prior to his collapse?

A. She didn't record it, I agree.

Q. And that's not good practice either, is it?

A. No, it's not good practice.

Q. I'll come to some of what you say about what took place.

We've got your report of 6 December 2020. At the time that you made that report -- I think it's paragraph 5.19 if you need to look at it -- you may recall this, your view was that [Baby C]'s collapse has no clear cause in your opinion?

A. Yes.

Q. And by the time that we come to August 2022, with the joint report that I referred Dr Evans to yesterday --

A. Yes.

Q. -- again, so far as the collapse on 13 December is concerned, you don't identify any --

MR JUSTICE GOSS: June.

MR MYERS: I apologise, my Lord. 13 June.

MR JUSTICE GOSS: It's all right, slip of the tongue.

MR MYERS: You don't identify any collapse, any cause for collapse there, do you?

A. No.

Q. And yesterday, when you gave evidence, it remained the case, didn't it, that you could identify no cause for his collapse?

A. I think yesterday I said that there were two possible causes for his collapse -- I beg your pardon, I was thinking of the 12th, excuse me. No, I did say there was no obvious cause of his collapse.

Q. That's your evidence, isn't it?

A. Yes.

Q. Let me ask you about infection. Your opinion is that infection did not cause death?

A. That's correct.

Q. Just so I can understand, and the jury can, when you say infection did not cause death, do you mean that that is your opinion weighing it all up or that it's simply not possible that infection could have caused death?

A. No, that's my opinion. Infection can cause death, but it's my opinion that infection did not cause death in [Baby C].

Q. Right. So far as his pneumonia is concerned, would it be right to say your view is it could be a contributory factor to death?

A. No, I think I said yesterday he died with pneumonia, not of pneumonia, but the fact that he had a pneumonia, in my opinion, made him less responsive to resuscitation.

Q. I just want to be clear. In the report that you made in December 2020, paragraph 5.4, you say:

"Although [Baby C] had pneumonia at the time of his death, I don't think this was the cause of his collapse."

Which is what you said yesterday.

A. Yes.

Q. "Having said that, there is no doubt in my mind that infection was a contributory factor and may have made him less responsive to resuscitation."

A. Yes.

Q. So taking the two things there, the first thing is do you agree, even if it is not the cause, that infection could have been a contributory factor?

A. It could because it made him less responsive to resuscitation.

Q. Right. So just so I can understand, where you say:

"There is no doubt infection was a contributory factor and may have made him less responsive to resuscitation."

What you mean is a contributory factor because it may have made him less responsive?

A. Yes.

Q. So does it follow then that whatever caused the collapse, once that happened, the situation was possibly made worse by his pneumonia, in your opinion?

A. Yes.

Q. And therefore, it follows, doesn't it, that the collapse could have been caused by something that actually might

not have been fatal but for the pneumonia?

A. I can't say.

Q. Well, if pneumonia did or might have made him less responsive to resuscitation, then it follows without the pneumonia, he might have responded to resuscitation?

A. It's impossible to say that.

Q. Does that not simply follow from what you have said, Dr Bohin?

A. I don't think so, no.

Q. What difference did it make then?

A. It made him less responsive to resuscitation because one lung had inflammatory signs, he had a pneumonia, and therefore attempts at resuscitation were -- well, as we know, were futile because he had a pneumonia.

Q. But that follows, doesn't it, that therefore but for the pneumonia, they might not have been futile?

A. No, it depends on what the cause of the collapse was.

Q. Well, I'm going to suggest if your opinion is as you put it here, that pneumonia may have made him less responsive to resuscitation, then it follows that but for the pneumonia he might have been resuscitated?

A. Well, I think that depends, absolutely depends, on what the cause of the collapse was, because for instance if he had been -- if there had been a toxin involved then it wouldn't have mattered how much resuscitation he had, it would have been the toxin that would have ultimately led to his death, whether he had pneumonia or not, so

I can't say that but for the pneumonia he would have been more responsive.

Q. Are you suggesting there is a toxin involved?

A. No, I'm not suggesting (overspeaking) giving an example --

Q. There is no evidence of any toxin.

A. I am not suggesting for one moment that there was a toxin. I was using that as an illustration to say why I didn't think but for the pneumonia he would have survived.

Q. I'm going to suggest that what follows from what you have said is that the fact of death might not even have happened but for the fact he had pneumonia at the time they tried to resuscitate him on your evidence.

A. I'm afraid I don't agree with that still.

Q. You've referred to how well he did and what a good sign it was in terms of skin-to-skin contact; yes?

A. Yes.

Q. Of course we have to look at the whole picture in assessing how a baby's condition is, don't we?

A. Of course.

Q. And you have to put all the signs together to see how the baby is doing. That follows in terms of looking for the bad signs as well as the good signs, doesn't it?

A. Absolutely, yes.

Q. And it would be important, wouldn't it, not to be lulled into a false sense of security because of some good

signs?

A. Yes.

Q. I want to look at a couple of the items we've seen just so I can explore this with you. We saw a nursing note by Nurse Butterworth made at 9.01 on 12 June. That's at page 1940, Mr Murphy. I'm not sure that this is actually in the S numbers, ladies and gentlemen, but we have seen it and we're just going to look briefly if we could.

This is some time, it seems, during the 12th, maybe in the morning. Just looking down at the bottom part of this note it says about five lines up:

"Abdo appears distended. Soft firm. Not had bowels opened. At this point minimal clear aspirates."

A. Yes.

Q. Just pausing there, we know that position on the aspirates changes in the 24 hours that follows, doesn't it?

A. Yes, there was another episode where there was a clear aspirate later on, but yes.

Q. It changes?

A. Yes.

Q. All right:

"Passing urine currently. Therefore remains in situ. SBRs are still not 50. Under treatment line."

Can you just remind us what SBRs is, please?

A. Serum bilirubin. So that's the chemical name for the

marker for jaundice.

Q. "Has been quite unsettled at times and has required an increase in oxygen when handling as desaturates."

Yes?

A. Yes.

Q. So at that point, yes, he was able to come out and be handled but it was accompanied by desaturation when that took place, wasn't it?

A. The desaturation didn't occur when he was out with his mother being handled. I think further down on that entry, it's clear that the fact that he was on CPAP was causing him discomfort and when handled on CPAP, he was desaturating. When he was out with his mother, the entry -- either that lady's entry or a subsequent entry, suggests that he settled immediately once he was out.

Q. That's another entry and we're going to come to that shortly. I'm going through these in order.

But certainly on 12 June, this note at 9 in the morning, it's got it that he is desaturating when being handled, hasn't it?

A. Yes.

Q. That's not something to be ignored, is it?

A. Well, babies will desaturate if you handle them. So as long as he recovers when the handling is stopped, I wouldn't see that as a sign of deterioration at all. I would see that as something that is a normal occurrence when you're handling a baby who is receiving

an intervention that he doesn't like because he clearly was uncomfortable with the CPAP.

- Q. We know that an abdominal X-ray some hours after this -- we'll return to that in a little while, but let's go to the next note I wanted to go, which is the one you were thinking about perhaps, Dr Bohin. That is for 13 June, a note made by 16.19 by Jennifer Williams. It's at slide 69, page 1947.

There are a lot of entries here. I'm not going to read through all of this. Just in terms of keeping together the picture, we know other things that have been going on in other records at this time. It's timed at 16.19. If we just look at the second line down of the main entry:

"Nursed on CPAP."

It gives the pressures:

"Blood gas at 900."

So very good:

"However, [Baby C] very unsettled and fractious."

That's something to take note of, isn't it, do you agree?

- A. Not especially because he's very good and his observations are normal and his blood gas is good. I think the important thing to take note of, and what the nurse is saying, here is that he's unsettled because he dislikes being on the CPAP, but that isn't causing him a clinical deterioration. It's clearly

uncomfortable but it's not causing a clinical deterioration.

Q. Carrying on four or five lines down, it says he calmed down with his mum. And (inaudible) lines below that:

"Again discussed with registrar and decided to try Optiflow in view of [Baby C] being so unsettled on CPAP."

Then the Optiflow commences. Do you see that?

A. Yes.

Q. Four or five lines down that:

"CBG taken after 2 hours, satisfactory but not quite as good as the previous one."

Yes?

A. Yes.

Q. The view of nurse dealing with this at the time, the next two lines, is:

"Shown to registrar and repeat at 18.00. Clinically remains stable but aware do not want to push [Baby C]."

Yes?

A. Yes.

Q. Again, indicating a risk of deterioration, doesn't it?

A. No, it means he's stable on the Optiflow, but the staff need to be mindful and keep a watch on him.

Q. Next paragraph down:

"Continues to have dark bile aspirates."

Yes, do you agree?

A. But improving this afternoon.

Q. But continuing to have them?

A. Yes, at 0.5ml when they were aspirated, so an absolutely minuscule amount.

Q. I'm not going to keep on going over the aspirates.

I'm suggesting to you that any amount of dark bile aspirates being produced consistently from this little baby is a worry and you disagree with that?

A. I do.

Q. Right. Carrying on down:

"NGT on free drainage."

So that means that it's open from the stomach out to the atmosphere, isn't it?

A. That's correct, but from this note it's really unclear whether the -- either the -- the nasogastric tube is on free drainage. What isn't clear from this note is whether the orogastric tubes that he'd previously had over the course of the morning, because he'd pulled two of them out because he was so unsettled, whether they were on free drainage as well. That says the nasogastric tube was on free drainage and that was only placed after 1 o'clock when he was put on to Optiflow. So it's not -- that note is, I think, ambiguous and it's not clear if his -- whichever tube he had in was on free drainage for the entire day.

Q. We know that, of course, aspirates were being taken from him over this period later into the 13th, don't we?

A. They were, but aspirates are there and not recorded, just the small amounts of --

Q. If the nurses are doing their job properly, if the NGT is on free drainage and aspirates are being taken, it's to be hoped that any air gathering in the stomach will be removed from it, isn't it?

A. We don't know whether they have aspirated air because they haven't recorded it.

Q. But if it is being aspirated and if he does have NGT on free drainage that should assist in removing air from the stomach, shouldn't it?

A. It would, but as I've said, it's not clear and the note is ambiguous as to whether he was on free drainage for the entire day or only after 1 o'clock when a nasogastric tube was placed because that was on free drainage. It makes no mention of whether the previous tubes were on free drainage.

Q. "Abdomen full but soft. Slight shine to abdomen but not veiny or over-distended. Bowels not opened."

At 3 days in, you would expect the bowels to have opened at some point and in some way generally, wouldn't you, Dr Bohin?

A. Not necessarily because he hadn't been fed.

Q. You say not necessarily, but generally would you expect that to happen?

A. Not necessarily. It may have happened, but I wouldn't regard it as a problem if hadn't happened in a baby that had not been fed. In a baby that had been fed, I would consider it a problem.

Q. Substances like meconium can still pass out, can't they, after birth without being fed?

A. They may do but not always.

Q. With you talking about putting the available clues together, there are things, if we look at everything at this point, which might be matters of concern when put together; do you agree with that?

A. They might be but I don't think they were.

Q. It's not any question of you in any way minimising the seriousness of anything in [Baby C]'s condition? May I just ask that, Dr Bohin?

A. Absolutely not.

Q. Okay. Indications of intestinal obstruction might include dark bile and vomit, mightn't they?

A. Yes, they might.

Q. They might include bowel not opening?

A. Yes.

Q. And they might include distension of the abdomen without air actually moving along throughout the length of the abdomen?

A. Yes, they might.

Q. If we put up, please, slide 77, which is the note of Sally Ogden that we looked at first thing this morning -- sorry, it's in the [Baby C] section, page 1922.

Slide 77, please, Mr Murphy. It's the same part that we looked at this morning, Dr Bohin.

A. Yes.

Q. As for "abdo soft, not distended", even with an obstruction in place, if the stomach is being aspirated and air removed because a tube is on free drainage, that may mean that even if there's a potential to build up, it may not because the air is coming out?

A. No, I don't agree with that. The nasogastric tubes that a baby of 800 grams -- the size of the nasogastric tube that a baby of 800 grams would have -- the bore of that would be very, very small and so it would not necessarily remove all the air from within the gut.

Q. So even with a nasogastric tube in like that, a gut could still distend --

A. Yes, it might.

Q. -- on CPAP?

A. Yes.

Q. Right. And even though we see notes from the nurses, in the case of [Baby C], talking about removing aspirates, do you agree that that could have removed air that would otherwise accumulate or not?

A. Yes, it could, and practice from wherever I've worked would suggest that if copious amounts of air is aspirated up a nasogastric tube, the nurses actually record the volume of that air and we haven't actually -- nowhere in the record is there any volume of air.

Additionally, where anyone feels that a baby may have a bowel obstruction, a larger bored nasogastric

tube would be placed so that the removal of air is more efficient. So clearly, no one thought to do that, they clearly weren't concerned about the abdomen at that stage.

Q. But just because they didn't think to do that doesn't mean there wasn't an obstruction, does it?

A. There were no clinical indicators of obstruction.

Dr Ogden has written the bowel is soft and not distended. She also heard bowel sounds which means that abdomen was functioning, it wasn't obstructed. Babies who have a bowel obstruction may start off producing bilious aspirates, so bile in the aspirate. The bile continues to be produced and then would increase in volume such that the baby then was vomiting bile and the volume would increase, and at no point has this volume increased.

Q. If we can just break down a couple of things you said there, Dr Bohin, so we're quite clear. You said that if the nurses, the staff, thought there was an obstruction they might put in a bigger tube to assist with air being taken out?

A. Yes.

Q. That requires that they think of or identify an obstruction in the first place, doesn't it?

A. Yes.

Q. If they hadn't thought of that then they're not going to do that?

A. Correct.

Q. Secondly, so far as nurses aspirating and drawing out air, if they haven't recorded air, we've heard Nurse Griffiths say she didn't, so far as we understand here, air may still have been taken out of the bowel, mightn't it, when [Baby C] was aspirated?

A. But I... I can't see why they wouldn't have recorded it. They've recorded the bile they got out, so why would they not record the air if they are making an entry?

Q. So good practice would be to record air as well as bile?

A. Yes, or aspirates, whatever it is, whether it's clear blood or whatever, yes.

Q. Aspirates, all right, thank you.

Do you agree in principle, if air is being taken out of the stomach of a baby that's on Optiflow or CPAP, if that's happening, then even with an obstruction, it may not distend at that point if it's being taken out?

A. No, because it won't all come out, so the abdomen would still be distended if you had an obstruction.

Q. All right then. We've heard the nurses give evidence, of course, that they were taking air out, haven't we?

A. Yes.

Q. We've heard Ms Griffiths say that. I'll return to that in a moment. But before I do, let me ask you about what this says about sounds.

Dr Ogden's note doesn't describe the bowel sounds,

does it?

A. No.

Q. And it doesn't say precisely which part of the abdomen they apply to?

A. I've never recorded which part of the abdomen bowel sounds apply to.

Q. Do you agree, you couldn't diagnose an obstruction of the gut purely from the presence or absence of bowel sounds, could you?

A. Not on that alone, but the absence of bowel sounds would seriously make you consider that there was an obstruction, or tinkling bowel sounds would make you consider there was an obstruction. But on their own those sounds are not diagnostic of an obstruction.

Q. And clinical decisions in patients with possible bowel obstruction should not be based on auscultatory, in other words just hearing, assessments, should they?

A. Sorry, could you repeat the question?

Q. Clinical decisions in patients with a possible bowel obstruction, identifying it, should not be based purely on what you can hear?

A. Rarely in medicine do you base decisions on a single factor. So like with everything else in this case, information has to be taken in the round. So if there were abnormal or absent bowel sounds and you had a distended abdomen or other features, other clinical features, the constellation of those things would make

you investigate further. If you weren't concerned by anything then you wouldn't take it further, obviously, because you'd be unconcerned.

Q. So this is one clue to what the position may be but it can't be decisive, can it?

A. She hasn't actually written it there, abnormal. And I think if they were abnormal she would have written down that they were either absent, which she hasn't done, or they were abnormal, ie tinkling bowel sounds, which would indicate an obstruction, and she hasn't written that down. So my inference there is that she heard normal bowel sounds.

Q. So is it your conclusion, as an expert on this, that the expression "bowel sounds heard" means that you can discount utterly, on the basis of that, the possibility of an obstruction in the abdomen somewhere?

A. You can't discount utterly, you have to take bowel sounds in conjunction with the rest of the examination.

Q. Could we have a look then, please, at the X-ray at page 1996, Mr Murphy.

We've seen this now, we've got the radiologist's commentary on it in the page that follows. So this is the bowel. We can go to the commentary, but do you agree from what we see there that it shows marked distension of the stomach and small intestine?

A. It shows marked distension of the stomach. I can't delineate whether it's the small or large intestine.

Q. We've seen the radiologist saying small intestine, haven't we?

A. Yes, the radiologists have said that. I am unable to distinguish between the two.

Q. Well, let's stay with what the radiologist says at the moment and consider this.

First of all, with what you said about what would happen if a nurse is aspirating, if Yvonne Griffiths was taking air from the stomach, would you expect it to look like this?

A. No.

Q. If it's the case that there is this much air in the stomach and the small intestine and that it hasn't moved through into the large intestine, some sort of obstruction would account for that, wouldn't it?

A. Not necessarily because [Baby C] hadn't had his bowels opened, so air may not go from the stomach down to the rectum.

Q. Within a 24-hour period after birth, you would expect to start seeing air across the length of the stomach, through the small intestine, into the large intestine and down to the rectum, wouldn't you?

A. Not necessarily, no.

Q. In general, wouldn't you?

A. Not necessarily, no.

Q. Within 48 hours of birth?

A. Not if a baby hadn't had their bowels opened, no.

- Q. Given the pressure that appears to be here in terms of the distension, what explanation do you give for why gas hasn't simply moved from one part of the intestine to the next?
- A. I don't have an explanation.
- Q. One explanation is there's some sort of obstruction, isn't there?
- A. But he didn't have clinical signs of obstruction, so no, [Baby C] did not have a bowel obstruction. There are no clinical signs of obstruction. You can't make a diagnosis just on the basis of the X-ray, you have to take everything else into consideration.
- Q. I'd just like you to help with this. I've asked you, if it hasn't moved can you explain why it hasn't, and you said, no, you can't. That is the air. Putting aside what you say about other matters, one reason for it not moving would be if something was obstructing it?
- A. That is one reason.
- Q. And there is no reason that you can identify as to why it would not have moved if it's this distended?
- A. Well, yes, I can, because he was a premature baby who wasn't being fed, so the peristalsis, which is the muscular contraction of the bowel which pushes fluid, feed and therefore faeces along the bowel was not taking place because he wasn't being fed. So that would be the reason why air had not gone further round, I think.
- Q. Let me just ask this before I move on from this because

I realise I have asked you a little bit on this topic. Air is going in under some degree of pressure and it can move through the various pipes to the point we see.

A. Yes.

Q. Never mind peristalsis. If that air continues to be put in under pressure, you would expect it to continue to move unless something is in the way, wouldn't you?

A. No, not necessarily. He clinically did not have a bowel obstruction, so regardless of the repeating questions, I don't think he had a bowel obstruction and it's not a given that air would reach the rectum.

Q. Are you aware whether the post-mortem findings of the bowel and air in abdomen indicated any abnormality?

A. Of what?

Q. In [Baby C]'s abdominal cavity. Are you aware of whether the post-mortem findings indicated any kind of abnormality at all, Dr Bohin?

A. I know what it didn't find. There was an issue of the configuration of the large bowel and where that anatomically sat within the abdominal cavity. I think, although I'm not a pathologist, it's a matter for them to decide whether that's an abnormal finding or not. I am led to believe that some pathologists believe that's a normally variant and it's not a problem. Other pathologists perceive it to be a problem. But that's a matter for the pathologists.

Q. Something about the way it's positioned, but that's

a matter for the pathologists?

A. Yes.

Q. We'll save it for the pathologists then in that case.

Let me just ask this: 12 June, the distension that we've seen on 12 June, the one we're looking at right now.

A. Yes.

Q. In your report of 6 December, you were of the view that we're looking at could either be due to CPAP or excessive air down the nasogastric tube.

A. That's correct.

Q. Then if we move forwards to shortly before this trial commenced, the report in August of 2022, page M1260, what you say is this, 036, on this X-ray:

"The cause of the gaseous distension of the bowel and gastric dilation was not CPAP belly. The extent of gaseous distension seen on the X-ray of 12 June 2015 is over and above what is seen in infants requiring CPAP."

That's what you said, wasn't it?

A. Yes.

Q. You went on to say about this:

"The massive gastric dilation seen on this X-ray was most likely due to deliberate exogenous administration of air via the NGT."

A. Yes.

Q. So drawing those conclusions together, we've been over the fact that so far as 13 June is concerned there is no

cause identified?

A. That's correct.

Q. But your opinion is that this appears to be the deliberate administration of air down the NGT on 12 June?

A. Yes.

MR MYERS: Thank you.

Re-examination by MR JOHNSON

MR JOHNSON: Can I just ask you a couple of questions to clarify a couple of issues? You referred this morning to altered blood. It may be a term of art from a medic's perspective, but could you just explain to the jury, please, what altered blood is?

A. Yes, apologies, I should have explained that.

When blood has been out of a blood vessel for some time or is, say, within the gastric tract and not in its normal place, it changes colour and becomes black. So any blood that is within the gut, if it's fresh will be red, but if it has been around for some time, its chemical composition changes and it becomes very dark black.

Q. So an example from our everyday lives is, it's an inelegant word, but a scab on your knee when you fall over can go dark, can't it?

A. Yes, it can go dark.

Q. Is that the chemical process?

A. Yes, in the gut it tends to be much more marked and

should there be bleeding within the gut, by the time that altered blood comes out the other end in stool, the stool is often black and tarry. But if you -- because usually you don't have a nasogastric tube inside you, so you wouldn't be aspirating from the top end. But if blood was aspirated up, it would be black and tarry as well.

Q. Okay. And how, in general terms, do premature babies of [Baby C]'s general presentation get altered blood in their stomachs?

A. Well, there are a number of ways really. Firstly, they have a nasogastric tube in situ and, depending on where the tip of that is, it can rub on the tummy. Also, [Baby C] wasn't fed, and therefore that's a stressful situation for a baby. He was also an unwell baby at the beginning of his life, which puts certain stresses on him. So that can cause some slight bleeding within the lining of the gut, which is usually trivial, so it's not uncommon to see altered blood. But also, it can be an effect of trauma. So there are a number of reasons.

Q. I just want to deal with things in chronological order rather than the reverse order you were just asked about.

A. Of course.

Q. And starting with J1996, first of all, please. We're all familiar with this picture now. It was taken, as we can see, on 12 June.

A. Yes.

Q. At 12.36 and 16 seconds; is that right?

A. Yes.

Q. That shows the inflated stomach, as I understand it?

A. Yes.

Q. So that was the position on the 12th.

I think you told the jury yesterday that you hadn't initially been able to see the -- I think you said the NGT; is that right?

A. Yes.

Q. I think it's a matter of record, but at this stage it wasn't a nasogastric tube, was it?

A. We know that he had an orogastric tube by the morning of the 13th, but I don't think the nursing record on the ITU chart actually says one way or the other what sort of tube is in.

Q. Okay.

A. But there is a gastric tube.

Q. Yes. Just remind us, if this becomes important, why a baby this [Baby C]'s position would be given an oro, in other words through the mouth down the throat, gastric tube rather than a naso, ie through the nose, down the throat, gastric tube?

A. Of course he was very small, which we've already established, and therefore his nostrils were very small, and he was on CPAP, and that can be given by a little triangular mask, which seals over the nose and mouth or it can be given by prongs in the nostril. And in order

to generate the pressure for CPAP, there has to be some sort of seal. So if he was receiving CPAP with nasal prongs, they have to fit very snugly within the nose. And therefore in order -- because his nostril were so tiny, to have another tube in a nostril, ie a nasogastric tube, as well as these little prongs, would have distended his nostrils too much. So usually babies who are receiving nasal CPAP with a prong would have an orogastric tube in to prevent damage to the very delicate area around the nostril.

Q. Are they called the nares?

A. Yes, they are called the nares, yes.

Q. We heard some evidence about that, didn't we, and the nurse had put DuoDERM on [Baby C]'s nares?

A. Yes, the blood supply between the nostrils is not very good and if you have continued pressure on that, the skin can actually break down. So you don't really want to have two tubes into one nostril because it can cause a problem.

Q. Yes, okay. Just looking at the -- going back to the radiograph, please, which is on the screen. I think you told us that the end inside the body wasn't ideally placed in this picture; is that right?

A. That's correct.

Q. What effect would that placement of the end have on the decompression effect of what may well have been an oro rather than a nasogastric tube?

A. The tip is only just in the stomach, so it only has just gone through the gullet into the stomach. So the only thing you can aspirate from there would be air, but you would have to -- it wouldn't necessarily come out on its own, you'd have to aspirate it and record it. But the tube is very small, so you wouldn't actually get all the air out that way.

Q. For whatever reason, and we may come to this in a second, the tube is further out than it should be at this stage?

A. Yes.

Q. So that's the position.

Can we go to J1922 next, please. This is Dr Ogden's note again. Okay?

A. Yes.

Q. We see:

"Abdo soft, not distended."

And that stage, which we've already established, was 9.30 in the morning.

A. Yes.

Q. Is there a record in the note whether there was an oro or a nasogastric tube?

A. Not from Dr Ogden.

Q. So we move next to the nursing note, which was actually shown to you first, which is J1947. If you could magnify that, please. Thank you.

So this is Nurse Williams', Joanne Williams', note,

made at 16.38, I think, on the 13th. So this is 7 hours or so after Dr Ogden's notes.

A. Yes.

Q. And 28 hours or so after the radiograph.

A. Yes.

MR JUSTICE GOSS: I think it might have been completed at 16.38 and commenced at 16.19.

MR JOHNSON: Yes. Thank you, my Lord. You're quite right.

Just looking at this note, this records that [Baby C] had had two orogastric tubes, doesn't it?

A. Yes, it does.

Q. What does it record, that he had -- and that's that morning, isn't it:

"Two OGTs this morning"?

A. Yes.

Q. We heard evidence that he'd been pulling them out; do you remember that evidence?

A. Yes, I do.

Q. If he'd been doing that at an earlier stage, would that account for the position of the tube on the radiograph taken on 12 June?

A. I don't think so because the nurses can tell if a baby is pulling a nasogastric tube out. It tends to be -- an orogastric tube in this case. It tends to be taped down. So if the baby gets their finger underneath it and pulls it out, it kinds of comes out in a loop.

A nurse would notice that and therefore would not have

allowed the X-ray to be undertaken with a kind of half-out tube.

Q. But that note does record, doesn't it, that the tube had been on free -- the tubes I should say, at least the nasogastric tube, sorry, because this is a point you made before, had been on free drainage?

A. Yes. I think the note is ambiguous. It just says that the nasogastric tube was on free drainage and that was only passed at 1 o'clock.

MR JOHNSON: All right. Thank you very much.

Does your Lordship have any questions?

Questions from THE JUDGE

MR JUSTICE GOSS: Just in relation to your opinion that [Baby C] did not die from infection but died with infection. If a baby of his maturity, in other words very immature, and size dies of infection, what is the scenario of death generally? Is there a common scenario or not?

A. It depends on where the infection is based, so whether it's a respiratory infection or meningitis or a urine infection. But usually, the baby would have a slow but continuous decline. So if it's a respiratory infection, you would expect him to require more oxygen, to be breathing more quickly and then need to go on to more invasive respiratory support, like a ventilator, then his heart would become affected, so he might need drugs to help his heart to pump. And all of that is an

escalation of care required before effectively the baby would become unventilatable and you were not able to get oxygen into the baby despite intensive care measures, despite full ventilation, despite a full amount of drugs to support the heart. If you still get poor blood gases and you can't oxygenate the baby, that's the way that the baby would then demise because you can no longer ventilate the baby. And obviously, none of -- those things didn't happen.

MR JUSTICE GOSS: All right. I'm going to see if anyone wants to ask -- that did arise from the cross-examination, but if you want to ask any further questions, Mr Myers, in relation to that.

MR MYERS: No, my Lord.

MR JUSTICE GOSS: Or Mr Johnson.

MR JOHNSON: No, thank you, my Lord.

MR JUSTICE GOSS: Thank you very much.

Thank you, Dr Bohin. That completes your evidence at this stage. Same rules as before.