THE HIGH COURT

[2018 No. 9006P]

BETWEEN

M.L. AND K.A.

PLAINTIFFS

AND

T.Q., X LIMITED AND Y LIMITED

DEFENDANTS

JUDGMENT of Mr Justice David Keane delivered on the 12th April 2019

Introduction

1. In this action, the plaintiffs seek damages for personal injuries that they claim were caused by the medical negligence of the defendants.

2. The first plaintiff, M.L., is a 37 year old woman who works in an administrative role. The second plaintiff, K.A., is a 45 year old man who works as an engineer. The plaintiffs are a couple and have three young children, all at or below primary school age.

3. In November 2017, Ms L was diagnosed with stage IV ovarian cancer.

4. The first defendant, T.Q., is a consultant radiologist. The second and third defendants, X Ltd and Y Ltd, provide magnetic resonance imaging ('MRI') services.

5. On 29 June 2016, Ms L underwent an MRI scan of her pelvis that Dr Q reported as normal on 1 July 2016.

6. Ms L alleges that the MRI scan showed features of a particular form of ovarian cancer that were not shown or reported upon due to the negligence of the defendants, resulting in a misdiagnosis or delayed diagnosis that has caused her grave personal injury in the form of a more advanced disease that was less susceptible to treatment when later diagnosed.

7. Mr A claims that he has also suffered loss or damage, namely the loss of the normal personal, physical and emotional relationship that he would have been able to enjoy with Ms L were it not for the failure to diagnose her disease from the June 2016 MRI scan.

8. Each of the defendants denies negligence.

9. As counsel for the plaintiffs acknowledged in the course of the trial, the only one of the particulars of alleged negligence capable of capturing the conduct of X Ltd and Y Ltd was that of 'failing to produce a suitably sufficient image.' However, in response to a request for further and better particulars of that claim that the second defendant raised on 16 November 2018, the plaintiffs replied on 17 November 2018 that they were not proceeding with that allegation. Thus, although the plaintiffs have never formally withdrawn their claim against those companies, in substance their claim at trial was pursued solely against Dr Q.

Non-identification Order

10. On the application of counsel for the plaintiffs towards the end of the trial, I granted an order, pursuant to the terms of s. 27 of the Civil Law (Miscellaneous Provisions) Act 2008, prohibiting the publication or broadcast of any matter relating to the proceedings which would, or would be likely to, identify Ms L.

11. I did so because I was satisfied that Ms L has a serious medical condition in the form of ovarian cancer; that her identification as a person with that medical condition would be likely to cause undue stress to her because of its potential effect upon her family and, in particular, her three young children; and that the order would not prejudice the interests of justice. The defendants did not oppose the application.

12. Thus, I have selected random initials or letters to describe each of the parties to the action. I have done so in describing the defendants because, as might be expected, each practices or operates in the part of the State where the plaintiffs live, so that the identification of the former might contribute to the identification of the latter through what is known as a 'jigsaw identification', whereby a person's identity may be deduced from a combination of incidental personal details.

Background

13. From the testimony of the parties and from Ms L's medical records, which were admitted into evidence by agreement between the parties without the need for formal proof, the following narrative of events emerges.

14. Each of Ms L's three children was delivered by caesarean section, the youngest in October 2014. Ms L presented at the surgery of her general practitioner in September of the following year complaining of bladder discomfort in the form of frequent pressure to urinate, particularly in the morning.

15. Ms L presented at her GP's surgery again in December, complaining that she had not felt right since her caesarean section in October of the previous year. The symptoms she reported were pressure to urinate in the morning, though with no incontinence, and - in the last few months - stomach bloatedness in the week prior to her period. On examination, her abdomen was found to be very tender on palpation of the supra-pubic region over the bladder. No abnormality was detected in her urine. Ms L testified that her GP was concerned about post-surgical adhesions from the caesarean section. The GP referred Ms L to a consultant gynaecologist.

16. Ms L attended for a gynaecological consultation on 26 January 2016. The gynaecologist conducted an abdominal ultrasound examination in his rooms. In his notes, he recorded that Ms L was not keen on a vaginal examination or transvaginal (that is to say, internal) ultrasound examination. In her evidence, Ms L explained that this was because, due to some delay in being seen, she had been unable to maintain the full bladder that is recommended to enable an effective examination to be carried out and also because the abdominal ultrasound had left her feeling painful and tender in that region. The gynaecologist decided to refer Ms L for a formal renal and pelvic ultrasound. The letter of referral noted that Ms L was complaining of pressure to urinate, frequency and abdominal bloating. The gynaecologist suggested a diagnostic laparoscopy, a surgical procedure involving the insertion of a fibre-optic

instrument through the abdominal wall to view the organs there, but Ms L did not wish to undergo further surgery as she felt, based on her discussion with her GP, that post-surgical adhesions might be the problem.

17. Upon that referral, Dr Q performed an ultrasound examination of Ms L's entire abdomen on 11 March 2016 and reported as follows:

> **'Findings**: Liver, kidneys, spleen and pancreas appear normal. Gallbladder and biliary are normal. Normal calibre aorta, no visible retroperitoneal mass or lymphadenopathy.
>
> In the pelvis, uterus and ovaries are normal. No visible mass or free fluid.
>
> **Conclusion**: Normal examination, no identifiable cause for patient's symptoms.'

18. This result was reported to Ms L through her gynaecologist and GP. However, Ms L's symptoms were getting worse and she asked her gynaecologist if an MRI scan could be arranged. Her reason for doing so was that the ultrasound was only producing a two-dimensional image and she wanted a more comprehensive examination of her gynaecological organs to see if there was anything there.

19. On 12 April 2016, the gynaecologist referred Ms L for an MRI scan of the abdomen and pelvis, noting in that referral that her symptoms were abdominal bloating and urinary frequency. In his evidence, Dr Q stated that the terms of the referral were slightly problematic because, while either a CT scan or an ultrasound examination of the abdomen and pelvis is a recognised procedure, an MRI scan is more specifically directed to a particular organ or local region, such as the liver, uterus, gallbladder, kidneys or small bowel. Thus, Dr Q appended a handwritten note to the referral letter recommending a CT scan, as Ms L's reported symptoms were not a recognised indication for an MRI scan. By that, he meant that insurers wouldn't reimburse for an MRI scan of that kind based on those symptoms. Dr Q explained that the usual thing would be that the imaging service provider would then engage with the referring doctor and perhaps also with the patient about what to do next.

20. On 26 April 2016, Ms L emailed her gynaecologist to follow up on her request for an MRI scan, explaining that she did not want to have a laparoscopy done both for cosmetic reasons and because it would entail an inpatient stay on the public day ward in the hospital. Nor did she want to have a CT scan done because she was concerned about what she perceived to be the associated radiation risks.

21. On 11 May 2016, Ms L's GP wrote to the hospital where the MRI scan had been arranged to take place, setting out Ms L's symptoms, medical history and current medication, and stating:

> 'I referred her to [the gynaecologist] who offered investigative laparoscopic surgery but she is not keen on same. I would be grateful for MRI abdomen to rule out any renal or ovarian issue or post c-section adhesions or adenomyosis.'

22. In his evidence, Dr Q stated that this referral letter was passed to him on 11 May 2016 as it was considered problematic for the reasons he had already explained. Because it had been addressed to the MRI unit rather than him, and because it did not refer to the prior ultrasound he had performed, Dr Q first noted on that letter 'not a recognised indication for MRI, recommend ultrasound', before he was alerted later that day to the previous ultrasound he had performed and the previous letter of referral that the hospital had received. Dr Q rang Ms L's gynaecologist that day to learn his thinking and to find out what his clinical suspicions were. The gynaecolgist explained on the telephone that, because of Ms L's three previous caesarean sections, his overwhelming concern was that there may be tethering of bowel loops on to post caesarean section adhesions, causing intermittent bowel obstruction. Since Dr Q considered a CT scan of the abdomen and pelvis the the best examination short of a laparoscopy for investigating that suspicion, he strongly advised that course of action.

23. Dr Q arranged a CT scan for Ms L in a public hospital to which he was attached where - due to the vagaries of the healthcare system - the patient charge for a private referral is much lower than in a private hospital but, for reasons that were never made known to Dr Q but which seem to have been related to Ms L's concerns about radiation risk, she did not undergo that scan.

24. Ms L's medical records disclose a note, handwritten by her gynaecologist on 24 May 2016, which states:

> 'Spoke to [Ms L]
>
> MRI due to be done in next while as discussed with [Dr Q]
>
> Aware of the limitations of MRI.'

In her evidence to the court, Ms L did not accept that her gynaecologist had made her aware of any such limitation but there may have been some confusion on the point as she appeared to believe that the reference was to limitations on her private insurance cover for an MRI scan, rather than to the limitations of that technology as an appropriate diagnostic tool, given her symptoms.

25. Dr Q stated in evidence that, on or about 8 June 2016, he spoke to Ms L's gynaecologist again. During that discussion, it became clear that, despite its limitations and imperfections, the only investigation route available was an MRI scan of the pelvis. Dr Q felt that it should at least establish whether there was tethering of the bowel to a caesarean section scar or whether there was any muscular injury or muscle tearing. The uterus and ovaries would be included when the pelvis was imaged in that way. Dr Q appended a further handwritten note to the referral letter on that date, stating 'MRI pelvis axial and coronal, T1, T2 and STIR', which was his instruction for the type of MRI scan that was to be carried out and the sequences that were to be used.

26. The entry in the computer system maintained by X Ltd for Ms L's hospital appointment to have that MRI scan on 29 June 2016 states:

> '1 x 30 mins fao [Dr Q]
>
> ax and coronal t1 t2 and stir whole pelvis
>
> 144 - pelvic pain need to outrule ovarian mass'

In his evidence, Dr Q stated that the practice was for such entries to be made by radiographers or clerical staff. He didn't write that entry or read it, since records of that type were prepared for purely administrative purposes and were never presented to him. Dr Q

presumed that the reference 'fao [Dr Q]' meant that the scan results were to be brought to his attention, not that the relevant entry was. The figure '144' was a code known as a 'clinical indication code'. When clerical staff prepared claim forms for insurers, they had to provide that code because only certain clinical indications were recognised by insurers as qualifying a given procedure for reimbursement. The use of the phrase 'pelvic pain need to outrule ovarian mass' was not a medical interpretation nor the expression of a medical opinion and was never drawn to his attention. Dr Q speculated that the administrative staff member who entered it on the system had selected it as a clinical indication code that would qualify the MRI scan for reimbursement by the insurer concerned.

27. The MRI scan was carried out on 29 June 2016.

28. Dr Q produced a radiology report on it on 1 July 2016. That report stated (in material part):

> **'Procedure:- MRI Pelvis (soft tissue)**
>
> **Clinical Information:**
>
> Urgency, past Caesarean section, suprapubic tenderness.
>
> **Findings:**
>
> The uterus and adnexa appear normal, normal follicles in both ovaries without visible mass or free fluid. The urinary bladder is normal, there is no evidence of bowel dilation [or] tethering. The anterior abdominal wall appears normal. Normal signal from the soft tissues and marrow of bony pelvis.
>
> **Summary:**
>
> Normal examination, no identifiable cause for patient's symptoms.'

29. Ms L was informed of this result by her GP on the telephone shortly afterwards. But her symptoms persisted, particularly that of stomach bloating, which led her GP to think there may be a dietary issue. Ms L was prescribed Buscopan, a prescription medication for abdominal cramps. Special diets were discussed and her GP suggested she consider a colonoscopy (an endoscopic examination of the lining of the large bowel) to rule out Irritable Bowel Syndrome ('IBS'). However, Ms L felt there was nothing to warrant one, as - despite her other symptoms - she was not experiencing any bowel problems.

30. On 6 April 2017, when she attended her GP complaining of the same symptoms, Ms L was strongly advised to go back to her gynaecologist for a further opinion. She indicated that she would think about it.

31. On 15 June 2017, Ms L attended her GP complaining of neck spasms and a pain in her right shoulder after doing some home maintenance work. She was prescribed a short course of benzodiazepine as a muscle relaxant and referred for an MRI scan to rule out a rotator cuff tear of the tendons or muscles of her shoulder. That MRI scan was performed on 21 June 2017. A radiologist other than Dr Q reported on that scan on 25 June 2017, finding the rotator cuff and proximal biceps in Ms L's right shoulder were intact, with no evidence of significant tendonitis or tear, before concluding: 'No acute shoulder pathology demonstrated.'

32. Ms L presented at her GP on 21 July 2017, complaining again of a spasm in her right shoulder and neck. Once again, she was prescribed a short course of benzodiazepine, together with heat-pack analgesia, and recommended to try physiotherapy.

33. Ms L attended her GP on 9 September 2017, complaining of the same right shoulder pain that had now spread to the lower right hand side of her rib cage. She reported that she had attended a physiotherapist who felt it was a muscular spasm. On examination, the GP found Ms L's chest clear with no signs of pleural effusion, no sound of pleural friction rub, and no history of trauma. The GP found tenderness palpating Ms L's lower right rib cage, right shoulder and abdomen. The G.P.'s impression was that Ms L was experiencing muscular spasm or costochondritis (an inflammation of the junctions where the upper ribs join with the cartilage that holds them to the breastbone). The G.P.'s plan was to refer Ms L for an orthopaedic opinion and for a chest x-ray, while continuing to prescribe anti-inflammatories and analgesics, with advice to attend at the Accident and Emergency ('A&E') department at her nearest hospital, should her condition worsen.

34. Ms L attended hospital for a chest x-ray on 21 September 2017. A different radiologist reported on it, finding:

> 'Heart size normal. The lungs are clear. No pneumothorax. No pleural effusion. The osseous structures are unremarkable given the patient's age. No free air under the diaphragm.'

35. On 2 November 2017, Ms L presented at her GP complaining of a cough, breathlessness, wheezing and dizziness. The GP diagnosed a respiratory tract infection and prescribed antibiotics and steroidal anti-inflammatories.

36. On 8 November 2017, Ms L presented again at her GP and was given a letter of referral to A&E, which she attended on 13 November 2017, complaining of increasing breathlessness and right sided pleuritic chest pain. A chest x-ray revealed a right pleural effusion (*i.e* fluid on the lung) and Ms L was admitted to hospital. A chest drain was inserted on her right side. A sample of pleuritic fluid was sent for testing on 14 November 2017. Ms L discharged herself over the intervening weekend (as she wanted to be at home because her father was unwell) but was readmitted on 20 November 2017, showing signs of a left pleural effusion. She had a CT scan and bronchoscopy (endoscopic examination of the lungs) and a left pleural drain was inserted.

37. The CT scan was performed on 23 November 2017 and Dr Q reported on it the same day. In summary, Dr Q noted large bilateral pleural effusion in the chest and bilaterally enlarged ovaries in the abdomen and pelvis. Dr Q concluded that there was a suspicious ovarian mass, which he described at the top of his report as a malignant cytology suggestive of gynaecological malignancy.

38. In the meantime, the cytology report on the sample of pleural fluid taken from Ms L confirmed a malignant cytology. On 23 November 2017, having considered that report in conjunction with Dr Q's report on Ms L's CT scan, a consultant respiratory physician diagnosed a likely ovarian carcinoma with invasion of surrounding tissue. Ms L was informed of that diagnosis that day.

39. On 1 December 2017, Ms L was examined, and her case was reviewed, by a consultant medical oncologist who, in a report dated 4 December 2017, confirmed that she presented as a thirty-five year old woman with stage IV serous carcinoma of probable ovarian origin. That consultant explained to Ms L that surgery and radiotherapy were not appropriate treatments and discussed with her the use of chemotherapy for disease and symptom control, rather than cure. Ms L has since commenced that treatment. The prognosis is

grave.

The proceedings
40. A personal injuries summons issued on behalf of Ms L and Mr A on 15 October 2018. That summons was twice amended, with the leave of the court, on 30 October and 13 November 2018. X Ltd and Y Ltd each delivered a defence on 16 November 2018. Dr Q delivered his defence on 30 November 2018.

41. The trial of the action took place over 11 days between 15 February and 6 March 2019. The plaintiffs were represented by Aidan Doyle SC and Declan Doyle SC with David Humphries BL, instructed by Cian O'Carroll, Solicitors. The defendants were represented by Eugene Gleeson SC with Padraic Hogan BL, instructed by William Fry, Solicitors.

The issues
42. To obtain the relief that they seek in the present action, the plaintiffs must surmount three successive hurdles.

43. First, they must establish that there was some negligence or breach of duty on the part of Dr Q in his conduct of, or report on, the ultrasound examination of Ms L's abdomen on 11 March 2016 or the MRI scan of her pelvis on 29 June 2016, or both.

44. To do so, they rely almost exclusively on the expert evidence of Professor Graham Whitehouse, consultant diagnostic radiologist, with some tangential support, within the limits of their own fields, from the expert evidence of Mr Frederick David Skidmore, consultant surgical oncologist; Professor Bleddyn Jones, consultant clinical oncologist; and Professor Michael Wells, consultant gynaecological pathologist. In denying negligence, the defendants rely on the evidence of Dr Q and, thereafter, chiefly on the expert evidence of Professor Leo Lawler, consultant diagnostic and interventional radiologist, partly supported, within the limits of his own field, by Professor Seamus O'Reilly, consultant medical oncologist. The plaintiffs did not call either Ms L's GP or her gynaecologist, although both were listed as witnesses to fact in every iteration of the plaintiffs' disclosure schedule, up to and including the most recent dated 18 February 2019.

45. Second, if the plaintiffs can prove such negligence, they must next establish that it caused either or both of them to suffer a cognisable form of damage. Ms L claims that she has suffered damage in the form of the lost opportunity for earlier treatment, and probable cure, of her ovarian cancer, together with consequential psychiatric injury, and Mr A claims that he has suffered damage, flowing from Ms L's injuries, in the form of his loss of the normal personal, physical and emotional relationship with Ms L that he might otherwise have enjoyed.

46. In that regard, the plaintiffs rely principally on the expert evidence of Mr Skidmore, Professor Jones and Professor Wells, together with that of Dr Tessa Neville, consultant psychiatrist. In denying that they have caused any such damage or injury to the plaintiffs, the defendants rely principally on the expert evidence of Professor O'Reilly, together with that of Professor Tom D'Arcy, consultant obstetrician/gynaecologist

47. Third, if the plaintiffs can prove cognisable damage caused by the defendants' negligence, they must then establish the quantum, or extent, of that damage in financial terms to facilitate an appropriate award of damages by the court.

48. To that end, they rely on the evidence of Ms L and Mr A, together with the expert evidence of Ms Fiona Haughey, vocational assessor; Mr Kenneth Hennessy, architect; Ms Avril McElwain, occupational therapist (whose report was submitted in evidence without the need for proof by agreement between the parties); Professor Michael Fitzgerald, consultant child psychiatrist; Ms Noreen Roche, nursing care consultant; and Mr Nigel Tennant, consulting actuary. In contesting that aspect of the plaintiff's case, the defendant's rely on the expert evidence of Ms Moninna McAlinden, occupational therapist (whose report was also submitted in evidence by agreement); Dr Kieran Moore, consultant paediatric psychiatrist; Ms Mary Perryman; nursing care consultant; and Ms Maura Carter; consulting actuary.

49. By agreement between the parties and in order to expedite the trial, each expert witness was taken to have adopted the contents of his or her expert report(s) as part of his or her evidence in chief.

Negligence
i. the evidence of Professor Whitehouse

50. The particulars of the negligence that the plaintiffs allege against Dr Q are, in substance, drawn from the report of Professor Whitehouse, dated 12 October 2018.

51. In that report, Professor Whitehouse provided a summary of his instructions and of the documentation he had considered, and set out a brief clinical history of Ms L's condition, before expressing an opinion both on the still images retained from the March 2016 ultrasound examination and, more significantly, on the digital record of the June 2016 MRI scan.

52. Professor Whitehouse reviewed 23 snapshot images of the March 2016 ultrasound. In the 'conclusions' section of his report, he expressed the view that neither Dr Q's conduct of the examination nor his report on it was a breach of duty. However, Professor Whitehouse also expressed the opinion that the left ovary was not optimally demonstrated in the images he viewed. In the body of his report, Professor Whitehouse stated:

> 'The left ovary, although measured as 23.2 mm in length is indistinct. Transvaginal imaging would have been the preferred method of demonstrating the ovaries, but unfortunately this method was not carried out. It is questionable as to what whether or not what was measured is in fact the left ovary. A cluster of rounded hypoechoic foci anterior to the measured feature could possibly represent the left ovary. With such limited images of the ovaries it is difficult to be sure, but from the presented images no features suspicious of pelvic malignancy are identified.'

53. In his evidence in chief, Professor Whitehouse reiterated the view that the image of the left ovary on the relevant still image(s) he had examined was a bit indistinct, which circumstance demanded that a transvaginal ultrasound examination should then have been carried out to obtain a clearer image. Professor Whitehouse stated that a doppler ultrasound examination also needed to be done to measure blood flow through the pelvic organs.

54. Professor Whitehouse's written report addressed the MRI scan of 29 June 2016 in the following terms:

> 'There are standard STIR, T1 and T2 weighted images in the coronal (front to back) and axial (cross sectional) plains.

The uterus and urinary bladder are normal in appearance.

The left ovary measures 20x20x15mm. It contains a multilocular, septated cystic mass. The septations are of variable thickness. Very little normal ovarian tissue is identified. These features by themselves could be due to a serous cystoadenoma, which is a benign lesion. However, there are some additional features which are highly suspicious of the lesion being a cystadenocarcinoma. There is some ascitic fluid, mainly on the left side of the pelvic cavity including adjacent to the left ovary. Ascites occurs in over 50% of malignant ovarian tumours of epithelial origin such as cystadenocarcinoma and is always associated with peritoneal spread of tumour. Whilst there are no papillary masses growing inwards from the wall into the cystic component, a frequent feature of cystadenocarcinoma, there is the suspicion of an exogenous tumour extension from the superolateral aspect of the ovarian mass lesion. The true extent of the tumour requires contrast enhancement by intravenous gadolinium and this is an essential part of the MRI examination in cases of suspected ovarian carcinoma.

The right ovary measures 24x22x17.5mm. It contains a lobulated septated cystic mass. Malignant ovarian tumours are bilateral in 62.5% of cases. It is therefore likely that this substantial cystic mass in the right ovary is either a malignant or borderline malignant cystadenocarcinoma. Two small cysts towards the periphery of the right ovary could possibly be follicular cysts.

There is no visible pelvic lymphadenopathy or other evidence of tumour spread within the pelvis and abdomen.

To complete the MRI examination, T1 weighted images should be repeated post gadolinium to more accurately delineate tumour presence and extent.'

55. In his evidence to the court, Professor Whitehouse stated that a suspected abnormality on an MRI scan would warrant the use of gadolinium or perhaps diffusion weighted scanning followed by the use of gadolinium where it disclosed a pattern highly suspicious of malignancy.

56. In addressing the images of the left ovary depicted in the MRI scan in his direct evidence, Professor Whitehouse seemed to resile significantly from the opinion expressed in his report. Pointing to the still image described as transverse image 16, Professor Whitehouse conceded that the fluid visible around the ovaries was compatible with the normal variation in such images and not, on balance, particularly worrisome. Referring to coronal image 17, Professor Whitehouse pointed to the superolateral (*i.e.* upper and outer) aspect of the ovarian capsule as demonstrating a slightly fuzzy edge (which he had referred to in his report as raising a suspicion of an exogenous tumour extension there), before acknowledging that the image could also be considered to depict a normal variant. In concluding his evidence in chief, Professor Whitehouse conceded that he would now 'dilute' the possibility of a cyst adenocarcinoma on the left ovary to one that was just slight.

57. Turning to the right ovary, Professor Whitehouse identified four features of the depiction of it in two still images from the MRI scan - coronal image 15 and transverse image 13 - that he believes prevented that scan from being properly reported as normal.

58. The first is what Professor Whitehouse acknowledged might be viewed as two normal follicular cysts close together but which he considered to be a single lobulated and septated cystic mass.

59. The second is what might be considered the adjoining surfaces of those two normal follicular cysts but what Professor Whitehouse considered to be a septation (or bridge) across the middle of that single lobulated cystic mass, together with what Professor Whitehouse felt might be another less developed septation more faintly visible in the lower part of that mass. In his evidence in chief, Professor Whitehouse referred to the first septation as 'quite substantial.'

60. The third is what Professor Whitehouse considered an irregular edge on part of that cystic mass or lesion, suggestive to him of a possible carcinoma, adjacent to a black or grey fuzzy area external to that part of the edge of the cyst or mass, which he acknowledged might depict normal blood vessels but which he believes should have caused concern because carcinomas are vascular.

61. The fourth is what Professor Whitehouse considered to be an irregular portion of the southwestern edge of the capsule of the right ovary (as depicted in coronal image 15) with a small amount of tissue bulging out.

62. Under cross-examination, Professor Whitehouse accepted that he had been aware of Ms L's current diagnosis of stage IV adenocarcinoma when he first viewed the MRI scan images, although he emphasised that he tried hard to avoid the element of retrospection. He accepted that, in those images, Ms L's right ovary was normal in size. He also accepted that in his written report he had made no suggestion of any breach or rupture of the capsule of the right ovary nor had he subsequently delivered any addendum to that report.

ii. the evidence of the plaintiffs' other experts on the negligence issue

63. For his part, Professor Jones acknowledged that, while his evidence was premised on the assumption that Professor Whitehouse's interpretation of the June 2016 MRI scan was correct, that issue was outside the realm of his particular expertise. The evidence of Mr Skidmore was that, while the appropriate expert to offer evidence to the court on the proper interpretation of an MRI scan was a consultant radiologist, he did reserve the right as a surgical oncologist to criticise any statement of a radiologist that he did not agree with. He saw nothing to disagree with in Professor Whitehouse's evidence on the June 2016 MRI scan. Perfectly understandably, as a gynaecological pathologist, Professor Wells did not express any view on the June 2016 MRI scan but, rather, indicated in his report that he was relying on Professor Whitehouse's opinion that it demonstrated a 'bilateral ovarian cystadenocarcinoma'.

64. Although the evidence of the non-radiological experts on each side was primarily directed to the second issue in the case (*i.e.* the likely stage of Ms L's ovarian cancer in June 2016 and the prospects for successful treatment if it had been detected then, as those questions relate to her claim for loss of opportunity for therapy or cure), one aspect of the conflicting evidence of Professor Jones for the plaintiffs and Professor O'Reilly for the defendants was addressed by the plaintiffs' counsel at considerable length with various witnesses as directly material to the issue of negligence. That is the conflict between Professor Jones' opinion (based on a mathematical model) that 'a small primary tumour probably would certainly have existed in June 2016', and Professor O'Reilly's opinion that 'it is likely that the radiology assessments became positive in the months prior to November 2017'. For my part, I am not sure that that represents a real controversy. When a tumour came into existence, on the one hand, and when it became radiologically detectable in the ovaries, on the other, seem to me to be entirely distinct questions.

65. In his evidence, Professor O'Reilly observed that a high proportion of the high-grade tumours that cause ovarian cancer originate

elsewhere in the body, so that you can scan the ovary early on without success because it is often the landing zone for the tumour, not its starting point. In his report, Professor O'Reilly noted that the majority of women who develop ovarian cancer present with late stage disease where curative therapy is not possible, which has prompted multiple studies to evaluate potential screening programmes, so far without success. The lack of benefit from attempts at screening relates to the biology of the disease, which develops insidiously, and to the shortcomings of existing blood tests and imaging modalities.

iii. the evidence of Dr Q

66. Dr Q gave evidence in his own defence. In doing so, he acknowledged the terrible situation in which Ms L and her family find themselves in that she is in the throes of an insidious and cruel disease.

67. Dr Q confirmed that Ms L had been referred to him by her consultant gynaecologist in February 2016 for an abdominal and pelvic ultrasound, which he carried out on 11 March 2016.

68. Dr Q explained how such examinations are generally conducted. Patients are asked to come in with a full bladder to enable good imaging to be produced of the uterus and ovaries. Contact gel is applied to the abdomen and a hand held probe is moved over it, transmitting moving images to the screen of an adjacent monitor. The operator compares those images shown in real time with his or her knowledge of the relevant anatomy in three dimensions. The frame rate of images produced is anything up to 20 frames per second, and the eye and the brain will perceive more detail and resolution from that high frame rate than they will from the limited number of representative snapshot images that the operator takes to archive for future reference. Dr Q stated that it follows that he would have had the benefit of clearer images than those later commented upon by Professor Whitehouse. The examination of the abdomen lasts 10 to 15 minutes. For women, it starts at the pelvis and progresses to the upper part of the abdomen. The length of time spent on the examination of the ovaries will depend on whether any abnormality is observed but that examination will be done in the first five minutes of the overall examination, assuming the patient's bladder is adequately full.

69. Dr Q then described his ultrasound examination of Ms L's ovaries. Her bladder had been adequately full. Her ovaries were of normal size and shape, had normal follicles, and contained no masses or abnormality. There was no ascites (that is, large buildup of fluid) present in the abdomen. The uterus appeared normal also.

70. Under cross-examination, Dr Q denied that his examination almost missed Ms L's left ovary, pointing out that Professor Whitehouse appeared to have based his view to that effect on his interpretation of a limited number of static images. Dr Q stated that since the abdominal ultrasound examination he had performed disclosed that Ms L's ovaries were normal in appearance, there was no need to perform a transvaginal ultrasound, an examination that Ms L had previously declined. Since he had obtained a clear image of normal ovaries, he did not agree that a transvaginal ultrasound was demanded by the results of the abdominal ultrasound as Professor Whitehouse had suggested. For the same reason, he did not accept that a doppler ultrasound was warranted.

71. Turning to the MRI scan that was carried out on 29 June 2016, Dr Q explained that T1, T2 and STIR are different types of MRI sequences. MRI works on the basis of emphasising the signal from the various cells in the body in proportion to their proton content. Protons are hydrogen ions. They vary in density according to the fluid content of tissue structures and there is an enormous spectrum of fluid content, and thus protons, throughout all tissues of the body. MRI is very good at discriminating in quite good detail between various tissue structures for that reason. To perform an MRI scan, a patient is placed within what is, essentially, a large bore of wound-up copper wire and is, thus, magnetised. That magnetisation is manipulated by turning on and off high frequency pulses of electricity and, in between those pulses, the protons within the body change position and shape, emitting a signal that is used to produce an image. Applying the pulses in different ways allows the signal from either water or fat to be emphasised. A T1 sequence emphasises the signal from fat; a T2 sequence that from water. There are myriad other sequences that combine or modify those two approaches in different ways. A STIR sequence is a modification that suppresses fat signal and enhances water signal. There are two relevant imaging planes: axial, representing slices of the body viewed from top to bottom; and coronal, representing slices of the body viewed from front to back.

72. A turbo spin echo sequence is a standard type of T2 sequence that shortens the time a patient needs to spend in the MRI machine. The average scan time is usually between 20 and 30 minutes. There is an obvious trade-off between the duration of a scan, on the one hand, and the variety and quality of image sequences that can be produced on the other. The optimum balance results in a broad average scan time of 20 to 30 minutes for most patients and most body parts.

73. The images that result from an MRI scan are stored in digital format. A consultant radiologist has access to a high specification monitor screen, usually viewed in a darkened room to eliminate noise and light distraction. There is a software programme that allows the images to be viewed in different ways. Dr Q's usual habit would be to scroll through all of the different sequences that had been performed - in this case, six (T1, T2 and STIR sequences, both axial and coronal) - simultaneously on the same screen. By using a computer mouse, it is possible to scroll backwards and forwards, cross-checking images, so that no scan report is based on any one particular snapshot or image. A particular sequence can be viewed in isolation or in conjunction with other sequences, images can be magnified, and contrast can be adjusted to assist in interpretation.

74. Using equipment that had been installed in the courtroom, Dr Q went through the various images from the MRI scan of Ms L's pelvis on 29 June 2016. Dr Q provided the following description of the the steps that he took in assessing the images of Ms L's ovaries.

75. First, he looked at overall ovarian size. The average ovarian size in a woman between the age of 31 and 40 is 2.5 cm. The upper level of normal in that age group is 5.6 cm. Ms L's right ovary was 2.5 cm.

76. Second, he looked for any follicles or cysts greater than 3 cm. As the word cyst has taken on a negative connotation, implying a pathology, and as cysts containing follicles are a normal - indeed, necessary - part of the physiology of the ovary, the convention is to describe cystic structures of up to 3 cm within the ovary as follicles if they are simple, by which is meant that they have thin, well-defined walls without any papillary projection (i.e. solid looking nodular excrescence) within them. The follicles within Ms L's right ovary were simple, uniform and without any papillary, or nodular, excrescences.

77. Where Professor Whitehouse had identified what he believed might be a single lobulated and septated cystic mass in the right ovary, Dr Q saw two adjacent follicles abutting one another, one of which contained a single thin septation. Under cross-examination, Dr Q stated that the combined thickness of those abutting walls (or, in the view of Professor Whitehouse, that substantial septation) could be measured, using a feature of the imaging software, at no more than 1.89 mm, whereas the upper thickness limit for normal septation is 3mm. The single thin septation within one of those follicles was more clearly still within normal parameters. To refer to the first feature as a 'quite substantial septation' as Professor Whitehouse had done was to substitute a relativistic term and, hence, a

subjective judgment, for the medical criterion (i.e. an objective measurement) that radiologists were expected to apply. By definition, features that are normal require no further investigation.

78. Outside the follicles in the right ovary, Dr Q observed connective tissue of the ovary (known as stroma) of normal size and regular appearance, the combination of bright and dark parts in the image reflecting the vascularity of, or blood flow through, that tissue.

79. On scrolling backwards and forwards between the various images in the relevant sequence, Dr Q stated that, despite what Professor Whitehouse considered to be an irregular portion of the southwestern edge of the capsule of the right ovary (as depicted in coronal image 15) with a small amount of tissue bulging out, the capsule of the ovary there was intact, which was confirmed in the equivalent STIR sequence images. In describing a small amount of tissue bulging out, Dr Q thought Professor Whitehouse might be referring to an area depicted in coronal image 15 just external to the southwestern edge of the right ovary. But scrolling through the coronal images and comparing them with the axial sequence, continuity of the wall or capsule of the ovary is evident. And while the resolution of the STIR sequence images is less clear, if there was tissue mass extending beyond the capsule wall they should depict a very clear, dark filling defect there but they do not.

80. To summarise his view on the MRI scan images of Ms L's right ovary, Dr Q wished to emphasise that they depict a normal sized ovary with a normal appearance and the complete absence of any nodular projections from either septae or the follicular walls.

81. Turning to the left ovary, Dr Q noted that its appearance was slightly different. There was a greater number of tightly packed follicles, reducing the size of the medullary stroma, or connecting tissue, within the ovary in consequence. The ovary measured 2.4 cm and was therefore within the normal range. The divisions between the follicles were sharply defined and they were thin walled. By combining different images, it was possible to be satisfied that the capsule of the ovary had a regular appearance. There was an area of greyness outside the capsule that, to the unwary, might look like a filling defect but which was, in fact, the result of turbulence in the fluid in the T2 sequence caused by the use of the turbo spin echo technique. The slightly fuzzy edge that Professor Whitehouse had pointed to on the superolateral aspect of the left ovarian capsule in one particular image was, in Dr Q's view, a common effect observed when viewing an intersection upon a curved surface and Dr Q could see nothing to justify any suspicion of an exogenous tumour extension there. Thus, his conclusion was that it was a normal ovary.

82. Under cross-examination, Dr Q explained that the capsule of an ovary is a spherical object, viewed in each MRI scan image across a single plane. Where a single slice or image intersects the curve of the surface of the capsule, a blurred image of that surface may result, creating a misleading impression that there may be a breach in the capsule at that point. For that reason, any such image must be viewed in conjunction with the surrounding images and perhaps also from another plane for the viewer to form an accurate overall impression. Adopting that standard approach in this case, Dr Q formed the opinion that the images of the capsule of Ms L's left ovary were no different than those of the thousands of other ovaries that he has examined every year and, hence, that the ovary was normal in appearance.

83. In re-examination, Dr Q stated that he had been greatly puzzled by the reference in Professor Whitehouse's report (though not in his evidence to the court) to 'the suspicion of an exogenous tumour extension from the superolateral aspect of the ovarian mass lesion' in the left ovary. Dr Q had observed no ovarian mass lesion in the left ovary and, indeed, in his evidence to the court, Professor Whitehouse appeared to abandon that suggestion. Dr Q was not sure what Professor Whitehouse intended to convey by his use of the term 'exogenous tumour extension'. Did he mean a mass in the ovary extending outside it or a mass outside the ovary extending into it? Dr Q could identify neither such feature. Dr Q thought that Professor Whitehouse might have been referring to a certain grayness in the image at that location, which Dr Q believes clearly denotes typical T2 signal fluid. The sequence concerned is a turbo spin echo one. Such sequences misregister the turbulence of free fluid on T2 sequences as a filling defect, thereby creating a potentially misleading image. The STIR image of the same location demonstrates a uniform fluid signal. In Dr Q's view the images of the left ovary depict a normal ovary with a capsule that was intact, with no external tumour extending into it and no internal tumour extending out of it.

84. Under further cross-examination, Dr Q stated that, when Ms L was referred to him in May 2016 for an MRI scan, the index of suspicion of ovarian cancer was low. Neither Ms L's GP nor her gynaecologist had arranged for a CA 125 test, which is a protein marker blood test used to look for early signs of ovarian cancer, and Ms L had not presented with a family history of ovarian cancer. The March 2016 ultrasound of Ms L's abdomen, including her ovaries, was normal. Ms L's symptoms - identified in the GP's letter of referral for an MRI scan as pressure to urinate, bloatedness, and tenderness in the suprapubic region over her bladder - were not specific to ovarian cancer, being found in thousands of women with normal ovaries who are suffering from other more common conditions, such as bowel obstruction The overarching concern of Ms L's gynaecologist was bowel tethering and the possibility of adhesions from her most recent caesarean section. Dr Q stated that, nonetheless, caution is always the watchword and one of the great aphorisms that he was taught as a young radiologist is that it is not possible to exclude anything.

85. It was put to Dr Q that the evidence of Professor Whitehouse had been that, when professional persons were suggesting ovarian issues or an ovarian mass, that was enough to warrant the conduct of a scan using gadolinium as an enhancing agent. Dr Q replied that gadolinium should only be given where an abnormality of the ovaries had been found on an ultrasound examination or an MRI scan. The administration of gadolinium in the examination of a normal ovary is not recommended because it can result in false positive enhancement and because, as has become evident in the last four or five years, it creates the risk of deposition disease. Had any papillary projection been evident in the MRI scans that were conducted, then - balancing the risks - Dr Q would have administered gadolinium. But none was.

86. Dr Q also disagreed with Professor Whitehouse's suggestion that a diffusion weighted sequence of images should have been taken. Dr Q stated that a diffusion weighted sequence is a modification of the basic T1 or T2 sequence, which is easily performed and useful for many purposes but which has no proven role in the detection of ovarian cancer. The best evidence for its use in the context of ovarian cancer is in analysing low T2 signal solid masses, not cystic masses. In Dr Q's considerable experience of using diffusion weighting imaging in the staging of rectal cancers, he had found it unreliable in characterising the primary tumour, although it was of some use in the assessment of abnormally sized lymph glands in the region.

iv. the evidence of Professor Lawler

87. On behalf of the defendants, Professor Lawler was asked to report on the June 2016 MRI scan of Ms L's abdomen. To eliminate - or, at least minimise - the risk of hindsight bias, Professor Lawler was initially given only the information that was available to Dr Q on that date and was not informed of Ms L's subsequent medical history, culminating in the diagnosis of stage IV ovarian cancer in November 2017.

88. Professor Lawler reported as follows:

'History. Pressure to urinate, frequency and abdominal bloating. Prior transabdominal ultrasound was reported as normal. Case discussed and MRI pelvis recommend.

Technique. T2 Haste localiser, Coronal & Axial STIR, Coronal and Axial T1 TSE, Coronal and Axial T2, No sagittal imaging. No contrast enhanced imaging.

No comparisons submitted.

FINDINGS

Uterus C-section scar suggested. Normal endometrial lining, junctional zone and myometrium. Prominent vasculature of LEFT myometrium - can be normal variant.

Small filling defect in the cervix below which we cannot discriminate further. MRI is not for cervix primary assessment if this is a concern. Normal cervix stroma.

Both ovaries identified and normal

No fallopian tube abnormalities

Small free fluid in the pelvis which can be a normal variant

Bladder and urethra normal

Limited imaging of rectum normal

Bone marrow signal normal. Visualised SI joints normal. Limited imaging of hips is normal.

No regional adenopathy

Normal flow voids of vascular structures

CONCLUSION

There is no finding concordant with the symptoms described in the referral.

MRI within normal limits.'

89. Professor Lawler was then apprised of Ms L's subsequent medical history and of the allegations of negligence against Dr Q that are now being made on her behalf, in response to which he prepared a report dated 11 February 2019.

90. In that report, he first confirmed that, having been apprised of those matters, he did not believe that he would have interpreted the scan differently in his routine practice.

91. He then noted that the March 2016 ultrasound examination was done to investigate symptoms of 'pressure to urinate, frequency and bloating.' That was a reasonable test and was reported as normal, an interpretation supported by the results of the June 2016 MRI scan.

92. Professor Lawler considered that these imaging tests (ultrasound and MRI) were performed for reasonable clinical indication, done technically in an appropriate manner and interpreted correctly for the indications provided.

93. In cross-examination, it was put to Professor Lawler that the recommended form of ultrasound examination to rule out ovarian cancer is a transvaginal, rather than transabdominal, one. Professor Lawler answered that that is not the case when you are dealing with an undifferentiated patient presenting with the symptoms that Ms L exhibited in March 2016 - *i.e.* the same symptom complex as that which 999 other women without ovarian cancer might exhibit. It is not the practice to do a transvaginal sonogram on every menstrually active young woman demonstrating such symptoms because it is an invasive, undignified procedure that a lot of women will quite reasonably refuse to undergo. For that reason, it will only be done if something has been found on a transabdominal sonogram that requires further investigation.

94. On the views expressed by Professor Whitehouse about the imaging from the June 2016 MRI scan, Professor Lawler's evidence was broadly as follows.

95. He did not see any of the things that Professor Whitehouse described in his report concerning the left ovary, and the language used in the description of those things was not common vernacular in his professional experience. He saw no features suspicious of cystadenocarcinoma. No guidelines or practices recommend an MRI scan as a reliable tool for the detection of cancer in ovaries less than 2.5 cm in diameter. What Professor Whitehouse identified in the pelvis as ascitic fluid of the kind evident in 50% of malignant ovarian tumours, Professor Lawler identified as normal physiologic fluid of the kind that is almost universal in normal female pelvic imaging. The presence of small quantities of pelvic fluid is not an independent predictor of ovarian malignancy and it would be highly unusual to find manifest malignant ascites in the absence of a large tumour primary lesion.

96. In particular, he did not see, or suspect, anything extending beyond the confines of that ovary, much less did he see, or suspect, an exogenous tumour extension. The term 'exogenous' is not part of the common terminology of radiology reports. The particular feature that he thought Professor Whitehouse might have been referring to was outside the ovary and did not fit any of the diagnostic criteria currently accepted as a sign of ovarian cancer. There was, thus, nothing in the imaging of the left ovary that called for contrast enhancement by the intravenous administration of gadolinium , a procedure that is not routinely used when an investigation is done for bloating and which comes with attendant risks. The main one under review at present is that of deposition of gadolinium on the brain. It is currently the subject of litigation in the United States of America.

97. On the right ovary, Professor Lawler did not accept that it contained a substantial cystic mass that was either a malignant or borderline malignant cystadenocarcinoma. In his view, 'substantial' is an imprecise term that is inappropriate to describe any mass found in a pelvic MRI. Modern MRI imaging software is replete with sophisticated tools for measuring volume, length, circumference

and so forth. The ovary itself was normal in volume and size. If 'substantial' was intended to mean enlarged, neither the ovary nor any cyst within it met that criterion. MRI is poor at early detection of ovarian cancer precisely because it cannot resolve small volume malignant disease and because it is poor at differentiating such small changes from a myriad of benign entities. These are pathologies that pathologists struggle to identify under the microscope.

98. Professor Lawler acknowledged that, because MRI is a sophisticated technology, it is often perceived by lay persons as an infallible diagnostic one, before going on to state that it is not approved either nationally or internationally as an ovarian cancer screening tool because it has consistently failed in that task. In his own practice, he had rarely if ever diagnosed organ confined ovarian carcinoma in normal sized ovaries through such imaging. Sometimes, that diagnosis was made retrospectively after a patient's ovaries had been surgically removed for other reasons (and, presumably, some tissue had been histopathologically examined). In those situations, where it transpired that the patient had previously undergone a hip or pelvic MRI, Professor Lawler was often asked to go back and look at the images to see if anything had been missed but could never find anything. He observed that, unfortunately, MRI works best in imaging ovarian cancer in those patients who benefit least from it, which is to say that it is good at characterising established disease but poor at excluding small organ confined disease.

99. Professor Lawler explained that the only tool accepted currently to triage patient risk for ovarian cancer is the *Risk of Malignancy Index* or RMI, which is based on ultrasound features of malignancy, menopausal status and biochemical CA-125 level. CA-125 is a protein marker that is a cancer antigen and there is a blood test for it. Levels increase sharply in people with ovarian cancer, though not necessarily in the early stages of the disease. Those levels also rise in the presence of a variety of other conditions. Thus, while a useful diagnostic tool, a CA-125 test is not definitive either way.

100. In cross-examination, it appeared to be suggested to Professor Lawler that Dr Q should have sought to convene a multidisciplinary team meeting ('MDM') in respect of Ms L. It was common case between the experts that MDMs are now a common feature of care and treatment in major cancer centres. Such meetings are attended by a combination of specialists (such as oncologists, radiologists, pathologists, gynaecologists and clinicians) involved in the treatment or care of patients who have been diagnosed with cancer or, at the very least, who are the subject of a very high index of suspicion of cancer. The suggestion on behalf of Ms L that Dr Q should have sought to convene an MDM appeared, in turn, to be the intended gateway for the argument that, having done so, Dr Q, a consultant radiologist, should then have suggested or directed, as part of his duty of care, a CA-125 blood test, or a CT scan, or a laparoscopy for Ms L, beyond the MRI scan of her pelvis upon which he had already reported.

101. Professor Lawler's evidence was that such multidisciplinary team meetings are conducted almost universally for patients with an established cancer or, at the very least what he described as a post-operative 'confounder'. Hospitals would not have the capacity to convene an MDM for every patient whose non-specific symptoms are under investigation simply because a diagnosis of ovarian cancer consistent with those symptoms has not yet been excluded, and no such practice exists.

102. On behalf of Ms L, it was put to Professor Lawler that, in effect, Dr Q should have been particularly alert to, or focussed upon, the risk of ovarian cancer in reviewing the June 2016 MRI scan. For example, it was suggested to him that Ms L's reported symptoms at that time were not merely consistent with ovarian cancer but, in counsel's words, 'shouted it out'. Professor Lawler responded that that would be like concluding that, if everyone with tuberculosis has a cough, then everyone with a cough has tuberculosis. Professor Lawler estimated that, for every five thousand pre-menopausal women who present at his clinics, half would present with abdominal pain, bloating and bowel disturbance, whereas fortunately, less than 1 in 1,000 of the latter cohort will have ovarian cancer.

103. In relation to the suggestion that the reference in the MRI scan referral letter from Ms L's gynaecologist to the 'need to out-rule ovarian mass' was language intended to indicate concern about the possibility of ovarian cancer, Professor Lawler observed that 80% to 90% of the ovarian masses found in women under 50 are not cancer. More fundamentally, Professor Lawler stated that, whether there was a high or low pre-existing suspicion of ovarian cancer, the level of suspicion should not have affected the manner in which the the relevant tests were done and Dr Q had done them appropriately.

104. Counsel for Ms L was critical of Professor Lawler's inability to understand what Professor Whitehouse had meant when, in his evidence in chief, he had referred to the septation he perceived across a single lobulated cystic mass in Ms L's right ovary as 'quite substantial.' Professor Lawler was asked to consider the contents of a paper in Radiology, the journal of the Radiological Society of North America, entitled *Management of Asymptomatic Ovarian and Other Adnexal Cysts Imaged at US: Society of Radiologists in Ultrasound Consensus Conference Statement* (Vol. 256: Number 3 - September 2010, 943). In particular, counsel pointed to the following text, at the commencement of a paragraph headed 'Cysts with Characteristics Worrisome for Malignancy: Sonographic Features and Recommendations' (at 948):

> 'Thick septations (≥3 mm), solid elements with flow at Doppler US, and focal areas with wall thickening (≥3 mm) are very worrisome for a malignant neoplasm, particularly when seen in association with omental or peritoneal masses or a moderate or large amount of ascitic fluid in the pelvis ….'

105. In a telling exchange, counsel for Ms L put it to Professor Lawler that Professor Whitehouse's use of the term 'substantial septation' should be understood in close relation to the term 'thick septation' as employed by the Society of Radiologists panel. Professor Lawler made two observations in response. First, as the earlier part of the text of the Conference Statement makes plain, there is no radiological reporting requirement at all in the context of any cyst of 3 cm or less in diameter in a woman of reproductive age. The diameter of Ms L's right ovary (not to mention that of any cyst within it) was reported as just less than 2.5 cm in the June 2016 MRI scan. Second, the septation that Professor Whitehouse referred to as 'quite substantial' measured 1.89 mm (significantly less than 3 mm) and could not, therefore, have been considered 'thick' as the Conference Statement employs that term. Professor Lawler might have added that the term 'substantial septation' is given no definition in that Conference Statement and is, thus, devoid of objective meaning in that context.

The principles governing claims of medical negligence

106. The parties made no submission to the court on the applicable law. The controlling authority on the particular principles that govern claims of medical negligence remains the decision of the Supreme Court in *Dunne v National Maternity Hospital* [1989] IR 91 (*per* Finlay CJ, Griffin and Hederman JJ concurring). The principles of direct or potential relevance in this case are the first five. They are stated as follows (at 109):

> '1. The true test for establishing negligence in diagnosis or treatment on the part of a medical practitioner is whether he has been proved to be guilty of such failure as no medical practitioner of equal specialist or general status and skill would be guilty of if acting with ordinary care.
>
> 2. If the allegation of negligence against a medical practitioner is based on proof that he deviated from a general and

approved practice, that will not establish negligence unless it is also proved that the course he did take was one which no medical practitioner of like specialisation and skill would have followed had he been taking the ordinary care required from a person of his qualifications.

3. If a medical practitioner charged with negligence defends his conduct by establishing that he followed a practice which was general, and which was approved of by his colleagues of similar specialisation and skill, he cannot escape liability if in reply the plaintiff establishes that such practice has inherent defects which ought to be obvious to any person giving the matter due consideration.

4. An honest difference of opinion between doctors as to which is the better of two ways of treating a patient does not provide any ground for leaving a question to the jury as to whether a person who has followed one course rather than the other has been negligent.

5. It is not for a jury (or for a judge) to decide which of two alternative courses of treatment is in their (or his) opinion preferable, but their (or his) function is merely to decide whether the course of treatment followed, on the evidence, complied with the careful conduct of a medical practitioner of like specialisation and skill to that professed by the defendant.'

Findings on negligence

107. In conducting the live ultrasound examination in March 2016, Dr Q had full control of the imaging process and the benefit of moving images in real time; Professor Whitehouse was viewing only a limited number of still images from that examination and was doing so while subject to the risk of hindsight bias.

108. In reviewing the results of the June 2016 MRI scan, Dr Q did so contemporaneously and Professor Lawler did so blind. Professor Whitehouse was, once again, subject to the risk of hindsight bias because he was aware of Ms L's later diagnosis when he did so. Professor Whitehouse stated that he tried hard to avoid the element of retrospection but I cannot be satisfied that his efforts were successful.

109. Both Dr Q and Professor Lawler were able to demonstrate that each had reviewed the relevant imaging by reference to objective criteria set out in widely accepted guidelines for cancer detection; *e.g*. whether the ovaries were enlarged beyond a specified normal size range; whether septation thicker than 3 mm was visible in a cyst or cysts larger than 3 cm; whether nodules or papillae were present in any cyst; whether blood flow was present or absent in any such nodule or papilla, and so on. The review conducted by Professor Whitehouse was more impressionistic and much less clearly or obviously linked to any identified objective criteria or published guidelines.

110. It is principally for those reasons that I prefer the evidence of Dr Q and Professor Lawler to that of Professor Whitehouse on each of the points in controversy between them.

111. Thus, I find that there was no failure of care on the part of Dr Q, nor did he deviate from any general or approved practice, nor did he follow any general or approved practice that was subject to an obvious inherent defect. He acted with the ordinary care which a medical practitioner of equal status and skill should have shown. It follows that, applying the *Dunne* principles, the plaintiffs have failed to discharge the onus of proof necessary to establish negligence on the part of Dr Q in the context of the failure to diagnose Ms L's ovarian cancer prior to November 2017.

Conclusion

112. The plaintiffs' claim is dismissed.