Case No: HQ13X05611

Neutral Citation Number: [2016] EWHC 1057 (QB)
IN THE HIGH COURT OF JUSTICE
QUEEN'S BENCH DIVISION

Royal Courts of Justice
Strand, London, WC2A 2LL

Date: 06/05/2016

Before:

MR JUSTICE JAY

- -

Between:

AS	**Claimant**
- and –	
EAST KENT HOSPITALS UNIVERSITY NHS FOUNDATION TRUST	**Defendant**

- -
- -

Harry Trusted (instructed by **Pattinson & Brewer**) for the **Claimant**
Anna Hughes (instructed by **Clyde & Co LLP**) for the **Defendant**

Hearing dates: 21st, 22nd and 25th April 2016

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Judgment

MR JUSTICE JAY:

Introduction

1. In these proceedings AS ("the Claimant") claims damages for clinical negligence following eye surgery which took place at the Defendant's William Harvey Hospital ("the hospital") on 7th September 2010. The trial is confined to the issue of breach of duty, causation and quantum having sensibly been agreed by the parties. On 15th December 2020 I anonymised this judgment at the Claimant's request. No application for anonymity was made during or after the trial, but the judgment contains sensitive medical details about the Claimant and it is unnecessary to cause him further distress.

2. The Claimant had suffered a retinal detachment in his left eye and the purpose of the surgery was to correct it, using what is known as the "trans scleral cryotherapy and scleral buckle" procedure (shortened throughout this judgment to "cryo buckle procedure"). Unfortunately, the procedure was unsuccessful, the Claimant's left retina was not re-attached, and the sight in his left eye has not been restored. Although this case will turn on quite complex, technical evidence relating to the pathophysiology of the retina and the nature and repair of retinal detachments, the parties are agreed that the essential question for me to resolve may be briefly stated: should, in all the circumstances of this case, the Defendant's surgeons have undertaken a different form of retinal reattachment and repair, namely one involving a primary vitrectomy? Evidently, in the present context the auxiliary verb "should" – in its normative sense - bears its standard, Bolam meaning.

3. Before examining this issue in greater detail, including setting out the salient sub-issues which in my view arise for my determination, I should provide some essential factual background. I will do this in neutral terms.

Essential Factual Background

4. The Claimant was born on 4th July 1966. At the age of 17 he suffered a retinal haemorrhage in his right eye which severely diminished his visual acuity. His left eye was normal until 2001, when he complained on at least one occasion of flashes of light – a harbinger of potential vitreal or retinal problems. In November 2001 he attended the eye clinic at the hospital and a small area of oedema in the inferior retina was noted. The clinic note dated 9th November 2001 mentioned "flat retina; no tear; impression – PVD (i.e. posterior vitreous detachment)". I interpolate that a PVD occurs when the vitreous (the jelly in the middle of the eye, extending back to the retina) becomes detached from the retina. It is a less serious condition than a retinal detachment which typically occurs when part of the vitreous passes through a hole or tear in the retina itself, causing the latter to elevate and become separated from its normal locus (here, I am describing the rhegmatogenous retinal detachment ("RRD") which later afflicted the Claimant's left eye). If untreated, a retinal detachment will usually lead to total blindness in the relevant eye.

5. There are further references in the Claimant's clinic notes to the presence of PVD in the left eye: on 14th November 2005, and again on 22nd April 2010. I mention this evidence because there is an issue between the parties as to whether the Claimant was in fact suffering from a PVD in his left eye, being an irreversible condition, in August 2010.

6. In 2005 the Claimant was diagnosed as suffering from Ehlers-Danlos Syndrome ("EDS"). EDS is a genetically heterogeneous inherited condition, or congeries of conditions, with varying presentations, some of which are associated with abnormalities in the structure of connective tissue. There is an issue between the parties as to whether the Claimant's EDS (more precisely, EDS Type III/Hypermobility Syndrome) was likely to result, or did result, in weakening of his left sclera and/or was a clear contra-indication to the cryo buckle procedure.

7. In April 2010 the Claimant began experiencing visual problems in his left eye, including intermittent flashes of light. On 22nd April he was seen at the OPD of the hospital, a PVD in the left eye (and, as it happens, the right eye) was recorded, and the Claimant was reassured. On 25th August, following concerns expressed to his GP, he attended the A&E department at the hospital. On that occasion it was noted that he had EDS and a diagram is available showing a left infero-temporal detachment, macula-on (i.e. the macula was unaffected). In lay terminology, the site of the detachment was at about 7 o'clock, in other words, on the left side of the left eye, towards the bottom. A number of round holes were also noted, but no PVD. An urgent request was made for a referral to a vitreoretinal surgeon.

8. The Claimant was seen on the same day by Mr David Schultz, FRANZCO, Consultant Ophthalmic Surgeon at the hospital. He confirmed the diagnosis of retinal detachment and recommended that the Claimant's retina be repaired deploying the cryo buckle procedure.

9. The procedure was due to take place on the afternoon of 2nd September 2010 but had to be postponed.

10. The operation was performed on 7th September 2010 by Mr Jaffree, Associate Specialist, working under the supervision of Mr Walter Poon, FRCOphth, Consultant Ophthalmic Surgeon. Like Mr Schultz, Mr Poon has a specialism in vitreoretinal surgery. Before the operation was carried out, Mr Poon says that he confirmed an inferior retinal detachment secondary to a myopic atrophic hole with vitreous attached. There is an issue between the parties as to the nature and extent of any examination that he performed, and in particular whether his evidence to the effect that he saw the vitreous attached is reliable.

11. A transcription of the operation note is available. It seems clear that at some point during the procedure the surgeon perforated the sclera with a suture, this being a recognised, and non-negligent, complication. Mr Poon took over from Mr Jaffree and converted the operation to a primary vitrectomy. It is apparent from the relevant section of the operation note that the surgeon was now struggling to save the Claimant's sight:

> "→converted to PPV [pars plana or primary vitrectomy], tissue cleared and retinectomised. →heavy fluid leaking through punctured site.
>
> →attempted repair/suture. →unable to close because of tissue abnormality, tried plugging internal hole with retinal tissue, worked temporarily then leaking.
>
> →attempted 360 retinectomy and heavy liquid up to arcade (vascular). →bleeding and loss of view due to corneal stromal oedema.
>
> →closed with heavy oil. →sutured with 7.0 vicryl (sclerostomy port). →eye soft at the end of surgery."

12. The operation had proved to be unsuccessful. In Mr Poon's post-operative note of 7th September it is recorded that he explained to the Claimant that the complication occurred due to "tissue (scleral) fragility" which rendered it impossible to seal the eye. A similar point was made by Mr Poon in his letter to the Claimant's GP dated 28th September.

13. The Claimant underwent further surgery at another hospital, but he is left with a considerable reduction of vision in his left eye. The experts are agreed that, if a vitrectomy had been performed at the outset, it is likely that the outcome would have been favourable with maintenance of good vision and avoidance of scleral penetration.

The Operative Procedures Simply Explained

14. As I have already explained, a RRD may result either from one or more holes in the retina (type 1) or one or more retinal tears (type 3). RRD's may occur without a prior PVD, but as a broad generalisation the latter renders the former more likely. I was provided with coloured diagrams which depict both of these pathologies. Fortunately, whereas in the general population PVDs are common in middle and elderly myopes, these usually do not progress to RRDs and do not cause significant ocular problems.

15. In simple terms, the cryo buckle procedure entails draining the subretinal fluid externally, applying cryotherapy (or freezing) to the areas of weak retina or around retinal holes, and suturing under tension small silicone explants, or plombs, to the outside of the eye. The rationale of the procedure is that these explants stem the flow of fluid and force the retina back into its correct locus on the back of the eye.

16. Pars plana or primary vitrectomy entails an internal approach which involves removal of the vitreous of the eye and internal drainage of the sub-retinal fluid. Depending on the patient's circumstances and an individual surgeon's technique, air, medical gas or silicone oil may be injected into the space left by the removed vitreous in order to bring the retina back to its proper position.

17. The experts are agreed that a primary vitrectomy should not be performed if the vitreous remains attached, because in such circumstances the vitreous would need to be peeled away from the retinal tissue at the back of the eye, creating a greater risk of retinal tears.

The Lay Evidence

18. The Claimant gave evidence and told me, through his witness statements, that he is self-employed as a freelance journalist and academic consultant. He has set out his relevant medical history including the various diagnoses of PVD in his left eye, which diagnoses have never previously been questioned. The Claimant's evidence was that, before his operation on 7th September 2010, he was seen briefly by both Mr Poon and Mr Jaffree, but was dissatisfied by the short opportunity he was being given to have the procedures and risks explained to him. The Claimant also makes the point that at no stage did Mr Poon say anything to him which was consistent with the vitreous gel in his left eye having remained attached, in contradistinction to there being a PVD. Further, the Claimant told me that after the unsuccessful operation on 7th September 2010 Mr Poon specifically mentioned scleral thinning and that his sclera was fragile. This last piece of evidence is entirely supported by the post-operative note.

19. Under cross-examination the Claimant said that he could not specifically recall his left eye being examined by either Mr Jaffree or Mr Poon, "except possibly immediately prior to the operation – to the best of my recollection, it did not happen".

20. The Claimant did not say one way or the other whether he told Mr Poon about his EDS, but on my reading paragraphs 10-12 of his first witness statement are consistent with such a conversation taking place, however brief (or, at least, Mr Poon making clear to the Claimant that he knew about his EDS). Even so, and to be fair to the Claimant, a possible interpretation of these paragraphs is that as far as the Claimant is concerned his belief is that Mr Poon must have been aware of his EDS (leaving open the possibility that Mr Poon was not). This point was not explored with the Claimant in cross-examination, and I will need to bear that in mind in the context of Mr Poon's oral evidence that the Claimant did tell him about his EDS.

21. Mr David Schultz gave evidence and confirmed the content of the medical records as providing, as he put it, a comprehensive and accurate account. He told me that he has a good recollection of the events of 25th August 2010 because he was called out of theatre to examine a relatively young man with a retinal detachment in his only good eye, with the complicating feature of a diagnosis of EDS. The casualty's officer's notes have been carefully scrutinised. They specifically record a medical history of EDS. The casualty officer (or the SpR: it is unclear, and does not matter) drew sketches of the Claimant's eyes, in the usual way. These show the detachment and the atrophic holes; there is no mention of any PVD.

22. At the time, Mr Schultz was unaware of the earlier diagnoses of PVD. He carried out his own examination of the Claimant's fully-dilated left eye with a split lamp, 90 dioptre lenses and indirect ophthalmology, including of the peripheral parts of the retina and the damaged part. He confirmed the casualty officer's diagnosis of retinal detachment with atrophic retinal holes, and his independent recollection is that the

vitreous was attached. The clinical note written by Mr Jaffree, presumably on Mr Schultz's instructions, is to the effect that the retinal detachment should be repaired by the cryo buckle procedure.

23. Although there is nothing in the notes to this effect, Mr Schultz was fairly sure that he discussed the Claimant's case with his vitreoretinal colleague, Mr Poon. He could not specifically recall such a discussion, but this would have been standard practice, and basic clinical courtesy, when one surgeon was going to operate on another's patient.

24. Mr Schultz was asked in cross-examination about the convergent evidence from previous eye examinations of there being a PVD in the left eye. He said that PVD is either present or it is not, and agreed that once the vitreous gel has detached, it cannot spontaneously reattach. His explanation for this convergent evidence was that his generalist ophthalmic colleagues were not as experienced in the diagnosis of PVD as specialist vitreoretinal surgeons, and that it is probable that they were mistaking for PVD condensations in the vitreous consequent on significant vitreous syneresis – a premonitory or developing condition which has the tendency to mimic PVD in the clinical judgment of the non-specialist. Mr Schultz agreed, however, that Mr John McConnell, who on 14th November 2005 referred to "a picture of PVD with usual vitreous syneresis", was an experienced general ophthalmologist whose opinion he respected. Mr Schultz was also asked about his own examination of the Claimant on 18th May 2009, but on that occasion the Claimant's eye was not dilated and no clear deductions may therefore be made.

25. In re-examination, Mr Schultz was taken to various clinical records dated 16th March 2007, 26th January 2009 and 18th May 2010 which, because they do not mention PVD, are only consistent with PVD either not being present or not being diagnosed. I should add that there are other medical records, dated 17th June 2002, 8th September 2003, 28th November 2006 and 18th May 2010 which equally do not mention PVD, albeit it was suggested by the Claimant's expert that at least some of these omissions could be explained on the basis that the relevant clinician was only concerned with new findings.

26. In relation to the competing procedures, Mr Schultz's written evidence was as follows:

> "There was at the time (and in fact still is) a significant debate within the vitreoretinal surgical community as to the most appropriate means of treating retinal detachment in patients with EDS. There is not a one size fits all approach and therefore a surgeon must assess the individual facts of a case and consider them in conjunction with the advantages/disadvantages of the available surgical procedures before deciding any course of action.
>
> In this case I considered that the "cryo buckle" technique was most appropriate as the retinal detachment was associated with an attached vitreous and atrophic retinal holes. In addition, the alternative "vitrectomy" procedure could have in turn induced multiple large new tears in the retina. The latter was especially

> relevant in this case as the Claimant had very poor visual acuity in his right eye."

27. Mr Schultz expanded on this under cross-examination. The factors militating in favour of the cryo buckle procedure in the Claimant's case were six-fold, and included: (i) his relative youth (a primary vitrectomy will usually bring about cataract surgery); (ii) the attachment of his vitreous (a primary vitrectomy entails the surgical inducement of a PVD, and can cause retinal tears in those with connective tissue disorders); (iii) the fact that the breaks in the retina were atrophic (i.e. the consequence of dehiscence in the retina) and not tractional; (iv) the position and number of holes – a few clustered holes in the same quadrant of the eye, being a quadrant readily accessible for scleral buckling; (v) notwithstanding the diagnosis of EDS, the absence of signs of scleral thinning (i.e. a blue sclera); and, (vi) the outcome of informal discussions at a recent vitreoretinal conference where there was a clear preponderance of clinical opinion to the effect that a primary vitrectomy was not appropriate for EDS patients.

28. Mr Schultz told me that even had he diagnosed a PVD he would not have recommended primary vitrectomy. His explanation was that this procedure will always entail perforation of the sclera and then closing it, with the concomitant risk of complications at that stage. Mr Schultz also accepted that it is an acknowledged complication of the cryo buckle procedure that the surgeon may have to enter the eye to drain fluid.

29. Mr Schultz did accept the joint opinion of the experts in this case to the effect that had a primary vitrectomy been carried out, then on the balance of probabilities the outcome would have been favourable. However, in my view this joint opinion does not logically touch on the question whether primary vitrectomy in this case was less or more risky, viewed prospectively, than the cryo buckle procedure. Put simply, and adopting a prospective probabilistic approach, it could be argued (and indeed was argued by the Defendant's expert) that in relation to both procedures the chance of a favourable outcome was better than evens. Mr Schultz vacillated somewhat on that point, but eventually told me: "I don't think that anyone knows if PPV is safer than the buckle". In re-examination he said that he still believes that the primary vitrectomy carried greater risks.

30. Mr Wallace Poon informed me that he has a good recollection of this surgery because the Claimant had been diagnosed with a rare condition (EDS) and the outcome was adverse. According to his first witness statement:

> "Before the Claimant's surgery on 7th September 2010 the Claimant was seen both by myself and my colleague Mr Schultz, consultant ophthalmologist. We both decided and agreed on the "cryo/buckle" technique for the operation as the Claimant suffered from an inferior retinal detachment secondary to a myopic atrophic hole with vitreous attached. We felt strongly that this procedure was necessary as his detachment was inferiorly located and advancing towards the macula.

> I was aware of the fragility of the sclera in patients with EDS. This is an issue well recognised by vitreoretinal surgeons and we did consider whether an alternative technique, i.e. the vitrectomy technique would be suitable for the Claimant.
>
> We came to the conclusion that under the clinical circumstances the "cryo/buckle technique" was the most appropriate procedure. Essentially, the anatomical positions of the retinal holes were within easy reach for the "cryo/buckle" technique. Also, as the Claimant had a young eye with attached vitreous the risk of causing multiple iatrogenic retinal tears with the "vitrectomy" was high; patients with collagen disease tend to have an abnormal vitreoretinal interface."

31. In his supplementary witness statement Mr Poon qualified the first sentence of the foregoing citation by stating that a brief discussion between him and Mr Schultz would have been standard practice, but he cannot say for certain whether it actually took place.

32. The clear impression given by Mr Poon's first witness statement was that he and Mr Schultz had a strong collective view that the cryo buckle procedure would be appropriate to the Claimant's case. Given, however, that Mr Poon cannot be sure that there was any conversation with Mr Schultz, and that he certainly cannot remember what was discussed, I agree with Mr Harry Trusted's strictures delivered on behalf of his client that Mr Poon's first witness statement is misleading. It was also misleading for Mr Poon to say, without qualification, that he had a good recollection of these events. This kind of *ex post facto* reconstruction on the basis of what may plausibly have taken place should be avoided.

33. That said, all of this does not logically exclude the possibility that Mr Poon might have reached the independent conclusion that a cryo buckle procedure was appropriate to the Claimant's case. Even had he been aware of Mr Schultz's recommendation to that effect, it seems inherently improbable, because it would have been an egregious dereliction of his duty, that he did not apply his mind to the issue. In re-examination Mr Poon explained that the primary vitrectomy is an invasive procedure entailing a risk of infection, and that the tractional forces consequent on the introduction of a blunt instrument into the eyeball lead to the risk of retinal tears. This risk would be the same if the vitreous was attached or, as he put it, partially detached. Further, Mr Poon explained in evidence that with a primary vitrectomy the surgeon *expects* to perforate the eyeball (c.f. with the cryo buckle procedure, and in particular a thin sclera, this is only a recognised *risk*). The perforation of the sclera carries with it the risk of complications attendant on the need to repair a friable or fragile sclera - in a patient with EDS.

34. Paragraph 3 of Mr Poon's supplemental witness statement says:

> "In any event, I spoke to the Claimant prior to the operation and examined his eye. Upon examination I noticed an atrophic retinal break with attached vitreous. Also of relevance was the fact that examination of the sclera did not reveal any abnormalities or any areas of obvious thinning."

35. In cross-examination, Mr Poon could not be sure whether this examination took place on 2nd or 7th September 2010, but he was adamant that he would not have embarked on a procedure for which he was responsible without conducting a slit lamp examination of the patient's eye in order to confirm the diagnosis and reach a final decision on the operative procedure. Mr Poon said that he would also carry out a further examination with an indirect ophthalmoscope when the patient was under general anaesthetic.

36. Whenever this pre-operative examination was carried out, assuming that it was, no clinical note exists. It follows that Mr Poon's evidence to the effect that he diagnosed an atrophic retinal break and attached vitreous is either based on sound recollection of what he observed, or is *ex post facto* reconstruction, grounded in part on reading at least the key clinical notes before preparing his witness statement, coupled with his standard practice. Mr Poon was able to make the point that the clinical notes for 25th August 2010 clearly show atrophic holes, but he agreed that he could not say one way or the other whether those notes were available to him in September 2010.

37. Had those notes been available (or had there been a conversation between him and Mr Schultz), I consider that there would be force in Mr Poon's observation that, had he concluded that the Claimant's vitreous was detached (contrary to the inferences to be drawn from the notes, and Mr Schultz's view) he might well have made a note to that effect. However, I am not prepared to draw the inference that, because there is no note, it should follow that Mr Poon's apparent recollection that the Claimant's vitreous was attached is reliable. In this context, I should also bear in mind Mr Poon's evidence, rather contrary to Mr Schultz's, that the clinical judgment of Mr McConnell should be thoroughly discounted. The issue arises as to whether Mr Poon's summary despatch of the views of a senior colleague should lead me to regard his evidence with circumspection.

38. The same sort of forensic observation might be made in relation to Mr Poon's evidence that he was aware of the Claimant's EDS. However, he did tell me that he has a clear recollection of the Claimant specifically telling him that, and EDS is a rare condition. The inherent probabilities favour Mr Poon on this point to the extent that, if there had been a discussion between Mr Schultz and Mr Poon, the Claimant's EDS would have been raised; had the clinical notes for 25th August in fact been made available to him, he would have seen the reference to EDS; and had Mr Poon learned about the Claimant's EDS only after the operation, he would surely have remembered that.

39. On the other hand, the issue does arise as to the reliability of Mr Poon's evidence that he can specifically remember (without any contemporaneous note) that the Claimant's sclera pre-operatively exhibited no signs of obvious thinning. This evidence, it seems to me, falls into the same category as Mr Poon's evidence that the Claimant's vitreous was observed by him to be attached. Mr Poon did not tell me, for example, that had these findings been different (e.g. detached vitreous and/or frank evidence of scleral thinning), he would have embarked on a different procedure.

40. Mr Poon also told me that when he took over the procedure from Mr Jaffree he can recall that the vitreous in this specific quadrant of the Claimant's left eye was still attached. He did not make a formal note of this finding, because it was not relevant. The status of the sclera elsewhere was outside Mr Poon's concern. Under cross-

examination it became clear that what Mr Poon was really referring to was his need to peel the vitreous away from the retina, and induce a PVD, in other quadrants of the Claimant's eye. He needed to do this in order to gain access to the now incarcerated or extruded retina. In other words, Mr Poon gave clear oral evidence to the effect that the status of the sclera elsewhere *was* within his concern. If I accept this evidence, notwithstanding that it contradicts Mr Poon's supplementary witness statement, it clearly militates against there being a PVD in those quadrants. That said, Mr Poon agreed with me that he could not exclude the possibility of the Claimant already having a partial PVD in the locus of the retinal detachment, namely in the infero-temporal quadrant. Whether Mr Poon should have accepted the proposition that I was putting to him will need to be assessed in the light of the Defendant's expert's evidence that the concept of a "partial PVD" is heterodox.

41. Mr Poon was taken in cross-examination to a number of documents which tended to indicate that he believed at the time that the reason that the Claimant's sclera was thin and vulnerable was his EDS. Mr Poon was far too slow in accepting that this was the obvious interpretation to be placed on this material, in particular as regards the information he provided to Ms Hudson when she was answering the Claimant's letter of complaint on 5th April 2012.

The Expert Evidence

42. I heard expert evidence from Mr Paul Rosen, FRCS FRCOphth (for the Claimant) and Mr Robert Cooling, FRCS FRCOphth (for the Defendant). Both are eminent and experienced vitreoretinal surgeons.

43. In the event, the differences between the experts have narrowed as this litigation has progressed. This is because both experts have modified their opinions during the discussions leading to the joint statements. In his report, Mr Rosen made no mention of the status of the vitreous (in terms of its being detached or otherwise) as being relevant to the nature of the surgical intervention. In his report, Mr Cooling accepted that scleral thinness and fragility are associated with inherited connective tissue disorders, with the clear implication that the Claimant fell into this category.

44. In my summary of the evidence of both experts, it is convenient to deal first of all with the PVD issue before moving on to the second issue, which is more technical.

The Evidence of Mr Rosen

45. Mr Rosen has not examined the Claimant's eyes, but his clinical assessment based on all the available material is that the Claimant is likely to have had a PVD in his left eye in August 2010.

46. Mr Rosen was taken through the clinical notes and accepted that some of them made no mention of PVD. He did not accept that a general ophthalmologist could not reliably diagnose a PVD, although did agree that a specialist in vitreoretinal matters would provide a better interpretation of the results. His explanation for the omissions

in the notes was that old or previously diagnosed signs would not necessarily be recorded. In cross-examination Mr Rosen agreed that myopic eyes may make PVD more difficult to diagnose, but he said that the problems were the same for both generalists and specialists. He also agreed that the presence of the Claimant's syneresis and floaters could create confusion.

47. It was put to Mr Rosen that the fact that the Claimant's retina became incarcerated after the surgeon's suture went through the wall of his left sclera rendered it more likely that the vitreous was attached. He raised the counter-argument that if the retina was supported by the vitreous gel, it would be less likely to become incarcerated.

48. In Clinical Features and Surgical Management of Retinal Detachment Secondary to Round Holes, Ung et al, *Eye*; 2005; **19**: 665-9, the authors examined the cases of 110 patients with round hole detachments. In 95 of these the posterior hyaloid was found to be attached (i.e. there was no PVD). Mr Rosen's explanation was that the study was biased towards younger patients who would be less likely to have PVD. However, a similar finding was noted in Retina, Fifth Edition, Volume III, Section 2, Chapter 105 (By G. William Aylward). Mr Rosen agreed that myopes have a higher incidence of PVD (although the majority of myopes do not develop them). Mr Rosen also agreed that he would not expect a 35 year old, being the age of the Claimant when PVD was first diagnosed in 2001, to suffer a PVD.

49. Mr Rosen suggested that the Claimant's vitreous might have been partially detached, and that the process of vitreal detachment could be slow. Although a diagnosis of PVD is made by visualisation of the posterior hyaloid face, how much of the vitreous is in fact detached can only be ascertained at surgery. For example, there may be places along the posterior hyaloid where the vitreous remains adherent, notwithstanding that it has come away elsewhere. Mr Rosen postulated that had the Claimant's vitreous been detached in the infero-temporal quadrant, where his retinal detachment occurred, but attached elsewhere, the surgeon would have found it easier to free the attached areas because the relevant pathological process would have started in those areas.

50. Moving to the second issue, Mr Rosen's basic position in his written evidence and evidence in chief was that, in otherwise normal eyes, the ability to reattach the retina and to avoid complications does not differ materially as between these two procedures. In a normal eye with PVD, primary vitrectomy is the procedure of choice but it is not mandatory. The primary vitrectomy is easier to perform in these circumstances (in particular, the vitreous does not need to be peeled away from the retina, and even in a case of partial PVD, the peeling is less difficult), and the risk of damage to the sclera and incarceration of the retina is avoided. With an abnormal sclera (owing to EDS or pathological myopia), the existence of PVD renders a primary vitrectomy mandatory because the risks attendant on the cryo buckle procedure are unacceptable. The use of primary vitrectomy has increased dramatically over the last 20 years, and the foregoing matters explain why it has become so popular. The Claimant was highly myopic and, given that his axial length (in lay terms, the length of his eyeball) was just under 26.5 mm, he was only a shade under the benchmark for pathological myopia and should be regarded to all intents and purposes as fulfilling that criterion. Further, there is an increased incidence of high myopia in patients with EDS.

51. As Mr Rosen encapsulated the matter in the joint statement:

> "The surgeons considered pre-operatively that someone with EDS may have scleral fragility and therefore chose a procedure … which was going to be associated with more risk in this situation than vitrectomy. There was no advantage in carrying our scleral buckling, only disadvantage."

52. Mr Rosen said that the Claimant clearly has some form of connective tissue disorder, with EDS Type III being the preferred, albeit not certain, diagnosis. As he put it, "we are all taught that EDS leads to ocular fragility". In his opinion, there was a high index of clinical suspicion that the Claimant's sclera was fragile, owing to his EDS and/or his high myopia. This was a function of scleral thinness and/or abnormality of tissue. Mr Rosen did accept that cryotherapy may render the sclera friable.

53. Mr Rosen assisted me with a number of papers which addressed the surgical repair of retinal detachments in patients exhibiting various clinical signs.

54. In Management of Primary Rhegmatogenous Retinal Detachment with Inferior Breaks, Sharma et al, *Br J Ophthalmol 2004*; **88**: 1372-7, the authors noted that there was no overall consensus on the most effective methodology. The selection of the operative technique depends on a number of factors, including the position of the break. On the second page of this paper appears a flow-chart showing that in the presence of an attached vitreous the procedure of choice is the cryo buckle procedure. If the breaks are treatable by indentation (and Mr Rosen agreed that the Claimant's round hole breaks were), then the same procedure is appropriate. If not (e.g. if the breaks are too numerous, too posterior, too large), then primary vitrectomy is the appropriate surgical method. To be fair to the Claimant, however, this paper makes no mention of connective tissue disease.

55. In Surgical Management of Rhegmatogenous Retinal Detachment: A Meta-Analysis of Randomized Control Trials, Soni et al; *Ophthalmology 2013*; **120**: 1440-7, the authors noted that there were no real differences in terms of outcome between the two procedures. In their discussion they made the following points:

> "… there is no general consensus on the best surgical approach. Recent trends seems to favour PPV over SB, especially for pseudophakic RRD. It is suggested that PPV affords a better ability to visualise all retinal breaks and tears and removal of media opacities and synechiae. Arguably, PPV also offers an opportunity to relieve the vitreous traction that is believed to result in a breach in the retina leading to a retinal detachment. With the advances of smaller-gauge … sutureless vitrectomy techniques, surgical trauma is less … However, PPV is also associated with higher rates of lens trauma, cataract progression, PVR, and iatrogenic breaks and requires postoperative patient positioning. Scleral buckling surgery has long been considered the "gold standard" in treatment of uncomplicated RRDs. Final anatomic success rates have consistently been rated as greater than 94% … Commonly reported complications of SB include [these are listed]"

It should be added that the Claimant's atrophic holes did not entail, or cause, traction of the vitreous.

56. Mr Rosen was also taken to Primary Vitrectomy in Rhegmatogenous Retinal Detachment, Retina, Fifth Edition, Volume III, Section 2, Chapter 102 which, it seems to me, is on very similar lines. Again, Chapter 113 of the same publication offers the following advice to surgeons operating on those with high myopia:

> "A RRD must be treated with a scleral buckling procedure or vitrectomy combined with gas or silicone oil tamponade, as for non-highly myopic retinal detachment. Scleral buckling is the first choice for retinal breaks with non- or minimal vitreous traction and vitrectomy for significant traction from the vitreous."

57. When cross-examined on this paper, Mr Rosen made the point that suturing is not an essential part of a primary vitrectomy (and Mr Cooling agreed), and in any event that when closing a vitrectomy wound this is not done under tension. The experts were agreed that later paragraphs in this paper do not set up reasons for not doing a vitrectomy; rather, they expound reasons for not doing a vitrectomy with self-sealing incisions.

58. In Scleral Rupture during Retinal Detachment Surgery: Risk Factors, Management Options, and Outcomes, Tabandeh et al; *Ophthalmology 2000*; **107**: 848-52, the authors commented that scleral rupture through inadvertent placement of the suture occurs in 5% of cases, and is usually associated with high myopia and thin sclera. Cryotherapy was also noted to be a risk factor. However, this paper does not support the proposition that the risk is greater with cryo buckle. On the other hand, the paper does not directly address the issue of the preferred procedure for patients with connective tissue disease.

59. In Is it time to call time on the scleral buckle? by David McLeod, *Brit. J. Ophthal (2004)*; **88**: 1357-1359, the distinguished author underscored the risk of complications consequent on the cryo buckle procedure, but opined that it was premature to sound its death-knell and that "for the present, vitrectomy remains contraindicated for RRDs with no posterior vitreous detachment". Mr Rosen did not disagree with Mr McLeod's view. It should also be noted that the author's guarded remark about the cryo buckle procedure being possibly dead and buried was confined to cases of fresh RRDs with tractional breaks, which is not relevant to the Claimant's atrophic holes.

60. In the Ung et al study, 91% of the retinal detachments were repaired using the cryo buckle procedure, and all but one of these were successful (in terms of reattachment of the retina).

61. Faced with all this material, Mr Rosen could and did not argue that he could point to something in the literature which mandated the deployment of primary vitrectomy for those with EDS. His riposte was as follows:

> "The number of cases of EDS are small. The number of cases of RRD in EDS are even smaller. I am basing myself on clinical logic."

62. Although Mr Rosen accepted that there was room for clinical judgment in this situation, his basic thesis was that there is (or was in 2010) perceived to be an unacceptable risk of scleral fragility and/or abnormality in those with EDS.

63. Mr Rosen was asked about the evidence base in the literature supporting the link between scleral fragility and/or abnormality and EDS, in particular EDS Type III. It would be fair to say that the evidence base is somewhat exiguous.

64. Mr Rosen referred to a series of case studies (Management of Retinal Detachment in Osteogenesis Imperfecta, Elliott et al, *Arch Ophthalmol 2003*; **121(7)**: 1062-4) OI is a genetic disorder of connective tissue characterised by, amongst other things, blue (or fragile) sclerae. With one of these patients, it became evident at an early stage of an attempted cryo buckle procedure that this mode of repair would not be possible, owing to scleral weakness. The authors observed that clinically, as opposed to genetically, OI is grouped with other heritable disorders including EDS. However, Mr Cooling opined, and I accept, that this is a gross over-simplification. In Serious Ophthalmological Complications in the EDS by Peter Beighton, *Brit. J. Ophthal (1970)*; **54**: 263, the author considered EDS in the round and noted that, although serious ocular complications are rare, there are examples of cases of blue sclerae and undue scleral fragility (7 out of 100 cases). On my understanding, at the time Mr Beighton was writing the primary vitrectomy was not available. The author also postulated that these complications may only be related to an uncommon recessive ophthalmological form of EDS, which (I interpolate) is highly unlikely to be pertinent to this Claimant's case. On my understanding of this paper, no specific mention was made of EDS Type III.

65. The only reference in the ophthalmic literature to EDS Type III is Ocular Features in Joint Hypermobility Syndrome/Ehlers-Danlos Syndrome Hypermobility Type: a Clinical In Vivo Confocal Microscopy Study, Gharbiya et al, *Am J Ophthalmol 2012*; **154**: 593-600. This paper is somewhat technical but the authors were measuring corneal thickness in a relatively small number of patients, and no significant differences between these patients and the controls were found. The authors did discover a greater incidence of high myopia and vitreous degeneration in the patient group, and hypothesised that these may be due to changes in the structure and composition of the sclera. However, I disagree with Mr Rosen that this hypothesis, as far as it went, supported the proposition that patients with EDS Type III were likely to exhibit abnormalities in the structure of their sclera which could lead to greater fragility. Mr Rosen also observed that corneal thickness could not be equated with scleral thickness. Whether or not this is so, and Mr Cooling disagreed, this paper cannot be regarded as containing positive evidence that EDS Type III is associated with a greater incidence of fragility or friability of the sclera.

66. Although Mr Rosen never deviated from his contention that the Claimant had a higher risk of scleral thinning and/or abnormality, he did accept that no diagnosis of blue sclera was ever made in his case, including by doctors at Moorfields Eye Hospital.

67. Perhaps the paper which provided the best support, at least at first blush, for Mr Rosen's argument is Retinal Detachment in Ehlers-Danlos Syndrome, Bodanowitz et al; *Ophthalmology 1997*; **94**: 634-7. In this paper the authors were specifically considering EDS Type VI, which is the rare autosomal recessive ocular type. (The

Claimant's EDS Type III is likely to be autosomal dominant). The authors made the following observation:

> "If EDS is present without substantial scleral thickening, RRDs can be successfully rehabilitated by episcleral buckles. If scleral thinning ("blue sclerae") occurs during EDS [NB. this paper has been poorly translated from the German. This should read, "as a result of EDS"], then the buckle procedure invariably results in loss of vision or the eye due to scleral lacerations and choroidal haemorrhage."

68. In such cases, the only feasible intervention is primary vitrectomy. However, the authors were not saying that this is the mandatory procedure for all cases of EDS Type VI. What they were saying, in as many words, was that EDS Type VI carries with it an enhanced risk of scleral thinning, the surgeon must be astute to that risk, and if the sclera is seen to be blue either pre- or intra-operatively, then the cryo buckle should not be attempted. On the other hand, in the absence of such a finding, the cryo buckle is appropriate.

The Evidence of Mr Cooling

69. Mr Cooling gave a number of reasons in support of his contention that the Claimant did not have a PVD in his left eye in August 2010. First, atrophic round hole retinal detachments (RRD, Type 1) entail no traction of the vitreous on the retina, and are not usually associated with PVD (Mr Cooling resiled in his evidence from the use of the adverb "invariably"). Secondly, the diagnosis of an attached vitreous was made by two experienced vitreoretinal surgeons. Thirdly, a PVD in the vast majority of cases is a condition of rapid onset, and one which is extensive not partial. Mr Poon has said that the Claimant's vitreous was attached when he entered the latter's sclera, and that he had to detach it. Moreover, the most persuasive explanation is that the attached vitreous had caused retinal tissue to pass through the iatrogenic hole. Fourthly, it is not uncommon for inexperienced ophthalmologists to over-diagnose PVDs, particularly in highly myopic eyes where the boundary between the retina and the vitreous is thin and reticulate. The architecture of the myopic eye, and the presence of lacunae, render the interpretation of PVDs difficult. Finally, when Mr Cooling examined the Claimant's right eye on 28th August 2015, he found (contrary to the view of the doctor who examined him in April 2010) no evidence of a PVD, but could understand why someone might have made such a diagnosis.

70. Under cross-examination, it was put to Mr Cooling that his answer to one of the questions put to the experts for the purpose of preparing their joint statement does not mention the status of the Claimant's vitreous. Although this is correct, paragraph 1 of his report had referred expressly to there being "no evidence of PVD". This was a correct statement as regards what was seen (or not seen) in August and September 2010, but it obviously overlooked the diagnoses made on four occasions since 2001. In his report Mr Cooling did not comment on their correctness.

71. Even if the Claimant did have a PVD in his left eye, Mr Cooling told me that a primary vitrectomy was not mandated. There are differing options for high myopes

with PVD and RRD; and, as he put it, "a lot of debate over the years in relation to the accompanying risks". As the safety of the primary vitrectomy has improved, opinion has slowly shifted in its favour but (I infer) even now it has not become mandatory. The risks of primary vitrectomy should not be downplayed.

72. Mr Cooling said that, although he is not an expert in EDS Type III, he has considerable experience of those with Marfans and inherited connective tissue disorders. In his view, EDS Type III is a "pretty benign condition" with no evidence of a greater incidence of scleral fragility and/or abnormality. Its sole relevant association is with a higher incidence of myopia. Mr Cooling told me that no one had found any affirmative evidence of thinness, fragility or friability in the Claimant's left eye (manifested in blueness of the sclera). He did however accept, in line with Mr Rosen's view, that sclerae may be thin etc. in the absence of evident blueness.

73. In Mr Cooling's opinion, a cryo buckle was a reasonable procedure to undertake in the circumstances of the Claimant's case, for the following reasons. First, this was a Type I RRD in the infero-temporal quadrant. Secondly, the "status of the eye in the course of the procedure" did not require any different approach. Here, I take it that Mr Cooling was referring in particular to the absence of patent blueness of the sclera. Thirdly, a balancing of the risks of both procedures could lead a reasonable vitreoretinal surgeon to conclude that either procedure was appropriate. Finally, Mr Cooling referred to what he called the status of the vitreous, which he said informs the surgeon of the pathogenesis of the RRD and how he might treat it. Here, I take it that Mr Cooling was referring in particular to whether or not the vitreous was attached.

74. Paragraphs 4,5 and 8 of Mr Cooling's report are relevant, and I set these out in full:

> "Scleral thinning is commonly encountered in the pathological or highly myopic eye and is often found to be localised and directly related to the area of retinal pathology. Pathological myopia does not exclude an external approach but is associated with an increased risk of scleral rupture or suture penetration at the time of surgery.
>
> Scleral thinning and friability of the sclera associated with inherited connective tissue disorders and scleral inflammatory disorders is also recognised as a significant risk factor in rupture of the sclera in the course of retinal reattachment surgery (Tabandeh et al)
>
> …
>
> The nature and extent of the scleral thinning and friability discovered in the Claimant at the time of the original surgery is unclear from my reading of the operative record and other documentation."

75. Paragraph 14 of Mr Cooling's report refers to the potential risks of scleral weakness "seen in high myopia and selected types of EDS" (here, no doubt, Mr Cooling might wish to emphasise the adjective "selected").

76. Inevitably, Mr Cooling was closely cross-examined about these passages. Their more natural reading is that Mr Cooling was saying that the Claimant's EDS induced him to a greater risk of connective tissue disorders with relevant ocular complications. Had Mr Cooling's attention been drawn both to paragraphs 10 and 14 of his report, he might have dealt with Mr Trusted's questions by observing that the Claimant's EDS Type III placed him in a different category of case, but he was not. In any event, the question would still properly have arisen as to why Mr Cooling mentioned scleral thinning in the context of EDS if this was irrelevant to the Claimant's case and circumstances.

77. In the absence of pre-operative investigations which can reliably assess the fragility of the sclera, it was Mr Trusted's point to Mr Cooling that the risk of the cryo buckle procedure was unacceptably high. Mr Cooling did not agree. In my view, the most that Mr Trusted might derive from these paragraphs of Mr Cooling's report is that he was accepting the risk, but not that it subsisted at an unacceptable level.

78. Mr Cooling was clear that Mr Poon's belief that the Claimant's EDS caused his scleral friability was simply wrong. He also opined, although he was less clear about it, that cryotherapy may have caused the Claimant's scleral friability (Mr Rosen was in profound disagreement with him hereabouts). He explained that the literature, insofar as it exists, supports the proposition that in EDS Type VI the structure and composition of the sclera may contribute to axial myopia, and not to any relevant abnormality in the consistency of the sclera.

79. In my judgment, Mr Cooling has probably changed the direction of his emphasis between writing his report and giving evidence before me. In his report, he probably was subscribing to the generally held view that EDS, particularly where high myopia is also present, increases the risk of relevant ocular pathology. In fact, the Tabandeh et al paper which he cited in support of that view does not, at least on my reading of it, vindicate it. The likely explanation is that Mr Cooling has undertaken further research since writing his report, and has come to the clearer conclusion that the evidence base in support of the contention that EDS Type III is associated with a greater incidence of relevant ocular pathology is, at best, scanty.

80. At the conclusion of his evidence, I asked Mr Cooling whether a cryo buckle would have been an acceptable procedure to undertake had the Claimant received a previous diagnosis of EDS Type VI. The purpose of asking that question was to test Mr Cooling's reasoning in a context where the association between EDS and relevant ocular pathology is more robust. To my mind, Mr Cooling was rather slow in understanding the point of the question. Eventually, however, he returned to the paper by Bodanowitz et al which he argued supported the viewpoint that a risk of a friable/thin procedure was insufficient without more to preclude the cryo buckle; what was required was specific evidence of pathology in the form of a clinical finding of a blue sclera. This answer was naturally predicated on the proposition that the bare risk, without clinical substantiation, could not be quantified as being unacceptably high.

The Claimant's Case

81. Mr Trusted submitted that both the Claimant and Mr Rosen were straightforward witnesses whose evidence I should accept. In particular, he said that I should accept the Claimant's evidence, insofar as it went, that Mr Poon carried out no medical examination pre-operatively. As for Mr Rosen, Mr Trusted emphasised that he made appropriate concessions both in his report and in the witness box. For example, in the light of one of his concessions the Claimant was no longer maintaining that it was Bolam negligent not to carry out a primary vitrectomy solely on the basis that his left eye was pathologically myopic.

82. Mr Poon, on the other hand, was a poor witness whose evidence should not be accepted. I have already mentioned some of my concerns with Mr Poon's evidence, but Mr Trusted added that his operation note was unacceptably poor, and he was overly willing to blame the system at his hospital and consultant colleagues. Mr Trusted invited me to find that neither Mr Poon nor Mr Jaffree carried out a pre-operative eye examination of the Claimant.

83. Inevitably, Mr Trusted accepted that Mr Schultz was a more reliable witness than Mr Poon, but he maintained a number of criticisms of him and his evidence, in particular that he failed to mention in his witness statement the diagnosis of PVD made by other clinicians, and that he could not remember whether or not he had a discussion with Mr Poon about the Claimant's case between 25th August and 2nd September 2010.

84. Mr Trusted submitted that Mr Cooling was not impartial in his approach to this case. Although it was not a pleaded issue, it was surprising that his report could say that there was no evidence of PVD in the Claimant's left eye, when the clinical record indicated otherwise. Mr Cooling was overly supportive of Mr Poon, was wrong to say in the joint statement that with round hole detachments the vitreous is invariably detached ("usually" would be more accurate, as Mr Cooling had in fact said in writing elsewhere), and was wrong to fail to recognise the obvious gist and direction of paragraphs 4, 5 and 8 of his report.

85. Mr Trusted submitted that I should find on the balance of probabilities that in August 2010 the Claimant's left eye exhibited the signs of PVD. PVD is associated with high myopia; four previous diagnoses of PVD had been made; a diagnosis of PVD is "bread and butter" for a general ophthalmologist; and, an experienced Consultant Ophthalmic Surgeon in the form of Mr McConnell made a specific, and reasoned, diagnosis of PVD in 2005. Contrary to Mr Cooling's view, and as explained by Mr Rosen in re-examination, there were no usual features of the Claimant's case rendering the diagnosis more problematic. Finally, Mr Trusted submitted that I should not conclude, as Mr Cooling said I should, that Mr Poon had been rather badgered by me into agreeing that he could not exclude the possibility of a partial PVD in the infero-temporal quadrant. Rather, Mr Poon was right to make this concession.

86. Mr Trusted submitted that I should find as a fact both that the Claimant's sclera was friable at the time of his operation in September 2010, and that the cause of this state of affairs is likely to have been his EDS, as Mr Poon clearly believed to be the case.

87. In any event, Mr Trusted submitted that Mr Rosen was correct in advising the court that "clinical logic" militated in favour of a primary vitrectomy and excluded the cryo buckle. Given that (i) the risk of a fragile sclera was well understood, (ii) in the absence of a blue sclera, the surgeon could not tell in advance whether the sclera is in

fact fragile, and (iii) the consequences are so severe (see Bodanowitz et al), the only reasonable and logical course was to obviate that risk by choosing the less risky procedure. No good reason has been advanced for eschewing the safer procedure. Finally, Mr Trusted submitted that I should reject Mr Schultz's reasons for recommending a cryo buckle for the same reasons as I should reject Mr Cooling's, and accept Mr Rosen's.

The Defendant's Case

88. This has been effectively and convincingly advanced by Ms Anna Hughes for the Defendant. Given that I have reached the conclusion that the majority of her submissions should be accepted, it is unnecessary in my view to set out her submissions in any detail. Ms Hughes's submissions are available in writing should it become necessary at any subsequent stage to examine them.

The Governing Legal Framework

89. The legal test governing attributions of breach of duty in the field of professional negligence is familiar. In Sidaway v Governors of Bethlem Royal Hospital [1985] AC 871, at 895B, Lord Diplock expressed the test in these clear terms:

> "In matters of diagnosis and the carrying out of treatment, the court is not tempted to put itself in the surgeon's shoes; it has to rely upon and evaluate expert evidence, remembering that it is no part of its evaluation to give effect to any preference it may have for one responsible body of professional opinion over another, provided that it is satisfied that both qualify as responsible bodies of medical opinion."

90. An issue arises as to the weight, if any, that should be given to the clinical judgments of Messrs Schultz and Poon, who were not of course called to give independent expert opinion evidence in line with the various obligations set out in CPR Part 35. It is common ground that such opinion evidence is admissible: see ES v Chesterfield and North Derbyshire Royal Hospital NHS Trust [2003] EWCA Civ 1284, DN v LB Greenwich [2004] EWCA Civ 1659 and Multiplex Constructions (UK) Ltd v Cleveland Bridge UK Ltd [2008] EWHC 2220 (TCC). Although the weight to be given to such evidence is ultimately for the court, it has been emphasised that it does not have the same standing as the evidence of independent experts who have provided signed declarations in line with the CPR and the PD.

91. Mr Trusted submitted that in circumstances where a clinician's evidence runs counter to his interests or the Defendant's, I should in effect be giving that evidence the same weight as expert opinion evidence. I disagree with this mechanistic formulation. It seems to me that I am entitled to follow Mr Trusted's approach, but I am not required to assess "against interest" evidence in that manner. In this regard Mr Trusted wished to rely on aspects of Mr Poon's opinion evidence, but if I were satisfied that he was

not a particularly sound and reliable witness, it seems to me that I must have a relatively free hand in the matter.

92. To be fair to both Mr Schultz and Mr Poon, they were required by their oaths to express their opinions honestly, and as accurately as they could. However, they were not required to comply with all the preconditions and exigencies of Part 35.

Formulation of the Issues to be Determined

93. As I indicated to Counsel during the course of closing argument, I choose to formulate the key issues which arise for my decision in this case in a fashion slightly different from their preferred articulations. For example, Ms Hughes invited me to decide whether (i) in fact, the Claimant has/had a thin sclera, and (ii) if so, this is a result of his EDS Type III. Mr Trusted agreed with Ms Hughes in relation to issue (i).

94. In my judgment, the issues should be formulated in the following manner:

(i) did the Claimant have a PVD in his left eye in August 2010?

(ii) (only if the answer to (i) is "yes"), was it generally understood in the ophthalmic community in 2010 that EDS Type III carried with it a risk of a friable sclera?

(iii) was that risk such that it was Bolam negligent not to perform a primary vitrectomy?

95. Some further explanation of the second and third issues is possible. In relation to the second issue, I consider that if there existed a responsible body of clinical opinion in the ophthalmic community in 2010 that did not agree about the risk of a friable sclera, the Defendant's case should prevail on ordinary Bolam principles. I am choosing to use the epithet "friable" rather than "thin", being Mr Trusted's preference, although I remain unconvinced that there is much real difference between the two terms. That said, a thin sclera is more likely to be friable; a friable sclera could be of normal thickness. In relation to the third issue, the mere existence of a risk is insufficient for the Claimant's purposes. The nature and quantum of the risk must be such that no responsible body of professional opinion could or would support the cryo buckle procedure in these circumstances.

Discussion, Findings and Conclusions

96. I was impressed by the Claimant's evidence. He gave it in a succinct, clear and moderate fashion, and was able to disentangle his feelings from the forensic process. Even so, whether he can give a reliable account of whether or not he underwent a pre-operative examination on 7th September 2010, either by Mr Jaffree or Mr Poon, must be open to question. The same observation would apply to any witness in such circumstances. In my view, Mr Poon is unlikely to have performed any eye examination on 2nd September 2010, and I therefore find as a fact that he did not.

97. I was also impressed by Mr Schultz's evidence. For these purposes I must discount the fact that he comes across very strongly as a caring, empathetic doctor with an excellent bedside manner. I am assessing his reliability as a witness, not his general medical skills or his personability. I appreciate that I am also evaluating his reasons for deciding that the Claimant's left retina should be reattached by cryo buckle, and in carrying out the appropriate scrutiny of his reasons I will put to one side my instinctive reaction to Mr Schultz as a doctor and human being.

98. It must be clear from what I have already said that I was not impressed by Mr Poon's evidence. I do not believe that he was a dishonest witness, and some allowance should be made for the fact that he has not given evidence before. Furthermore, my impression of him is that he is the sort of person who may be good at the technical aspects of his demanding profession, but finds communication and oral expression in a public forum slightly uncomfortable. However, and these allowances having been made, Mr Poon has not approached the exercise with the punctilious care and attention to detail that was obviously required.

99. Aside from the factors I have already enumerated, I mention two more. First, in my judgment Mr Poon's operation note falls short of the standard required after a procedure which has gone disastrously wrong. It is partly illegible, unclear, confusing and, in places, perfunctory. I appreciate that a poor note does not necessarily translate into poor clinical practice, but it is capable of bearing on the issue and so I cannot and do not ignore it. Secondly, although Mr Rosen does not expressly criticise Mr Poon for delegating the carrying out of this procedure to Mr Jaffree, this is not a decision which was made in the exercise of ideal judgment. The fact that the Claimant's right eye was severely compromised, and of his EDS, meant that he really deserved to be operated on by the consultant. Again, I take this into account insofar as it bears on Mr Poon's judgment; it is not of any direct relevance to the pleaded issues.

100. Both Mr Rosen and Mr Cooling exhibited a tendency to advocate their respective cases rather than give wholly dispassionate evidence, and I have already identified those areas in their reports, and their evidence, where possible weaknesses arise. Mr Cooling has clearly done more work than Mr Rosen in identifying potentially relevant literature, and Mr Rosen's report was rather brief, and thin, for a case of this nature and complexity. Overall, on most issues I have a slight preference for Mr Cooling's evidence over Mr Rosen's, but in a case such as this it remains incumbent to approach all the issues on an individuated basis rather than by allowing myself to be dictated, or overly guided, by more general impressions and assessments. The resolution of each issue depends on a proper appraisal of the inherent probabilities and relevant expert opinion, including the literature base, and then a close examination of all the evidence germane to that issue in the light of those matters.

<u>Issue 1: did the Claimant have a PVD in his left eye in August 2010?</u>

101. In my judgment, there are three pieces of evidence which point strongly to the vitreous on the Claimant's left eye remaining attached in August 2010. I list these in their order of importance.

102. First, I accept Mr Schultz's evidence that when he examined the Claimant's left eye on 25th August, having been called out of theatre expressly for that purpose, the vitreous appeared to him to be attached. I am sure that Mr Schultz does have a good recollection of this particular patient, and would not have told me that this was so if he could not in fact recall the status of the vitreous. I reject Mr Trusted's suggestion, put to Mr Schultz in cross-examination, that he was rushed. I also accept that Mr Schultz, as both an experienced vitreoretinal surgeon and an impressive witness, is very unlikely to be mistaken about this diagnosis. The absence of a contemporaneous record made by Mr Schultz only slightly weakens the quality of his evidence in this respect. He was well aware that a note was being made by others, and no doubt needed to return to theatre. Whereas it is true that the relevant note does not say "vitreous attached", I cannot accept that it would have remained silent had there been a PVD: that would have been recorded.

103. Ms Hughes made the good point, which I accept, that Mr Schultz volunteered this information at a time when the Claimant was making no pleaded allegation about the status of the vitreous. He is not the sort of witness who would have calculated that it would be better from his point of view that he advance a case that the vitreous remained attached.

104. Secondly, I accept Mr Cooling's evidence that when he examined the Claimant's right eye on 28th August 2015 his vitreous was attached. Notwithstanding the contrary view of the junior doctor who examined the Claimant in April 2010 and found a PVD in both eyes, Mr Cooling could understand why the error was made. Plainly, this at the very least calls into question the reliability of the diagnosis of left PVD made in April 2010. It also lends some broader support to the proposition that this diagnosis is not that straightforward, recognising as I do that the ophthalmologist who saw the Claimant in April 2010 was not a consultant.

105. Thirdly, I accept Mr Poon's evidence that, during the course of primary vitrectomy (into which the operation had to be converted on 7th September), he had to detach much of the Claimant's vitreous from the hyaloid face. Although Mr Poon's evidence is unreliable in many respects, I consider that I may properly rely on it in this particular regard. Unless Mr Poon was simply making up this piece of evidence, a possibility which I reject, I should rely on it. Mr Poon succumbed to pressure from me in agreeing that he could not exclude a so-called partial PVD in the infero-temporal quadrant, but I accept the evidence of both Mr Schultz and Mr Cooling that this is a heretical concept. A partial PVD is a misnomer; it is distinct from adhesions of vitreous which occur in instances of retinal tears, irrelevant to the particular circumstances of the present case. It follows that the vitreous is likely to have been attached along the whole of the hyaloid face when this operation commenced.

106. I should make clear that I am not accepting Mr Poon's evidence that he examined the Claimant's left eye pre-operatively and could see that the vitreous remained attached. In due course, I shall set out my further findings in relation to what Mr Poon did, and did not do; but at this stage I observe that I cannot rely on his evidence that this is what he observed.

107. Much time was spent during the trial examining the ability of general ophthalmologists to diagnose PVDs, the inferences to be drawn from previous clinical notes, and the inherent probabilities of the case having regard to the Claimant's high

myopia and the incarceration of his retina during the course of this procedure. In my judgment, this evidence is of secondary relevance and importance.

108. As for the Claimant's clinical history between 2001 and 2010, I did not hear evidence from any of the ophthalmologists who examined the Claimant on those occasions, and their credentials and diagnostic abilities may only be inferred. However, I cannot accept Mr Rosen's argument that the absence of any reference in some of the records may always be explained by the fact that clinicians would tend only to note new findings. If that were the case, one would not have expected to see any reference to PVD in the left eye after the first diagnosis in 2001, unless on all subsequent occasions the examining clinician was deprived the benefit of the Claimant's notes. On the contrary, one would expect clinicians ordinarily to note their positive findings. It is possible, albeit unlikely, that all the clinicians who failed to mention a PVD in the Claimant's left eye were *prima facie* negligent. It must follow that the absence of any reference to PVD in some of the notes cuts across, although does not necessarily destroy, the Claimant's case on this issue.

109. As for the incarceration of the Claimant's retina, I slightly favour Mr Cooling's reasoning on this issue. However, without a better understanding of the biomechanical forces involved, the point does not bear close analysis.

110. The Claimant is unlikely to have had a PVD in his left eye as long ago as 2001, when he was only 35, even with his high myopia. Further, had he a PVD in his left eye by, say 2005, then the probabilities are that by 2010 he would also have had a PVD in his right eye – but we know from Mr Cooling that he did not.

111. The most compelling evidence in support of the Claimant's case comes from the clinical note and letter of Mr McConnell. I accept Mr Schultz's evidence that his practice is worthy of respect. Mr McConnell does explain his diagnosis and differentiates PVD from its false friend, or precursor, vitreal syneresis. Ultimately, however, I prefer the opinion of the experienced vitreoretinal surgeon whose evidence I heard and was able to evaluate over the evidence of the generalist from whom I did not hear.

112. I conclude on the strong balance of probability that the vitreous in the Claimant's left eye remained attached in August 2010.

113. This conclusion is sufficient for the Defendant's case to prevail on the issue of breach of duty. Given, however, the weight of evidence and submission which was brought to bear on the second and third issues, I proceed to address those too.

Issue 2: was it generally understood in the ophthalmic community in 2010 that EDS Type III carried with it a risk of a friable sclera?

114. For present purposes, it seems to me that a distinction falls to be drawn between, on the one hand, the clinical judgment or "received wisdom" of ophthalmologists, and the quality of the evidence base (as deduced from the available literature) on the other.

115. I accept Mr Cooling's evidence that the evidence base, insofar as it is directed to EDS Type III, is extremely thin. The Elliott et al paper deals with OI and not EDS (notwithstanding its tendency to equiparate the two conditions in clinical terms). The Beighton paper is old, points out that serious ocular complications are rare with EDS, and postulates the existence of an autosomal recessive sub-group which may be a "distinct ophthalmic form". The Bodanowitz et al paper is concerned with EDS Type VI. The Gharbiya et al paper is concerned with EDS Type III but provides no real support for the proposition that this disorder is associated with scleral abnormalities in the sense that the sclera is at greater risk of thinness and/or friability.

116. However, both Mr Schultz and Mr Poon clearly thought that the Claimant's EDS rendered his sclera at risk of friability, and it is also plain that Mr Poon believed that this explains why it could not be successfully sutured during the course of the operation on 7th September. I have already pointed out that paragraphs 4, 5 and 8 of Mr Cooling's report are consistent with a similar standpoint.

117. Even in the current era of evidence-based medicine, I do not accept that there is no room for clinical judgment and received wisdom, particularly in a domain where the evidence base is thin. Absence of evidence is not the same as evidence of absence. Here, of course, I am judging what the ophthalmic community thought, believed or took as received wisdom; I am not judging whether, on a rigorous empirical approach, the community was right. Overall, I accept Mr Rosen's evidence, supported by Mr Schultz, that it was received wisdom in the ophthalmic community in 2010 that a pathologically myopic patient with EDS Type III would be at enhanced risk of complications from thin and/or friable sclera.

118. In the light of that finding, it seems to me that it is strictly speaking unnecessary for me to conclude one way or the other whether the friability of the Claimant's left sclera was in fact caused by his EDS. My reasoning is that the real question I must resolve is not this straightforward factual issue but whether in all the circumstances it was Bolam negligent for the cryo buckle procedure to be attempted. If it was, then the Claimant should have had a primary vitrectomy, and no issue arises as to whether his scleral weakness *was* caused by his EDS, because both experts are agreed that a primary vitrectomy would on balance have avoided this catastrophic outcome. If it was not, then the weakness of the Claimant's left sclera is neither here nor there.

119. For completeness, however, and for the Claimant's peace of mind, I do conclude on the balance of probabilities that the friability of the Claimant's left sclera was caused by a combination of his EDS and pathological myopia. Segregation of these two statistically linked factors is both impossible and legally supererogatory. I reach this conclusion in the light of Mr Poon's operation note, which is far more consistent with a finding of systemic abnormality than damage by cryotherapy, paragraph 4 of Mr Cooling's report, and the inherent improbability of the cryotherapy being the sole or principal cause. I have not overlooked the absence of evidence (from Moorfields and elsewhere) of the Claimant's sclera appearing to be blue or thin. As the experts have both recognised, this does not exclude the possibility of scleral abnormality.

Issue 3: was that risk (sc. of scleral friability) such that it was *Bolam* negligent not to perform a primary vitrectomy?

120. In cross-examination, but not in his witness statement, Mr Schultz clearly explained why he thought that the cryo buckle procedure was appropriate to the Claimant's case. But Mr Schultz was not the surgeon who actually performed this procedure, and the issue arises as to what weight, if any, I should give to Mr Schultz's opinion.

121. As I have already pointed out, Mr Poon has given unreliable evidence in this regard. For the avoidance of any doubt, I cannot rely on the reasons and reasoning advanced in his first witness statement as being those which actuated his decision-making process. I cannot accept that Mr Poon has a reliable recollection of (i) discussing the Claimant's case with Mr Schultz, (ii) carrying out any pre-operative examination, and (iii) coming to the independent conclusion that a cryo buckle procedure was appropriate to the Claimant, for any given reasons.

122. However, although I cannot rely on the reliability of Mr Poon's recollection in these respects, there is other salient evidence to which the Defendant may point, as well as a series of inferences which may properly be drawn from all the material before me.

123. Although Mr Schultz has fairly said that he has no recollection of specifically discussing the Claimant's case with Mr Poon, I consider that it is more probable than not that he did so, in line with his usual practice founded on basic courtesy and, I would add, sound principles of teamwork in any unit. I find as facts that Mr Schultz told Mr Poon that the Claimant was a patient with EDS and a left-sided RRD Type 1 (atrophic round holes) in the infero-temporal quadrant, that there was no evidence of scleral thinning at examination on 25th August, and that it had been his intention to perform a cryo buckle. I have no doubt that Mr Schultz told Mr Poon that the Claimant had poor vision in his right eye. I doubt whether Mr Schultz explained his reasons in support of this procedure; there would have been no need for the matter to be discussed, since both members of this team well understood what each other did, and why.

124. I make no finding as to whether any clinical notes were available to Mr Poon on 7th September.

125. The Claimant's evidence is that he saw both Mr Jaffree and Mr Poon pre-operatively. I accept that evidence. I find as a fact that on this occasion the Claimant told Mr Poon about his EDS, something which the latter already knew about.

126. I am less clear as to whether Mr Poon carried out a pre-operative examination as he said he did, but ultimately I have come to the conclusion that either he or Mr Jaffree did so. It is more probable, in my view, that this examination was performed by the man who was to conduct the procedure. Mr Jaffree probably did discuss his findings quite briefly with Mr Poon, and confirmed that nothing had changed. Relevantly, in my judgment, Mr Jaffree was present on 25th August and would well have understood Mr Schultz's plan, and the reasons for it. Accordingly, there was no need to depart from the therapeutic and surgical choices which had been made by Mr Schultz.

127. Although it follows from the foregoing that Mr Poon personally probably did not carry out any pre-operative procedure, I am satisfied that once the operation commenced he took the opportunity to examine the Claimant's left eye and reassure himself that the plan was correct. I accept his evidence that one way or another he would not have allowed Mr Jaffree to proceed without carrying out an examination.

For the reasons I have already given, I do not conclude that Mr Poon can give a reliable account of what he saw, or did not see, but I do draw the inference that he witnessed nothing which caused him to believe that the pathway set by Mr Schultz should be departed from. That pathway was, in my view, far from being set in stone; it could yield to a change in circumstances.

128. In reality, it is unnecessary for me to examine whatever independent reasons Mr Poon might have had for performing a cryo buckle procedure. Adopting a suitably parsimonious approach, reflecting my concerns about Mr Poon generally, it is sufficient for me to hold that Mr Poon did not consider that he had any reasons for disagreeing with Mr Schultz. It follows, in my judgment, that my focus may properly be directed to the six reasons Mr Schultz advanced in cross-examination. These reasons fall to be examined through the prisms of (i) the expert evidence I received, and (ii) the available literature, making allowance where appropriate for the clinical judgment of the surgeon who actually examined this patient.

129. Mr Rosen agreed in cross-examination that there was nothing in the literature he could point to which established to the requisite Bolam threshold that only a primary vitrectomy was appropriate to the Claimant's circumstances. Indeed, I would go further. Putting aside for the time being anything particularly mandated by the Claimant's EDS, there is a mass of evidence, which I have already summarised, which would amply justify the use of the cryo buckle procedure in the Claimant's case.

130. Factoring into the balance the Claimant's EDS, does Mr Rosen's clinical logic lead to any different conclusion? In my judgment, it does not, for the following set of reasons.

131. Mr Schutz was well aware of the Claimant's EDS and believed that he had a connective tissue disorder which could affect the strength and integrity of his left sclera. Notwithstanding this, Mr Schutz even today would still opt for the cryo buckle procedure in these circumstances, and believed that at the very least a responsible body of vitreoretinal surgeons would support him. Inherent in this conclusion was/is Mr Schutz's view that, in the absence of evidence of frank scleral weakness (viz. of blueness), the risk was not unacceptably high if the operation was conducted appropriately. In my judgment, Mr Schultz's reasoning is supported by the clinical opinion of Mr Cooling - as regards the existence of a responsible body of professional opinion within the field of vitreoretinal surgery - which opinion I accept.

132. The available, scanty evidence does not support the proposition that the risk was high – in the absence of direct evidence of frank scleral weakness. Although I have already commented on the obvious disconnect between received wisdom and any evidence base in support of it, it would in my view be wholly artificial to ignore this latter category of evidence for these purposes, namely the purposes of deciding whether the cryo buckle was a reasonable procedure in objective terms. There is no evidence which supports the proposition that in EDS Type III the risk of scleral friability/thinness is high. The Beighton paper quantifies the risk in all cases of EDS as low (7:100). Further, the only reasonable interpretation of the Bodanowitz et al paper is that the *inherent* risk is not unacceptably high, and that the risk only becomes so in the presence of evidence of scleral thinning, namely blueness.

133. I have already cited the literature which shows that the cryo buckle procedure has been successfully deployed in cases where a risk of scleral thinning on account of pathological myopia would be expected. Logically, this does not provide a complete answer to a case where the issue is pathological myopia coupled with EDS Type III, but it does throw some light on it.

134. Mr Trusted submitted that the real issue to be addressed is the relativistic one of whether the cryo buckle procedure was believed to entail a higher risk than the primary vitrectomy in a patient with EDS Type III and pathological myopia. In order to do justice to that submission, I should summarise the gamut of evidence which bears on it.

135. First, Mr Rosen believes that the risk was greater. Secondly, at paragraph 4 of his report, Mr Cooling was probably saying that the risk was greater, although he resiled from that in the joint statement and in his oral evidence. Thirdly, in cross-examination Mr Schultz could not really say one way or another whether the risk was greater, although in re-examination said that the overall risk was greater with a primary vitrectomy. Fourthly, the inferences to be drawn from the available literature are unclear. The highest that the point might be put from the Claimant's perspective is the Bodanowitz et al paper gives rise to the inference that the risk of scleral penetration may well be higher in the case of a patient with EDS Type VI (for these purposes, I revert to the point that received wisdom is making no distinction between the different types of EDS), although – as I have said – the risk is not unacceptably high in the absence of a distinct clinical finding.

136. In my judgment, care is needed to specify the nature of the risk within contemplation. The focus has been primarily on the risk of scleral penetration, and I fully accept and understand how and why an unacceptably high risk of that happening should, in Bolam terms, cause a surgeon to select the primary vitrectomy. However, if the risk is not unacceptably high, and in the absence of evidence of scleral thinning or friability I find that it was not, the issue immediately becomes more nuanced. The surgeon must then bring into play all the relevant risks and benefits, not just the specific risk of scleral penetration, and perform a balancing exercise appropriate to the individual case before him.

137. Reviewing as I have done the opinions of the witnesses from whom I heard, I am far from convinced that at all material times, or sometimes at all, a sufficient distinction has been drawn between the specific risk of scleral penetration on the one hand, and the overall or composite risk of complications on the other.

138. I approach Mr Trusted's submission in stages. First, I agree with Ms Hughes that the available academic, scientific and empirical evidence does not support the proposition that in the exact circumstances of the Claimant's case the risk of scleral penetration, assessed *ex ante*, was higher using the cryo buckle procedure in contrast to a primary vitrectomy. However, as I have previously said, this cannot provide a complete answer to the relevant question. Secondly, once clinical judgment, opinion and received wisdom is factored into the equation, the question immediately becomes more difficult. My answer to this question is that the very best that the Claimant can do is persuade me that the risk of scleral penetration was believed to be higher with the cryo buckle, but there was and is room for more than one reasonable opinion on

the issue and in any event the difference in the level of risk, compared with the primary vitrectomy, was unknown.

139. That there was and is room for more than one opinion on the issue could be said to be sufficient for the Defendant's purposes on this third issue, applying standard Bolam principles. However, I am conscious of the fact that this was not a point discussed in counsels' closing arguments, and it seems to me that I should go further.

140. This brings me to the third, and critical, stage. At this juncture, the correct question is whether, in the light of the foregoing, a responsible body of ophthalmic opinion could reasonably have concluded in 2010 that the cryo buckle procedure was appropriate to the Claimant's particular circumstances. I can give a clear answer to that question, which is in the affirmative.

141. In my judgment, weight should be given both to Mr Schultz's six reasons as advanced in cross-examination and Mr Cooling's expert opinion evidence which aligns with them. If anything, and I express this conclusion with appropriate diffidence, Mr Schultz's oral evidence in support of this procedure was more convincing than Mr Cooling's. Even on my assumption that the cryo buckle procedure carried with it an unquantified, greater risk of scleral penetration, and putting to one side my conclusion that there is room for more than one opinion on the issue, the risk was not unacceptably high, and a balancing of all the advantages and disadvantages of the competing procedures fell to be carried out. This is precisely what Mr Schultz did. It is sufficient for present purposes that Mr Schultz's reasoning would have been supported by a responsible body of ophthalmic opinion. I make that finding, not least because it was strongly supported by Mr Cooling as well as the preponderance of relevant ophthalmic literature and, as I also accept, the majority of Mr Schultz's vitreoretinal colleagues at the conference he mentioned.

142. It follows that the Claimant's case would have failed even had I found in his favour on the PVD issue.

Disposal

143. There must be judgment for the Defendant.