Yeo Peng Hock Henry v Pai Lily
[2001] SGCA 72

Case Number : CA 600048/2001

Decision Date : 26 October 2001

Tribunal/Court : Court of Appeal

Coram : Chao Hick Tin JA; L P Thean JA; Yong Pung How CJ

Counsel Name(s) : Quek Mong Hua and Adeline Foo (Lee & Lee) for the appellant; Harpreet Singh Nehal, Edmund Kronenburg and Shirin Tang (Drew & Napier LLC) for the respondent

Parties : Yeo Peng Hock Henry — Pai Lily

Tort – Negligence – Medical negligence – Doctor's failure to advise patient to seek immediate specialist attention – Whether doctor negligent and/or in breach of duty of care

Tort – Negligence – Medical negligence – Causation – Doctor's failure to advise patient to seek immediate specialist attention – Resultant delay in diagnosis and treatment leading to loss of vision in left eye – Whether doctor's negligence and/or breach of duty caused or materially contributed to patient's loss of vision on balance of probabilities

Judgment

1. This is an appeal from the decision of the High Court in which Dr Yeo Peng Hock Henry, the appellant, was held liable in damages to Ms Lily Pai, the respondent, for the loss of vision in her left eye as a result of his negligence and/or breach of duty in attending to her as his patient. Only liability was determined and the quantum of damages was to be assessed.

The facts

2. The relevant facts giving rise to the appeal are as follows. Dr Yeo is a general medical practitioner of more than 20 years experience. He graduated from the University of Singapore with the degree of MBBS in 1969. He is a member of the College of General Practitioners and a fellow of the College of Family Practitioners, Singapore. Since 1979, he has been a clinical tutor for undergraduate medical students of the National University of Singapore (NUS), and since 1996, has been a clinical tutor for post-graduate doctors sitting for the Master of Medicine (Family Medicine) degree at the NUS and also an examiner for such degree.

3. Ms Pai runs a translation business. She holds a Bachelor of Arts degree from the NUS. She had been consulting Dr Yeo in respect of general medical problems since February 1992. On 18 December 1996, she consulted Dr Yeo with complaints of fever, backache and giddiness. Dr Yeo examined her and prescribed medication. On the following morning, 19 December 1996, Ms Pai found that there was no improvement, and she went back to see Dr Yeo again with substantially the same complaints and an additional complaint of cough. Dr Yeo examined her and prescribed further medication. Ms Pai returned home, rested and took the medication as advised. However, at about 8 pm the same day, she felt that her heart was beating quickly and she was breathless and was shivering. As Dr Yeos clinic was closed at that hour, she went to another clinic, Bedok Family Clinic and Surgery, where she was seen by one Dr Teng Shi Chong. Ms Pai described her symptoms to him and gave details of her two prior consultations with Dr Yeo. She also showed Dr Teng the medication prescribed by Dr Yeo. Dr Teng noted that Ms Pai complained of fever and running nose. He found that her temperature was 37 degrees, her heart and lungs were clear and her general condition was well. Dr Teng prescribed medication, but no antibiotics were prescribed.

4. Over the next three days, Ms Pai took the medicine prescribed by Dr Teng. However, she felt the fever subsiding and returning at intervals. By the morning of 23 December 1996, she had completed the course of medicine, but she still felt feverish. She decided to return to consult Dr Yeo, as he was her regular physician. Although she arrived at the clinic at 11 am, she managed to see him only sometime past 2 pm. She complained of fever with chills, giddiness and pain over the right kneecap and for the first time complained that she had a blurring of vision and saw spots in her left eye. Dr Yeo carried out a physical examination on her. He found her not feverish, her right knee joint was not swollen and her throat was not inflamed. He also examined Ms Pais eyes and found that both pupils were equal and reactive to light and both her left and right eye corneas were clear. He then carried out a urine examination and found out that there were leucocytes (white blood cells) and blood present in the urine. There was no protein or sugar in the urine. At the end of the consultation the doctor suspected that Ms Pai had:

(a) a detached retina, and

(b) a urinary tract infection that required treatment and follow-up urine tests.

He then prescribed medication for Ms Pai, including an antibiotic called Apo-Sulphatrim and advised what she should do. As to what Dr Yeo actually advised Ms Pai to do is an issue of fact which is in serious dispute before us as well as before the trial judge. We shall refer to this material aspect of the case in detail shortly. For the moment, it is sufficient to say that the judge found that Dr Yeo did not advise Ms Pai to go immediately to see an eye specialist at the Singapore General Hospital (SGH) or Singapore National Eye Centre (SNEC), or to see an eye specialist in private practice. The judge found that he only advised her to go to SGH or SNEC, should the condition of her eye deteriorate.

5. After Ms Pai left Dr Yeos clinic, she returned home and rested. She did not go anywhere for treatment of her eye. Nor did she go to the SGH or SNEC. On the following morning, she found that her eye condition had deteriorated, and her vision had become blurred. However, she decided to wait at home for the assistance of her friend before going to the Accident & Emergency (A&E) Unit, and only arrived there at 3.20 pm. She was then seen by doctors at SGH, and was later transferred to the SNEC where she underwent a vitrectomy on her left eye on 26 December 1996. Ms Pai was found to have a liver and blood infection from the very rare but virulent bacteria called Klebsiella. Her eye infection worsened after showing some initial improvements, and she eventually lost the vision of her left eye in January 1997.

6. Some three years later, Ms Pai brought an action against Dr Yeo claiming damages for negligence and/or breach of duty on the two occasions when she consulted him, namely on 19 December 1996 and 23 December 1996. With regard to the first occasion, she claimed that, having regard to her medical history and in the context of her consultation, Dr Yeo should have carried out a urine test for urinary tract infection (which he did not), and that if he had done so, he would have found out that she had an infection and would have prescribed the appropriate antibiotics for it, which would then have prevented her from having the eye infection. In respect of this claim, the trial judge, having considered the medical evidence before him, found that as of 19 December 1996 there was nothing to indicate to Dr Yeo that Ms Pai was prone to urinary tract infection and therefore Dr Yeo was not negligent and/or in breach of duty in failing to carry out a urine test for urinary tract infection. Turning to the consultation on the second occasion on 23 December 1996, the judge found that Dr Yeo, although suspecting that Ms Pai had a detached retina, nevertheless did not advise her to go immediately to the hospital to see an eye specialist or to see an eye specialist in private practice, and that in not doing so, Dr Yeo had fallen short of the standard of care required of him as a general practitioner.

7. The judge next turned to the question of causation, i.e. whether Ms Pais eye would have been saved had Dr Yeo advised her to go immediately to the A & E Unit at the SGH, SNEC or to an eye specialist in private practice. He found that Ms Pai would have gone to the A & E Unit immediately, if she had been so instructed by Dr Yeo. She was an educated person who would have understood the health risk involved, and she was indeed concerned about her health, given that she had seen two doctors on four occasions during the seven days she was suffering from fever. Next, he found that had Ms Pai reported to the A&E Unit on the evening of 23 December 1996, as opposed to the afternoon of 24 December 1996, her eye would probably have been saved.

The appeal

8. Before us, Mr Quek Mong Hua, counsel for Dr Yeo, raises mainly three contentions. First, he submits that the trial judge erred in finding that Dr Yeo fell short of the standard of care required of him as a general practitioner in failing to advise Ms Pai to seek urgent attention to her eye at the A & E Unit at the SGH or at the SNEC or from an eye specialist in a private clinic on the basis of his preliminary diagnosis of a suspected detached retina. Secondly, he submits that, assuming that Dr Yeo was in such breach of duty, his breach was not the cause of Ms Pais loss of vision in her left eye. Thirdly, he submits that, again assuming that Dr Yeo was in breach, the loss sustained by Ms Pai was not foreseeable as a direct consequence of such breach of duty.

Breach of duty of care

9. Counsels first argument is directed at the finding of fact made by the trial judge. In the court below, Ms Pai and Dr Yeo each gave a different version of the material events that took place on 23 December 1996 at Dr Yeos clinic. Ms Pai in her affidavit evidence-in-chief said, inter alia, the following:

> 9. The Defendant examined me as he had done previously, but this time, he also conducted a urine test on me. After testing the sample I provided, he told me that there was blood in my urine. He mumbled something like he would not give me anything for my eye, and that he did not know what to do about it. The Defendant then mentioned various options that might be open for me to consider:-
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> (a) treatment at the Singapore National Eye Centre ("SNEC");
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> (b) consultation with, and treatment by, an eye specialist; or
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> (c) treatment at the Accident & Emergency Unit of a hospital.
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> 10. The Defendant did not inform me that there was any infection in my body. Neither did he tell me that I needed treatment through any of the above options *immediately* i.e. without further delay. Neither did the Defendant inform me that my condition was serious or that I required immediate medical treatment above and beyond the medical treatment that he could provide in his own skill and expertise, at his clinic.
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> 11. Instead, the Defendant simply prescribed me some medication and wrote a note for me to undergo a blood test at a polyclinic after Christmas, i.e. 25

December 1996.

10. On the other hand, Dr Yeo said he told her that she required to see an eye specialist urgently. The material part of his affidavit evidence-in-chief was as follows:

> 10. I informed her that she required an urgent referral to see an Eye Specialist and that she had to go to the Accident and Emergency ("A&E") Unit of Singapore General Hospital ("SGH") where there is an eye specialist on duty after the SNEC closes.
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> 11. At the end of the consultation, it was already past 1600 hours. Therefore, it was not possible to refer her to the SNECs specialist outpatient clinic or any private eye specialist clinic on that day as the clinics would probably be closed by the time she reached them. Hence, the earliest appointment could only be the next day on 24 December 1996 and that, in my opinion, would have been inadvisable.
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> 12. As a result, I explained to the Plaintiff that she had no choice but to go to the A&E Unit of SGH immediately. I wrote her a referral letter to bring to the A&E Unit of SGH. I did not keep a copy as it is not my clinics practice to keep copies of referral letters.

11. Their respective oral testimonies on cross-examination did not materially deviate from what they had said. The judge in considering their evidence said:

> 13 This then is the sole issue of fact in respect of which the Plaintiff and the Defendant gave very different versions. The Plaintiff said that the Defendant did not advise her that her eye condition was serious or that she had to go immediately to the A&E unit of a hospital to seek treatment for it. The Plaintiff also said that the Defendant did not tell her he suspected she had a detached retina. On the other hand, the Defendant asserted that he did tell her so and that it was a serious eye condition and to go immediately to the A&E unit of SGH. The Defendant further said that the Plaintiff was not keen to do so as she had a lunch function the following day which was Christmas Eve.

He found that both of them gave their evidence in a forthright manner, and he could not find anything which they said which would lead him to the conclusion that one or the other was not telling the truth. He therefore turned to the surrounding circumstances and relied on the following objective evidence before him.

12. First, there was Dr Yeos letter to the Singapore Medial Council (SMC) in answer to a complaint by Ms Pai against him. There Dr Yeo wrote, among other things, the following:

> I informed her that if her symptoms of blurring of vision, seeing more spots persisted or if her sight deteriorated she should go to see an opthalmologist via the Accident and Emergency Unit immediately. This point was made as the next day was 24th December 1996 Christmas Eve and our clinic would be closed at noon. The next day would be 25th December 1996 and our clinic would be closed.
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> ..

> I advised her to "visit the SNEC, an eye specialist or the Accident and Emergency Unit of any hospital" if her vision persisted to be blur or if she sees more spots or any impairment of vision. In my medical record card I wrote "cannot exclude Detached Retina. To see Dr PRN" i.e. to go to the eye specialist or Accident and Emergency Unit if her sight remained blur or deteriorate.

13. Secondly, in his medical record card in respect of his attendance on Ms Pai in the afternoon of 23 December 1996, Dr Yeo wrote the following:

> Cannot exclude detached retina. To see Dr PRN

In his letter to the SMC, Dr Yeo exhibited this medical record card together with a helpful explanation of the abbreviation of Dr PRN as follows:

> PRN = when medically indicated, in this case it means when the patients vision remains blur or deteriorates to go to hospital Accident and Emergency Unit.

The judge found this explanation wholly accords with the definition given in medical dicitionary. "Pro re nata" is a Latin phrase meaning "*as needed, as required*" (Stedmans Concise Medical & Allied Health Dictionary (3rd ed)), or "according as circumstances may require" (Dorlands Medical Dictionary, USA). On the strength of this record, it would appear that Dr Yeo asked Ms Pai to seek attention for specialist treatment when that was required.

14. In evaluating this part of the evidence, the judge also considered the strange absence of logic in Dr Yeos evidence that he told Ms Pai that eye clinics and his own clinic would be closed over the Christmas festive period. If he had indeed advised on the immediate treatment on the afternoon of 23 December, there would have been no need to consider the availability of options on 24 and 25 December 1996. It appears to us that in the judges view, this comment of Dr Yeo undermined somewhat the cogency of his account of his advice to Ms Pai. The judge came to the following conclusion:

> 21 All the evidence point to the conclusion that the Defendant did not advise the Plaintiff to go to the hospital immediately and I would hold that the Plaintiffs version as to what happened at the consultation on 23 December 1996 is the truth.

15. We find that there was ample evidence to support this finding of fact made the judge. In coming to the conclusion as he did, the judge obviously accepted Ms Pais evidence. He also tested her and Dr Yeos evidence against the objective evidence before him. In our judgment, the judge was fully justified in arriving at this finding of fact and we agree with him entirely.

Standard of care

16. The next question is whether, in failing to advise Ms Pai to go immediately to the A & E Unit at the SGH or the SNEC or an eye specialist in private practice that very afternoon of 23 December 1996, Dr Yeo had breached the duty of care which he owed as a general practitioner. Before the judge, it was accepted by both parties that the test applicable in determining this issue was that laid down in *Bolam v Friern Hospital Committee* [1957] 2 All ER 118. On that test, a doctor would not be considered as negligent or in breach of duty in attending to and treating his patient, if he acted in accordance with a practice adopted as proper by a responsible body of medical men skilled in that

particular field, notwithstanding that there was a body of opinion that might or would take the contrary view. This test was supplemented by *Bolitho v City & Hackney Health Authority* [1997] 3 WLR 1151, where the House of Lords held that while assessment of medical risks was for medical experts to make, a judge could, in a rare case, disregard a body of opinion as not reasonable or responsible where it could not be logically supported. In this case, it is not necessary to consider these tests in any detail, for it was accepted by Dr Yeo that a detached retina is an emergency and any competent general practitioner would have advised the patient to go immediately to a hospital or consult an eye specialist.

17. Dr Yeos own expert, Dr Ang Beng Chong, an ophthalmologist, also testified to similar effect. Dr Ang said that detached retina is a common condition in Singapore. Approximately 200 of such cases are seen per year. He explained that retinal detachment is an emergency, and that any doctor would know that it requires urgent treatment as it could lead to blindness. Without the eye surgeon reattaching back the retina upon its detachment, blindness would follow. With regard to Dr Yeos suspicion of detached retina, Dr Ang opined that Dr Yeo should have referred Ms Pai to an ophthalmologist within 12 hours, i.e. within the working day. Sudden jerks would aggravate the detachment, as the retina would tear further and fluid would get in.

18. Thus, Dr Yeo by not advising Ms Pai to go immediately to the hospital or to consult an eye specialist, fell short of that standard of care. That was what the judge held. He said:

> 38 I have made a finding of fact that the Defendant had not advised the Plaintiff to go immediately to the hospital when she consulted him on 23 December 1996. As it is also the Defendants own case, supported by his own experts, that a detached retina is a medical emergency and any competent GP would have advised his patient to go immediately to a hospital or to an eye specialist, it would follow that in not doing so he had fallen short of the standard of care required of him as a GP.

Accordingly, the judge held that Dr Yeo was in breach of his duty of care. We agree entirely with this finding of the judge. In our judgment, the first argument advanced by counsel on behalf of Dr Yeo fails.

Causation

19. That unfortunately is not the end of the matter, for there is the issue of causation to be considered, which is the most controversial issue in this appeal. Having established that Dr Yeo was in breach of duty, Ms Pai next has to show that the breach of duty caused or materially contributed to her loss of vision in the left eye. In *Bonnington Castings Ltd v Wardlaw* [1956] AC 613, at 620, Lord Reid said:

> It would seem obvious in principle that a pursuer or plaintiff must prove not only negligence or breach of duty but also that such fault caused or materially contributed to his injury, and there is ample authority for that proposition both in Scotland and in England. I can find neither reason nor authority for the rule being different where there is breach of a statutory duty.
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> In my judgment, the employee must in all cases prove his case by the ordinary standard of proof in civil actions: he must make it appear at least that on a balance of probabilities the breach of duty caused or materially contributed

to his injury.

In this case, the plaintiff in the course of the employment by the defendants, who were engaged in the manufacture of steel casting, contracted pneumoconiosis by inhaling over a period of years invisible particles of silica, which emanated from two sources: (i) the pneumatic hammer at which he worked, and (ii) the swing grinders at the defendants foundry. At the material time, there were no known means of preventing the dust from the pneumatic hammers from escaping into the air. As for the dust from the swing grinders, extraction plant was installed to suck out the dust but it was frequently choked and was ineffective. The defendants admitted that there was a breach of the statutory duty in failing to provide an effective extracting machine. The question was whether the breach of duty caused the respondent to sustain the disease. If the disease suffered by the plaintiff resulted from his having inhaled part of the noxious dust from the swing grinders which should have been intercepted and extracted, then the defendants would be held liable. The House of Lords held that the onus of proving that the disease was caused by such breach of duty lay with the plaintiff and on the facts the plaintiff had proved that the inhalation of silica from the swing grinders materially contributed to the plaintiffs pneumoconiosis. Lord Reid said at p 621:

> The medical evidence was that pneumoconiosis is caused by a gradual accumulation in the lungs of minute particles of silica inhaled over a period of years. That means, I think, that the disease is caused by the whole of the noxious material inhaled and, if that material comes from two sources, it cannot be wholly attributed to material from one source or the other .

and later at p 623:

> In my opinion, it is proved not only that the swing grinders may well have contributed but that they did in fact contribute a quota of silica dust which was not negligible to the pursuers lungs and therefore did help to produce the disease. That is sufficient to establish liability against the appellants, .

20. Reverting to the facts in the instant case, we think that two questions arise on this issue: first, if Ms Pai had been so advised by Dr Yeo, whether she would have gone immediately to the hospital, and second, if she had gone, whether her eye would have been saved. On the first question, the judge found that, had Ms Pai been advised by Dr Yeo to go immediately to the hospital or an eye specialist, Ms Pai would have done so, as she had been having a fever over a week along with her other symptoms. The judge was clearly right in this finding. No issue was taken on this finding before us.

Endogenuous Klebsiella Endophthalmitis

21. It is the second question that poses the difficulty in this case. The core of the problem arises from the peculiar circumstances of this case. Dr Yeo, having examined Ms Pai on 23 December 1996, suspected that she had a detached retina, which is an emergency and requires immediate attention by an eye specialist. However, he did not advise her to go immediately to the hospital with a view to having it attended to by an eye specialist; nor did he advise her to go immediately to see an eye specialist in private practice. He therefore breached that duty of care. It turned out, however, that Ms Pai did not have a detached retina but had an internal eye infection brought about by the Klebsiella bacteria and the infection occasioned was Endogenous Klebsiella Endophthalmitis (EKE) which was a very rare disease. It was this infection that caused Ms Pai to lose her vision in the left eye. It is not disputed that Dr Yeo could not be faulted for failing to diagnose that Ms Pai had EKE,

for such a disease was extremely rare and could not be detected by a reasonably competent general practitioner. Certainly Ms Pai did not frame her claim on the basis that Dr Yeo had failed to diagnose that she was suffering from EKE. The substance of her claim was that Dr Yeo had failed to advise her on 23 December 1996 to go immediately to the A & E at SGH and/ or SNEC or a eye specialist in private practice, and as a result she had lost her chance of having a proper diagnosis by a specialist and the Endophthalmitis treated one day earlier, which, it was contended, would have saved her eye sight.

Finding below on causation

22. The trial judge, having determined that Dr Yeo had breached the duty of care he owed to Ms Pai as a general practitioner, found that causation was made out in this case, that is, that this breach of duty by Dr Yeo had caused or materially contributed to the loss of vision in her left eye. The judge came to this finding on the basis of the evidence Prof Rodney Cartwright, the expert called by Ms Pai, and Dr Ang Beng Chong, the expert called by Dr Yeo. The judge held:

> 42 The Plaintiffs expert, Prof Cartwright, gave a great deal of evidence on the mechanism of infection and the response of the bacteria to various antibiotics. In essence, he said that had the Plaintiff attended at the A&E Unit of SGH on 23 December 1996, her eye would probably have been saved. As the Defendants own expert, Dr Ang, was in agreement with this point, there is no need for me to go into the details of Prof Carwrights evidence.

On the basis of this interpretation of the evidence of Prof Cartwright and Dr Ang, the judge found that the actual infection would have been diagnosed and the eye saved, if Dr Yeo had sent Ms Pai to the hospital on that afternoon of 23 December 1996. He said:

> 43 It is necessary to consider the question of causation. On 23 December 1996, the Plaintiff presented herself to the Defendant. Apart from her symptoms of fever, chills, giddiness and body pain, she told him that she had blurred vision in her left eye. The Defendant examined that eye and found that the cornea was clear. From his examination he suspected that she had a detached retina. He did not advise her to go immediately to a hospital as he ought to have done if she had a detached retina. In any event it turned out he was wrong about the detached retina. The Defendant did not suspect such infection. But he cannot be faulted for that because all the experts agree that this particular infection was so unusual that it would be unreasonable to expect a GP to be able to make such a diagnosis. So here we have a situation where a doctor has failed to make the correct diagnosis, but it was not unreasonable that he should miss it completely. However he suspected a serious ailment, i.e. detached retina, but that suspicion was wrong. Yet if he had sent her to the hospital on that basis, which he ought to, the actual infection would have been discovered and the eye saved. The question is whether liability ought to attach to the Defendant in such circumstances.

and concluded thus:

> 46 . . . . . [T]here is no question that the Plaintiff bears the burden of proving her case in negligence in this case and that was the basis upon which I have made my findings. The Defendant had a duty, in contract and in tort, to advise

her to go immediately to hospital on 23 December to seek treatment for her eye and he had breached it by his failure to so advise her. There is every reason to impose liability in this case and I so hold. A GP is the first line of defence to a patient, who goes to him not just to cure ordinary coughs and colds, but also to spot the more serious illnesses that require specialist or immediate attention. It is not fair to expect a GP to be able to diagnose all urgent ailments accurately. But if he thinks a patients symptoms and signs indicate something serious and urgent, he owes the patient a duty to get her to immediate treatment. It should not make any difference whether his diagnosis of the actual condition was accurate or not. The Defendant had said that when the Plaintiff complained about the film over her left eye, he checked the cornea and pupil and found them normal. So he suspected, accurately, that the problem was with the back of the eye. Given his limited experience in this specialised area, he did not think of the bacterial infection in question. That is not to be held against him. But the Defendant knew that it was something potentially serious. As a GP, it was his duty to ensure that his patient was advised to seek immediate treatment at the hospital if he suspected or believed such immediate treatment to be necessary.

23. The judges finding on causation was challenged by Dr Yeo. The correctness or otherwise of this finding turns essentially on the medical evidence before the court, and for this purpose, it is necessary to examine and consider in some detail the material evidence of Prof Cartwright and that of Dr Ang Beng Chong respectively.

Prof Rodney Cartwrights evidence

24. Prof Rodney Cartwright holds the degree of MB Ch B from the University of Birmingham and is a fellow of the Royal College of Pathologists. He specialises in medical microbiology, and has worked as a medical microbiologist in the Public Health Laboratory Service of England and Wales for 30 years. Among the appointments he holds, he is the consultant medical microbiologist at the Mt Alvernia Hospital, Guildford, and emeritus consultant medical microbiologist at the Royal Surrey County Hospital, Guildford. He is an Honorary Visiting Professor in Clinical Microbiology at the University of Surrey. Although laboratory based, he has had an active clinical practice of seeing patients with infections on a regular basis. General practitioners and other hospital consultants have referred their patients to him. He works closely with consultant ophthalmologists and takes an active part in the development of protocols for the diagnosis and management of eye infections.

25. In his affidavit of evidence-in-chief, Prof Cartwright produced a report on this case which he had earlier prepared in answer to specific questions. In this report, he said that Klebsiella are a species of bacteria, commonly found in the gut, liver and lungs of man and animals without causing any disease. It is usually harmless in these locations. Outside the guts, the bacteria strains are associated with a variety of infections especially involving the urinary tract, liver and lungs. In the liver and lungs, abscesses may form which then act as a source for the Klebseilla to enter the bloodstream and cause a bacteraemia or septicaemia. Bacteraemia is the presence of the bacteria in the bloodstream and can result in the spread of infection to organs throughout the body including the eye. Septicaemia occurs when the bacteria in the bloodstream produce toxins that have a general effect on the body. Klebsiella invariably have a greater resistance to antibiotics than other enterobacteriaceae, and this makes treatment more difficult before the antibiotic susceptibility of an infecting strain is determined.

26. Prof Cartwright explained the effect of Klebseilla, should they travel through the bloodstream

and reach the eye. There Klebseilla may cause three types of eye infection: (i) a surface infection, conjunctivitis, (ii) secondary infection of a corneal ulcer, or (iii) an internal infection, endophthalmitis. The third type of infection is a rare complication of a Klebsiella bacteraemia secondary to an infection focused elsewhere, such as urinary tract or an abscess in the liver or lungs.

27. In Prof Cartwrights opinion, Klebsiella eye infections would come about without any specific indications as to the cause. The signs and symptoms will depend on the site of the infection in or on the eye and the length of time the infection has been present. Infection within the eye will produce impairment of vision. The degree and site of impairment will depend on the site and magnitude of the infection. Initially, there may be a blurring of vision or a veil like awareness. The onset of the signs and symptoms may be insidious which would result in the proper diagnosis being delayed. Infection in the eye will as it progresses affect the function of the pupil so that it does not react normally to light. The infective process is progressive and the speed of progress is variable depending on many factors including the part of the eye infected, the general health of the patient and the strain of the infecting bacterium. Klebsiella Endophthalmitis is likely to develop over a few days from minor symptoms to an overwhelming eye infection.

28. Prof Cartwright also expressed his opinion on the treatment of Klebsiella eye infection. He said:

> Specific treatment of the eye infection will depend on the site of the infection. Superficial conjunctiva and corneal infections can be treated with antibiotic eye drops applied locally. Infections within the eye require antibiotics to be injected into the eye. At the same time pus and fluid can be removed from the eye for diagnostic purposes. Until the causative bacteria have been grown in the laboratory and their susceptibility to antibiotics determined specific antibiotic therapy cannot be commenced. The antibiotic initially chosen will be expected to be active against a wide range of bacteria such as an aminoglycoside or one of the newer cephalosporins. Repeated injections of antibiotics into the eye may be necessary. In severe cases antibiotics will be given systematically (intravenously, intramuscularly or orally) so that they can be carried in the blood stream to the eye. Systemic antibiotics will also be usually given to treat any infection source elsewhere in the body.

29. Prof Cartwright was asked as to the latest point in time when Ms Pais eye could be saved, and he made the following general observation:

> The success of the management of infections depends on many variables and in particular the general state of the patients health, their immune responses, the site of the infection, the stage of the infection when treatment commences and the nature of the infecting organism. As with all infections the earlier the treatment is commended the greater the possibility that the infection will be successfully treated. The outcome of treating an infection can result in a total cure. When the infecting microbes are eradicated and any damage heals completely with return to the pre-infection state, or there may be resultant tissue damage with persistent scarring or fibrosis. This latter situation may prevent involved organs, such as the eye, from regaining previous function. If antibiotics had been given to Ms Pai at an earlier stage it is possible that the development of the choroidal abscess, the overwhelming endophthalmitis and the resultant scarring and destruction of the eye would have been prevented. The degree of eye involvement by the *Klebsiella* on the 23rd December is not known but the chances that appropriate antibiotic treatment at this time would have

> prevented the destruction of the eye would have been greater although it is not possible to give a probability percentage. The treatment of an acute bacterial infections is always more likely to succeed if administered early.

30. In the concluding part of his report, Prof Cartwright was asked specifically whether there was any chance that Ms Pais eye could have been saved, if Dr Yeo had insisted on her being seen by a specialist on 23 December 1996 and she was seen by the specialist. In response, Prof Cartwright said that it was not possible to give a precise answer, as the extent of the eye involvement on 23 December 1996 was not known. However, the earlier the infection was treated the greater the chances of success. If the infection was at an early stage on 23 December, it was possible that the eye could have been saved by immediate and appropriate treatment. On this important aspect of his evidence, we quote below what he said:

> It is not possible to give a precise answer to this question as the extent of the eye involvement on the 23rd is not known. However, the earlier an infection is treated the greater the chance of success. If the infection was at an early stage on the 23rd it is a possibility that the eye could have been saved by immediate and appropriate treatment.

31. The professor was subsequently asked to amplify his previous statement in the report on the treatment of Ms Pai. In particular, he was asked what the approximate chances of saving Ms Pais eye would have been if specific treatment of her eye condition had commenced on the evening of 23 December 1996 as opposed to the evening of 24 December. He said:

> (a) In this scenario, there would have been a real possibility that the eye infection would have been controlled and the destruction of the eye would not have followed.
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> (b) Published evidence on "Endogenous *Klebsiella* Endopthalmitis A Case Series" from the Singapore National Eye Centre ("SNEC") by Chee and Ang states that "if correctly diagnosed when presenting early, good vision may be preserved". The correct diagnosis would have been made if she had presented to the Singapore General Hospital/SNEC on the evening of 23.12.96.
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> (c) In the 9 patients described in that publication, a consultation took place for 4 patients within 24 hours of the onset of eye symptoms. In two of these patients, the eyesight was saved. If Ms Pai had been seen on the evening of 23.12.96, this would have been well within 24 hours of the onset of eye symptoms. I am relying on her statement that she noticed the "thin film" over her left eye only on the morning of 23.12.96, just before she left for the Defendants clinic.
>
> (d) I would expect that the number of *Klebsiella* in Ms Pais eye would have been increasing exponentially on 23.12.96, making early treatment imperative. Even if Ms Pai had been seen very late into the night of 23.12.96, this would have been no more than 12 or 13 hours after the onset of eye symptoms, and the risk of losing the eye would probably be less than 50%, based on the information from the publication I have quoted.
>
> (e) It would also have been to Ms Pais advantage that she had no underlying disease such as diabetes mellitus as occurred in over 50% of the patients in the

study described above.

32. Prof Cartwright was also referred specifically to the cases of patients Nos. 1 and 7, which were discussed in the article of Chee and Ang, where the patients had EKE and their eye sight was saved. He said that compared to those cases Ms Pais chances of saving her eye would be better, if she had gone to the SGH on 23 December 1996.

33. We have three observations on that part of the evidence of Prof Cartwright where he said that, if Ms Pai had been sent to the SGH on 23 December 1996, her eye would have been saved. First, the answers of Prof Cartwright were given on the premise that specific treatment of [Ms Pais] eye condition had commenced on the evening of 23 December 1996 as opposed to the evening of 24 December. The answers therefore assumed that on the evening of 23 December (had Ms Pai gone to the A & E at the SGH) the correct diagnosis of Ms Pais ailment had been made and the proper treatment had commenced. Hence, this part of the evidence of Prof Cartwright has to be considered in that perspective.

34. Secondly, Prof Cartwright appeared to have relied on the article written by Chee and Ang, where, among other things, nine patients were described and discussed, and four of them had consultations taking place within 24 hours of the onset of the eye symptoms, and in two of them their eyesight was saved. On the strength of these experiences discussed there, Prof Cartwright said that if Ms Pai had been seen on the evening of 23 December 1996, that would have been well within 24 hours of the onset of the eye symptoms, and implicit in this was his conclusion that if Ms Pai had been seen on that evening, her eyesight would have been saved. The difficulty of accepting the comparison of the cases of those four patients with that of Ms Pai is that with reference to the four patients, it was not known how soon within the 24 hour period they were seen by the consultants.

35. Lastly, it should be borne in mind that Prof Cartwright has no personal experience or knowledge of what would or could have happened at the SGH and/or SNEC, if Ms Pai had indeed gone there on the evening of 23 December 1996. In particular, he has no knowledge of the practice and the consultative and treatment processes at the SGH and/or SNEC. On this aspect of the case, we have to turn to the evidence of Dr Ang Beng Chong, which we shall discuss in a moment.

36. Looking at the totality of the evidence of Prof Cartwright, we do not find that his evidence was sufficiently conclusive on the issue whether on the evening of 23 December 1996, had Ms Pai gone to the SGH, the correct diagnosis would have been made and proper treatment would have commenced.

Evidence of Dr Ang Beng Chong

37. We now turn to the evidence of Dr Ang Beng Chong. Dr Ang is a consultant ophthalmologist in private practice. He holds the degree of MBBS from the NUS and is fellow of the Royal Australasian College of Surgeons. He holds the following appointments: a visiting consultant of the Department of Ophthalmology, National University Hospital, heading the division of vitro-retinal surgery, a visiting consultant of Singapore National Eye Centre and a consultant ophthalmologist at Mount Elizabeth Hospital. He is an examiner of the final Master of Medicine (Ophthalmology) Examination of the School of Postgraduate Medical Studies at NUS and a member of the panel of examiners for the Fellowship of the Royal College of Surgeons, Edinburgh. He has published some 70 scientific papers and 3 books.

38. In his affidavit of evidence-in-chief, Dr Ang said that on 23 December 1996, when Dr Yeo examined Ms Pai there was nothing to alert Dr Yeo that Ms Pai was suffering from an eye infection, as it would be difficult or impossible to make a diagnosis of an internal eye infection where there are no

obvious signs. A definitive diagnosis can only be made by culturing the fluid taken from inside the eye, and sending it to a laboratory for investigation, with a result available usually 24-48 hours later. At the time when Dr Yeo examined Ms Pai, there was hardly any sign in the eye to suggest an infection internally.

39. On EKE, Dr Ang had this to say:

> Klebsiella Endophthalmitis caused by an extremely virulent bacteria, is an eye infection that is very rare and usually occurs in patients who are already very ill with septicaemia, which the plaintiff was not. Endogenous (from the inside of the eye) Klebsiella Eendophthalmitis is even more rare. Early systematic treatment does not necessarily guarantee a good visual result because Endogenous Klebsiella Endophthalmitis can develop in patients who have been receiving intravenous antibiotics for bacterial infections.

He said that EKE is such a rare disease that even eye specialists rarely encounter or have never encountered this disease in their careers Indeed, in his 29 years of practice, he had only come across two patients suffering from EKE.

40. Turning to the treatment of EKE, Dr Ang opined that, even if an aggressive therapeutic approach is adopted, there is no clear evidence from his experience and in medical literature to suggest that such measures will improve the outcome. He added that the prognosis of EKE is poor, and that the chances of treatment were poor. Klebseilla bacteria are particularly virulent organisms, and can destroy the eye very rapidly, sometimes within 24 hours. Even with appropriate treatment, endophthalmitis can occur.

41. Dr Ang was referred to the seven patients discussed in the Chee & Ang article and it was suggested to him that, according to Prof Cartwright, Ms Pai had better chances than the 7 patients. His evidence on this point was as follows:

> If you compare the eye findings in these 7 cases, one would say that on 24 December, Plaintiffs eye signs were similar because she already had pupillary hypopyon and vitreous opacity. Difficult to statistically compare. Different factors involved.
>
> In case number 4 at page 5, patient had good outcome. Final vision was 6/6 in both eyes. He had diabetes, source of infection was liver and seen within 24 hour. He had two days antibiotics prior to onset. Very bad eye signs. Yet he turned out well. In Plaintiffs case, 38 year, not diabetic, had liver, lung and kidney involvement, blurring of vision which started on 24.12 morning. So she was seen within 24 hour. But she was not on intravenous antibiotic. She was treated appropriately by the eye doctor yet it turned out bad, she lost eye completely. Not exact science.

42. Dr Ang opined that there was a possibility that Ms Pais eye could have been saved, if treated on 23 December 1996, provided:

> (1) on that day, the doctor made the correct diagnosis,
>
> (2) appropriate treatment was given, and

> (3) her eye responded to treatment, which would ironically be difficult once the organisms had multiplied to the stage where the infection could be diagnosed.

Having made these three qualifications, Dr Ang then proceeded to give a detailed account of what would have happened at the SGH, on the evening of 23 December 1996, had Ms Pai gone there. He said:

> Possible for eye not to respond. With reference to the S-curve drawn by Professor Cartwright yesterday, at the early stages, less organism so few signs. At the later stage where more signs appear, also a lot more organisms and therefore more difficult to treat. If Plaintiff had gone to A&E on 23.12.96, sometime in the afternoon, a general doctor would look at her, she would have a note saying suspected detached retina and would be referred to eye doctor. The first line of consultation is usually a trainee eye doctor. He would examine patient for signs, especially detached retina. He would not find detached retina because there are hardly any other signs, he would be in a dilemma what to do next. He could either call his consultant in, or if brave, state no detached retina and tell patient to come back if symptoms persist or get worse. If he calls in consultant, consultant would examine eye. Because of his experience, he may find more, e.g., early signs of inflammation, e.g., cells in the vitreous. He might diagnose it as sterile uvitis which would be an acceptable diagnosis. Possible that consultant is familiar with EKE, he might do more tests. Because she had fever, he would not rule out infectious ophthalmitis. At that stage not likely he would aspirate the vitreous because it is not an innocuous procedure. He would just give her antibiotics orally or intravenously and watch for response.

On being questioned whether the patient at that stage would be given antibiotic injections in the eye, Dr Ang said:

> I would not. Antibiotic is toxic and might damage retina, so the consultant would in all likelihood wait for the response of the eye to the oral/intravenous antibiotics.

43. Dr Ang elaborated on the symptoms of endophthalmitis they include complaint of blurred vision, pain in the eye, redness in the eye, and hypopyon (pus). Also, when a doctor looks into the inside of the eye, the vitreous appears hazy with a lot of cells. However, the diagnosis would be provisional until confirmed by aspiration of fluid for culture. A diagnosis of early endophthalmitis is extremely difficult as there are very few eye signs. In his opinion, there would be no obvious signs on 23 December 1996. The earliest time that endophthalmitis could be suspected would be on the morning of 24 December, when Ms Pai woke up and found her vision blurred. Dr Ang said that EKE was difficult to diagnose even by consultants. He referred to the Chee & Ang article, which said:

> In one study, it was found that at least 33% of culture-proven cases were initially thought to be sterile inflammatory responses by the primary ophthalmologist at the time of clinical diagnosis. Four out of the five eyes with no light perception had a poor visual outcome partly because of the lack of suspicion of the bacterial nature of the inflammation.

44. In connection with the diagnosis, Dr Ang explained that hypopyon is pus inside the eye chamber. To the external observer, it would look like a yellow crescent at the iris. To the patient, it would not obstruct vision, but there might be blurring of vision, and it may create some discomfort.

Ms Pai could have had a hypopyon when she complained of a thin film over the lower part of the eye. But if she could see it, then the doctor should also have been able to detect it. Hence on 23 December 1996, the complaint of blurred vision, spots and thin film could be the first sign of an infection. But there were still hardly any signs to suggest an infection internally. However, it was not likely that Ms Pai had a hypopyon on 23 December 1996, given that there was no pus and no redness. Vision would also have been impaired, if a patient had a hypopyon. Instead, the medical record card of Dr Yeo for 23 December 1996 stated "o/e E+R, cornea clear, left cornea clear". "Pupils E+R" means that pupils were reacting normally to light stimuli, i.e. the retina was functioning well. "Cornea clear" means that the front of the eye is normal in appearance. Based on these signs, Dr Yeo would have diagnosed her eye as nearly normal.

45. In cross-examination, Dr Ang conceded that had Ms Pai gone to the hospital on the evening of 23 December 1996 with the complaint of blurred vision and thin film, the eye consultant would be put on greater alert for Endogenous Klebsiella Endophthalmitis. He further said that, in that event, the level of caution in monitoring her would be higher and the reaction time to any changes in her would be faster. He agreed that there were more factors in favour of the eye being saved, if Ms Pai had gone there on 23 December. In the final "put" questions in cross-examination, Dr Ang agreed that it was possible, and more likely than not, that Ms Pais eye would have been saved if she had gone to A & E of SGH on the evening of 23 December 1996. This crucial portion of the evidence is as follows:

> Q: Put: Had Plaintiff gone to A & E of SGH on 23.12.96 evening, her eye would probably have been saved.
>
> A: Possible
>
> Q: More likely than not?
>
> A: Yes

46. It is this portion of Dr Angs evidence that the trial judge substantially relied on when he said that Dr Ang agreed with Prof Cartwright that in all probability Ms Pais eye would have been saved had she gone to the SGH on 23 December 1996. The judge said at 41:

> 41 In cross-examination, Dr Ang agreed that there were more factors in favour of the eye being saved had the Plaintiff gone to the hospital on 23 December instead of on 24 December. Dr Ang also agreed that if the Plaintiff had gone to the A&E Unit of the SGH on 23 December 1996, it was more likely than not that her eye would have been saved. This was the exchange in cross-examination, which was not altered in re-examination.

and quoted the crucial part of Dr Angs answers to the put questions which we have set out above. The judge said that that crucial part of Dr Angs evidence was not altered in the re-examination. With respect, that is not quite correct. Dr Ang in his re-examination said that SNEC encountered about one case of EKE a year and the paper of Chee & Ang showed only one completely successful case of treatment. With regard to the probability of saving Ms Pais eye, had she gone to A&E on 23 December, he said that the three qualifications mentioned in his earlier evidence remained. He said:

> Q: On probability of saving Plaintiffs eye, this morning you gave three conditions. That remains?

A: Yes. Qualifications remain. I was asked to give a judgment on probability.

47. On the analysis of his evidence, Dr Ang was far from saying that if Ms Pai had been admitted to the SGH on 23 December 1996, her left eye would have been saved. True it is that Dr Ang in his evidence given in cross-examination did say that more likely than not her eye would have been saved in that event. However, we do not think that it is a fair evaluation of his evidence to look only at that single statement in isolation and disregard what he had said earlier and what he later said. In his evidence-in-chief, he said that the question whether Ms Pais eye could be saved is subject to the three qualifications: (i) the correct diagnosis by the doctor at the time; (ii) the appropriate treatment administered; and (iii) the eye response to the treatment. Later, in the cross-examination, in answer to the put question he admitted that more likely than not Ms Pais eye would be saved. Following that, in his re-examination, he said that what he had said in the cross-examination was subject to the three qualifications. In our judgment, the sum total of Dr Angs evidence does not support a conclusion that, had Ms Pai gone to the SGH on the evening of 23 December 1996, her eye would have been saved.

Diagnosis at the SGH

48. Ms Pai went to the A & E at the SGH in the afternoon of 24 December 1996 at about 3.30 pm. It is unclear from the hospital records maintained at the SGH at which point in time precisely the doctors there diagnosed that she had EKE. The first doctor who attended on her was unable to diagnose the problem. He wrote "*? FB. (L) eye x 2/7*" indicating that he suspected that there were foreign bodies in the left eye. His main diagnosis was "*Left eye blurring of vision*". This indicated that the doctor at the A&E did not know what the diagnosis was on 24 December 1996 even when the symptoms and signs were more obvious. Subsequently, a doctor from the Ophthalmic Department, who examined Ms Pai after she was admitted at about 8.45 pm, noted the following on the record sheet: on the space for Additional diagnosis: ?Left Endogenous Endophthalmitis. and on the space for Final diagnosis: ?L Iritis. Even at that stage when the symptoms and signs were more obvious, an eye specialist was not able to make a firm diagnosis.

49. Ms Pai received the first treatment of antibiotics at about 9.30 pm on 24 December 1996. The intravitreal antibiotic injections were only given much later that night, after 11 pm. Presumably the definitive diagnosis was only made after culturing the fluids taken from Ms Pais eye, and that probably was sometime on 25 December 1996.

50. The final report from the doctors from the SNEC stated, inter alia, the following:

> Miss Pai was first seen on 24 December 1996 for the problem of dimming of her left eye vision. Examination then showed vision of count fingers at 2 feet and anterior chamber haze/hypopyon. Fundal view was poor from vitreous haze. She was admitted and started on antibiotics treatment.
>
> An aqueous and vitreous tap for diagnostic purposes and intravitreal antibiotic treatment was performed on the same day. Miss Pai had a fever of 38.8C for which she was investigated systemically.
>
> The endogenous endophthalmitis worsened despite treatment and a left vitrectomy was performed on 26 December 1996 to remove the inflamed vitreous and to enable intravitreal antibiotic to be introduced. On her first post-operative day, her vision improved to counting fingers 2 feet from hand movements.

> Anterior chamber reaction was less. During the vitrectomy, a large choroidal abscess occupying the nasal retina was noted. She was found to have a liver a n d blood infection from the very virulent bacteria Klebsiella on culture/sensitivity test and the appropriate antibiotics were given.
>
> The guarded prognosis for vision because of the rather severe infection from Klebsiella was explained. Despite initial improvement and responds to treatment, her eye infection worsened. Another intravitreal antibiotic injection was performed on 30 December 1996. Her ocular inflammation remained and the likelihood of phthisis bulbi was made known.

Decision

51. Having regard to the evidence we have discussed, we think that, in considering whether the correct diagnosis could or would have been made by the doctors at the SGH, it is not correct to transpose the sequence of events on the evening 24 December to that on 23 December. It is equally wrong to assume that the eye symptoms which presented themselves on 24 December 1996 would be present on the 23 December when in fact, they were not. It must be borne in mind that the Klebsiella bacteria grows at an exponential rate within 24 hours.

52. Thus, we find that the medical evidence was far from convincing or conclusive on the point whether, had Ms Pai gone to the SGH or SNEC on the evening of 23 December 1996, her left eye would have been saved. The burden of proof rests squarely on Ms Pai, and in our judgment, on the basis of the evidence given by Prof Cartwright and Dr Ang, Ms Pai had not discharged the burden of proving, on a balance of probabilities, that had Dr Yeo advised her to go to the SGH or SNEC immediately on the afternoon of 23 December 1996 and had she gone there that afternoon, her left eye would have been saved. She had therefore not proven that Dr Yeos negligence and/or breach of duty caused or materially contributed to the loss of her vision in the left eye. On this ground, her claim cannot succeed.

53. The case of *Hotson v East Berkshire Area Health Authority* [1987] 2 All ER 909, [1987] 1 AC 750 is illustrative of the point involved here. There, the plaintiff then 13 years old was injured from a fall while climbing a tree. At the hospital his injury was not correctly diagnosed and was not promptly treated for five days. In the event, he suffered avascular necrosis of the epiphysis, involving disability of the hip joint with virtual certainty that osteoarthritis would later develop. He brought an action for damages against, inter alios, the health authority, who admitted negligence in failing to diagnose and treat his injury promptly. The judge at first instance held that, if the hospital had diagnosed the injury correctly and treated the plaintiff promptly, there would be a high probability, which he assessed at 75%, that avascular necrosis would still have developed. He accordingly held that the plaintiff was entitled to damages for the loss of a 25% chance that he would have made a nearly full recovery and awarded 25% of the damages. The Court of Appeal dismissed the appeal, but on further appeal, the House of Lords allowed the appeal by the health authority, holding that the plaintiff had failed to proved that the injury was caused by the negligence of the hospital. Lord Bridge of Harwich, delivering one of the main speeches of the House, said ([1987] 2 All ER 909 at 913, [1987] 1 AC 750 at 782):

> The plaintiffs claim was for damages for physical injury and consequential loss alleged to have been caused by the authoritys breach of their duty of care. In some cases, perhaps particularly medical negligence cases, causation may be so shrouded in mystery that the court can only measure statistical chances. But

> that was not so here. On the evidence there was a clear conflict as to what had caused the avascular necrosis. The authoritys evidence was that the sole cause was the original traumatic injury to the hip. The plaintiffs evidence, at its highest, was that the delay in treatment was a material contributory cause. This was a conflict, like any other about some relevant past event, which the judge could not avoid resolving on a balance of probabilities. Unless the plaintiff proved on a balance of probabilities that the delayed treatment was at least a material contributory cause of the avascular necrosis he failed on the issue of causation and no question of quantification could arise. But the judges findings of fact, as stated in the numbered paragraphs (1) and (4) which I have set out earlier in this opinion, are unmistakably to the effect that on a balance of probabilities the injury caused by the plaintiffs fall left insufficient blood vessels intact to keep the epiphysis alive.

Lord Ackner said ([1987] 2 All ER 909 at 919, [1987] 1 A C 750 at 790):

> To establish his cause of action, the plaintiff had to prove that the defendants (the appellants) were under the duty alleged, that they broke that duty and that as a result of that breach of duty he suffered the injuries alleged. It is, of course, axiomatic that the facts upon which liability is based must be proved on the balance of probabilities.

and his Lordship then considered the review of the evidence by the judge at first instance, and said at ([1987] 2 All ER 909 at 921, [1987] 1 A C 750 at 792):

> In the result the judge had by his clear findings decided that the negligence of the defendants in failing to diagnose and treat for a period of five days had not caused the deformed left hip. The judge, in agreement with the submission made to your Lordships by counsel for the defendants, said in terms that in the end the problem came down to one of classification [1985] 1 WLR 1036, 1043-1044:
>
> > "Is this on true analysis a case where the plaintiff is concerned to establish causative negligence or is it rather a case where the real question is the proper quantum of damage?"
>
> The judge thought, at p 1044, that the case "hovers near the border." To my mind, the first issue which the judge had to determine was an issue of causation did the breach of duty cause the damage alleged. If it did not, as the judge so held, then no question of quantifying damage arises. The debate on the loss of a chance cannot arise where there has been a positive finding that before the duty arose the damage complained of had already been sustained or had become inevitable.

54. The next case is *Wilsher v Essex Area Health Authority* [1988] 1 All ER 871, [1988] AC 1074, which is also instructive on the issue of causation. The facts there bear some resemblance to those in the present appeal. The plaintiff was born prematurely and was placed in a special baby care unit at the hospital. Extra oxygen was required, and to ensure the correct amount was administered it was necessary to insert a catheter into umbilical artery so that his arterial blood oxygen levels would be accurately read on an electronic monitor. A junior doctor wrongly inserted the catheter into the

umbilical vein with the result that the monitor recorded a lower reading. This mistake was not discovered, and the senior registrar inserted a second catheter into the same vein. On the following day the second catheter was inserted into the artery. Thereafter, the monitoring of the arterial blood level continued and during the next few weeks there were periods when the level was too high. The plaintiff developed retrolental fibroplasia (RLF), an incurable condition of the retina which caused total blindness in one eye and severely impaired the vision in the other. He sued the health authority claiming that the RLF was caused by the excess of oxygen administered to him and attributed this to the want of care and skill in the management of oxygen supply. The hospital was found negligent in having administered excess oxygen to the infant. However, this was but one of six possible causes of the RLF, the other causes being unrelated to the hospitals negligence. The judge at first instance held that as there was a breach of duty in failing to take reasonable care which had been established and that damage had occurred, and thus the burden was on the defendants to prove that the damage did not result from their breach of duty. The Court of Appeal, with Sir Browne-Wilkinson V-C dissenting, dismissed the defendants appeal. On further appeal, the House of Lords allowed the appeal, holding that the burden of proving causation lay with the plaintiff; that there were a number of factors, including the administration of excess of oxygen, that could have caused the RLF; and that the trial judge had made no specific finding on the point of causation. Thus, before the judge it was not shown that the burden of causation had been discharged by the plaintiff. In coming to this conclusion, the House approved the following determination made by Sir Nicolas Browne-Wilkinson V-C ([1988] 1 All ER 871 at 882, [1988] AC 1074 at 1090-1):

> There are a number of different agents which could have caused the RLF. Excess oxygen was one of them. The defendants failed to take reasonable precautions to prevent one of the possible causative agents (e.g. excess oxygen) from causing RLF. But no one can tell in this case whether excess oxygen did or did not cause or contribute to the RLF suffered by the plaintiff. The plaintiffs RLF may have been caused by some completely different agent or agents, e.g. hypercarbia, intraventricular haemorrhage, apnoea or patent ductus arteriosus. In addition to oxygen, each of those conditions has been implicated as a possible cause of RLF. This baby suffered from each of those conditions at various times in the first two months of his life. There is no satisfactory evidence that excess oxygen is more likely than any of those other four candidates to have caused RLF in this baby. To my mind, the occurrence of RLF following a failure to take a necessary precaution to prevent excess oxygen causing RLF provides no evidence and raises no presumption that it was excess oxygen rather than one or more of the four other possible agents which caused or contributed to RLF in this case.

As the trial judge did not make any finding on the issue of causation, the House ordered a new trial before a different judge.

Conclusion

55. As causation has not been established, Ms Pais claim fails. It is not necessary for us to consider the legal issue of remoteness.

56. We accordingly allow the appeal and set aside the judgment below and dismiss Ms Pais claim.

57. Before we decide the question of costs, we wish to hear arguments from counsel. Counsel are invited to submit written arguments within ten days from the date hereof.

Sgd:	Sgd:	Sgd:
YONG PUNG HOW	L P THEAN	CHAO HICK TIN
Chief Justice	Judge of Appeal	Judge of Appeal