Supuletchimi d/o Rajoogopal v Tay Boon Keng and Others
[2002] SGHC 31

Case Number	: Suit 210/2000Y
Decision Date	: 22 February 2002
Tribunal/Court	: High Court
Coram	: Lee Seiu Kin JC
Counsel Name(s)	: N Sreenivasan and P Sundararj (Straits Law Practice LLC) for the plaintiff; Myint Soe and Daniel Atticus Xu and Tan Ooi Peng (Myintsoe Mohamed Yang & Selvaraj) for the first defendant; Kuah Boon Theng (Tan & Lim) for the second defendant
Parties	: Supuletchimi d/o Rajoogopal — Tay Boon Keng; Singapore General Hospital Pte Ltd; The Attorney-General's Chambers

Judgment

GROUNDS OF DECISION

1 The Plaintiff is a 51 year old mother of two children. She claimed to have suffered from chronic back pain since 1977 for a period of 20 years. During this period, she was treated by doctors at the Singapore General Hospital ("SGH"), which is a hospital operated and managed by the second Defendant. For the last five years of that period, she was under the care of the first Defendant ("Dr. Tay"), the head of the Orthopaedic Department at the SGH. Her agony ended in May 1997 when she underwent an operation by Prof. Abdul Aziz bin Mohamed Nather ("Prof. Aziz") at the National University Hospital ("NUH").

2 On 27 April 2000 the Plaintiff filed the writ in this action. She claimed that Dr. Tay and other doctors at the SGH had been negligent in rendering medical treatment to her for her condition or had breached their contractual duty to her in such treatment.

3 Prior to 1 April 1989, the SGH was operated and managed by the government. As the Plaintiff's original claim covered a period that pre-dates this, the Plaintiff had included the third Defendant in this action. However in early 2001, the Plaintiff discontinued the action against the third Defendant. The trial was proceeded with only against Dr. Tay and the second Defendant in respect of the treatment rendered to the Plaintiff by Dr. Tay at the SGH between 1992 and 1997.

Physiology and diseases of the spine

4 Before embarking on the facts, I should briefly describe the spinal system and some of its diseases in order to set out the common ground. The spinal system is a remarkably complex mechanism that holds the human body upright with a system of bone, cartilage and muscle. It also serves as the central corridor through which the nerve cells and blood vessels traverse the body. It starts from the base of the skull and runs all the way down to the pelvis.

5 The spine or vertebral column is usually referred to as the backbone. This is the structure that supports the upper trunk of the human body. It houses and protects the spinal cord and helps in movement. The spine may be thought of as a segmented rod of limited flexibility made up of three main sections. From the top, they are the cervical column, the thoracic column and the lumbar column. Below the lumbar column is the sacrum which is a large triangular shaped bone at the base of the spine. Each of the three sections of the spine is made up of individual bones called vertebrae.

Each vertebra is connected to the other by an intervertebral disc in the anterior (i.e. "front") and two facet joints in the posterior (i.e. "back"). The purpose of the vertebrae is to (i) house the spinal cord which runs through it; (ii) house the nerve roots which branch out from the spinal cord; and (iii) give support to the body and at the same time permitting a range of movement. The body of the vertebra is the primary weight bearing area and provides the resting place for the intervertebral disc which separates one vertebra from the next. A vertebra has a lamina which encloses the spinal canal. The lamina is essentially a large hole at the centre of the vertebra through which the spinal cord passes. From the lamina rises the spinous process which is the bone one can feel running down one's back. There are two transverse processes which orientate 90° to the spinous process and provides the site for the attachment of back muscles.

6 There are four facet joints associated with a vertebra. One pair face upwards and is called the superior articular facets. The other pair face down and is called the inferior articular facet. These pairs of facets interlock with their respective counterparts in the vertebrae above and below. Facet joints provide stability to the spine. They allow the vertebrae to be linked like a chain and provide mobile connections between each vertebra.

7 An intervertebral disc (or simply "disc") lies between two vertebrae. This is a ligament-like material and has a flat circular shape, about 6 mm in height. The outer part of the disc is a concentric elastic band called the annulus fibrosus (or simply "annulus"). In the centre of the disc is a jelly-like matter called nucleus pulposus. The disc keeps the vertebrae apart and permits movement between adjoining vertebrae. This is the mechanism which enables the spine to bend. The disc also acts as a shock absorber, cushioning impact on the spine.

8 A motion segment is the smallest spinal unit that contains all the components of the spine and demonstrates the characteristics of the entire spine. The motion segment is also referred to as the functional spinal unit. It essentially comprises a pair of facet joints, which articulate with the respective neighbouring vertebrae, and the disc. A motion segment has three joints; these are the two joints at the facets and the disc. This tripartite joint system or the tripod system has been described as the three-joint complex.

9 The disc does not have a supply of blood vessels to nourish it like other organs in the body. It depends on fluids rich with oxygen and nutrients passing back and forth from the bones above and below. The disc can degenerate or be injured. Such injuries may weaken or even tear the annulus fibrosus. In such an event, the nucleus pulposus may bulge or extrude out of the disc. When the disc bulges or nucleus pulposus is extruded, this may compress the spinal cord and may press on the nerve roots.

10 The cervical column of the spine consists of 7 vertebrae. These are referred to as C1 to C7. The thoracic column comprises 12 vertebrae which are referred to as T1 to T12. The lumbar column comprises 5 vertebrae referred to as L1 to L5. The lumbar column is the most susceptible to injury.

11 The spinal cord is an extension of the brain and extends as far as L1, where it ends as a sheaf of nerve roots. The outer covering of the spinal cord is called the dura. Within the dura are the nerves which are surrounded by cerebral spinal fluid ("CSF"). Below L1, the nerves extend as a sheaf of nerve roots but still within the dura. This is called the cauda equina, so named because it looks like the tail of a horse. The spinal cord and its extension, the cauda equina, pass through the spinal canal, i.e. the collection of holes found at the centre of each vertebra. A pair of nerve root exits at various points along the spinal column. These nerve roots are identified according to the particular vertebra they exit from. Hence the lumbar column houses the L1 to L5 nerve roots. Throughout the spine there are 31 pairs of nerve roots which branch out and serve all parts of the body, transmitting sensory

information to the brain and signals to the muscles. Movement of the body, bladder functions, sensory functions are all dependent on this information travelling up and down the spinal canal. Each nerve root exits the spinal canal through holes in the vertebrae called neural foramen.

12 There are many diseases associated with the spine but for the purposes of this case, I need only set out in brief the following:

Prolapsed intervertebral disc ("PID"):

When there is a tear in the annulus fibrosus, part of the disc material or nucleus pulposus can extrude out of the disc. This can cause symptoms as the disc material can cause an inflammatory response, can compress or can irritate the nerves that lie in the vicinity. When the patient displays such symptoms, he is said to have PID. This condition is commonly known as "slipped disc".

Epidural fibrosis:

It is part of the natural healing process for scar tissue to form. This is known as fibrosis. It tends to occur in the site of previous surgery. When it forms in the space just outside the dura of the spinal cord, it is termed epidural fibrosis. Epidural fibrosis by itself may not cause symptoms but can do so depending on its location and its effects on the nerve roots in its immediate vicinity.

Spinal stenosis:

Stenosis refers to a condition caused by a narrowing of a passageway. This term encompasses central canal stenosis, where there is narrowing of the central part of the spinal canal, or lateral canal stenosis, where the narrowing occurs at the part of the spinal canal which allows the nerve roots to exit at either side of the spine. The narrowing of the canal space can be caused by several factors. The disc may bulge and encroach into the canal space. The facet joints may be hypertrophied (enlarged as part of the process of degeneration) and also enter the space normally reserved for the spinal cord or nerve roots. Or there could be the presence of some other tissue, such as scar tissue, that occupies the space that was otherwise supposed to comfortably accommodate the nerve structures.

Spinal instability:

Spinal instability occurs where any spinal segment, i.e. two adjacent vertebrae joined by the disc and surrounding structures, is hypermobile (moves more than usual) to the point that it causes symptoms for the patient. Hypermobility of itself may not amount to spinal instability, e.g. athletes and acrobats may have hypermobile spinal segments in their spine but may not have spinal instability. The spine is only termed unstable if the excessive mobility of the spinal segment is impinging on nerves, vessels or other structures such that the patient experiences symptoms.

Degenerative disease:

Degenerative changes in the spine can cause pain and stiffness. The degeneration may occur to the disc, or the bony structures of the vertebrae. When the disc degenerates it loses its water content. Apart from the loss of viscosity of the disc material, it also causes a loss of disc space, with the adjoining vertebrae coming closer as a result. When the annulus fibrosus of the disc is weakened, it can cause the disc to bulge outwards. The bony structures of the vertebrae can also undergo degeneration in that bony spurs or osteophytes form on the bone, and the bone gets enlarged much like gnarled knuckles. Generally this causes stiffening. Cervical spondylosis refers to this degenerative process occurring in the cervical vertebrae (in the neck). A similar

process occurs in the lumbar spine called lumbar spondylosis.

The Plaintiff's version of events

13 The Plaintiff worked as an "amah", i.e. hospital attendant, at the SGH from the seventies until the mid-eighties. She claimed that from 1979 until 1997 she suffered from excruciating back pain despite treatment rendered by doctors at the SGH throughout that period. Between 1979 and 1992, Dr. Tay was one of the SGH doctors who had treated her. From 1992 to 1997, he was the principal doctor treating her.

14 The Plaintiff was able to recall that Dr. William Fung of the SGH had treated her in 1977. She said that at first he treated her conservatively, but when that failed to provide relief, he advised her to undergo a surgery. He told her that the disc between her L4 and L5 vertebrae had been damaged and the disc material had to be removed. The Plaintiff said that she underwent the surgery in 1979. However she did not receive much relief from the surgery and continued to suffer from back pain.

15 Dr. Fung continued to treat her after the first surgery. A year later when further conservative treatment failed to relieve her back pain, she was advised to undergo a second operation. She was told that the same disc between L4 and L5 had degenerated further and the remaining disc material had to be removed. This second surgery was performed in January 1982 by Dr. Fung, assisted by Dr. Tay. However within weeks after the second surgery she started experiencing back pain. A few months later this turned into an excruciating back pain. From then on back pain was a real problem to her. She was placed on light duties at work and had difficulty even with such duties. She fell down on a number of occasions. Every turn and twist hurt her. She was treated at the SGH by Dr. Fung and in his absence, Dr. Tay.

16 According to the Plaintiff, from the time she underwent the second operation in 1982 until her second son was born in 1984, the pattern of treatment she received was consistently medication, then physiotherapy and finally pain-killer injections. However her back pain persisted. The principal diagnosis of the treating doctors was PID. As time progressed the Plaintiff became more and more anxious. The pain had prevented her from holding a job and she found herself wanting in many areas. When the pain became intolerable, the doctors moved her to the next level in their treatment. They administered an epidural injection, a procedure entailing direct injection of steroids into the L4/L5 disc area. This was as painful as the back pain she was experiencing.

17 From 1984 to 1987 the Plaintiff was suffering from persistent back pain. In 1987, her neck stiffened and she had pain both at her neck and on her back. She was admitted into the SGH in 1987 for both back and neck pain. The principal diagnosis was once again PID. She was also diagnosed to be suffering from cervical spondylosis. The treatment was once again conservative - medication, physiotherapy, pain-killer injection. When all these treatments failed, she received epidural injection. The Plaintiff said that the treating doctors tried every conservative treatment with no effect. But one thing was clear in her mind – the pain never left her. The doctors took X-rays, CT scans, myelograms and directed her to undergo other tests. The principal diagnosis remained as PID. The doctors continued to hold the view that something was wrong with the disc at L4/L5.

18 In 1987, the Plaintiff was admitted to the SGH for many weeks where she received conservative treatment. The treating doctors were well informed about her case, history and symptoms. She had on numerous occasions informed them that she had fallen down quite inexplicably, and that she was suffering predominantly from back pain.

19 The Plaintiff said that the pain was terrible and debilitating and she could not continue working. But at no time did the treating doctors advise her that she was suffering from spinal instability. They continued to hold that the initial diagnosis of PID was the reason for her illness. They continued with pain killers but the medication provided no real relief.

20 From 1987 to the early 1990s the Plaintiff received treatment from various polyclinics. The doctors there treated her with pain-killer medicines and injections on being appraised of the fact that the doctors at the SGH had diagnosed her as suffering from PID.

21 The Plaintiff said that her back problem became more pronounced in 1990. She tried to get a job but could not on the account of her back pain. She continued to receive conservative medical treatment but her back pain continued unabated. She could not even undertake housework or look after her children.

22 In 1992, she was once again admitted to the SGH. This time Dr. Tay was her primary physician. The Plaintiff said that he continued to hold the view that she was suffering from a disc problem. He prescribed medication and then injections. When physiotherapy did not produce any results, she was sent for epidural injection. The Plaintiff said that she spent three to four months in the SGH as an in-patient. The pain had become unbearable. She could not sleep and had to receive Pethidine (a narcotic drug for pain control) on a regular basis during that admission. She was given sleeping tablets almost every night to sleep. Without such medication, she would not have tolerated the pain.

23 The Plaintiff said that it became apparent to her that the conservative treatment was not working. She approached Dr. Tay and asked him if anything could be done to relieve her back pain. She asked if surgery could be performed. The Plaintiff said that Dr. Tay flatly rejected the idea. He told her that she was suffering from PID and no surgery could be performed. He told her that she had to live with the pain. The Plaintiff told Dr. Tay and the other doctors treating her that the back pain had a catastrophic effect on her life and pleaded with them to perform surgery. But they flatly dismissed the idea with a simple statement that no one could help her with surgery. Because of such advice, the Plaintiff continued to suffer the pain. Her life by then was one in which she was almost confined to her home apart from regular visits to the hospitals. Her relationship with her husband became strained as they could not have sexual relations. She was depressed as a result of the continuous pain, becoming easily irritated and constantly anxious about the next day.

24 The Plaintiff was discharged from the SGH on 11 June 1992, only to be re-admitted the same day. Her pain continued unabated. Dr. Tay's diagnosis of her illness did not change. Even the epidural injection did not help her. The treating doctors now classified her illness as failed back surgery syndrome.

25 After that hospitalisation, the Plaintiff went to the SGH on a regular basis as an outpatient, about once every two months. If she experienced intolerable pain in between, she would admit herself into the Accident and Emergency Department ("A&E Department") of the SGH.

26 The Plaintiff said that during such outpatient visits, Dr. Tay would simply jot down her complaints and prescribe medication. Injections would usually be administered. She said that Dr. Tay did not physically examine her and she sensed a nonchalant attitude on his part when it came to treating her. He would do very little examination but prescribe a lot of medication. It appeared to her that he was very set about the diagnosis of her illness and nothing could change his view. The Plaintiff said that she did not have the education or expertise to doubt or contradict him. So she would religiously relate all her symptoms and the fact that she felt unbalanced and fell easily. Dr. Tay would simply smile and prescribe medication. She had on numerous occasions informed him that she fell quite inexplicably.

27 The Plaintiff said that throughout the nineties, while under the care of Dr. Tay, she continued to experience terrible back pain. During the outpatient treatments, her husband or sons accompanied her. Her husband had, on numerous occasions asked Dr. Tay about the possibility about surgery. However these questions were simply brushed aside by him. The Plaintiff said that Dr. Tay simply did not entertain the possibility of any surgical intervention. He held to his firm belief that she suffered from PID and nothing could be done.

28 In 1993, the Plaintiff was admitted into the SGH. Again she received conservative treatment. However this time she did not agree to the epidural injection as it had caused severe side-effects. She was only keen on surgery. The Plaintiff said that Dr. Tay did not listen to her nor advise her on this. She believed that he felt that she was a nuisance. It did not occur to her at the time to go for a second opinion.

29 Between 1993 and 1996, the Plaintiff continued to receive outpatient treatment by Dr. Tay. Her back pain got progressively worse and she could not stand properly or sit. She could not sleep at night. She became confined to her home and all errands were carried out by her husband and children. She spoke to Dr. Tay on numerous occasions about the possibility of surgery. His answer would simply be that it was impossible to do surgery.

30 In 1997 the Plaintiff was again admitted to the SGH for a few months for persistent back pain. Again, conservative treatment was given. The Plaintiff began to lose her patience. The Plaintiff said that the nurses advised her to seek an alternative opinion from other doctors at the SGH. But none of the doctors whom she approached was prepared to treat her as they were worried that this would annoy Dr. Tay who was the head of the Orthopaedic Department.

31 The Plaintiff said that she finally managed to get a doctor to examine her and to look at the MRI report. He assured her that surgery could be performed and that it should be performed as she had not responded to conservative treatment. However three days later he said that he could not help her as her principal surgeon was Dr. Tay. In cross-examination, she identified this doctor as Prof. Tan Ser Kiat ("Prof. Tan"). The Plaintiff approached another doctor only to be turned down when he discovered that she was Dr. Tay's patient. In cross-examination, she identified him as Dr. Tan Chong Tien ("Dr. C T Tan"). The Plaintiff became upset. Finally Dr. Tay informed her that if she insisted on it, he could perform an operation, however the outcome would not be satisfactory due to scar tissues.

32 By then the Plaintiff was utterly fed up with the SGH and its doctors. She decided to go to the NUH, where she was seen by Prof. Aziz. Thereafter the facts are not really in dispute. In her affidavit evidence-in-chief, the Plaintiff described the period between her first surgery in 1977 and her final surgery in 1997 in the following manner:

> 2. For two long decades, I suffered from excruciating back pain. The said pain became even more unbearable in the nineties. To say the least there was not a single day without back pain. I experienced pain when I sat, walked, even when I slept. At times I suffered from neck and leg pain too. My grievances against the 1st, 2nd Defendants are real. I would have had a meaningful and a less painful life had the 1st and the 2nd Defendants not been negligent in treating me.
>
> **...**
>
> 19. The pain was simply unbearable. On many occasions I would cry silently. I could not carry on with any social activities or for that matter was not even able

to carry out normal housework expected of a wife and a mother. Every little twist and turn produced immense pain in my back.

The Defendants' version of events

33 The Defendants' version was, for the most part, re-constructed from the medical records kept of the Plaintiff's consultations and admissions at the SGH. It can be divided into four logical periods, (i) 1979 to 1982 during which the two operations were performed; (ii) 1982 to 1987; (iii) after a lull of five years in which she was not examined or treated at the SGH, 1992 to 1996; and (iv) 1997.

(i) 1979 to 1982

34 Sometime in July 1977 the Plaintiff suffered a fall at work. Initially her pain was mild but subsequently she experienced a sudden severe low backache that became progressively worse. She sought treatment at the Orthopaedic Department of the SGH on 10 September 1977. She was initially treated conservatively. When her pain persisted despite treatment, a lumbar myelogram was carried out on 24 July 1979. This showed a moderate sized postero-lateral disc protrusion at L4/L5 with a moderate indentation at the right side. This was diagnosed as PID at L4/L5.

35 The Plaintiff agreed to undergo surgery and this was performed by Dr. William Fung on 26 July 1979. He was assisted by Dr. Tay. Dr. Fung carried out a bilateral fenestration and discectomy to remove the disc material that had extruded from the disc and was causing symptoms. The bilateral fenestration involved the removal of some of the bone in the vertebra to gain access to the site (hence "fenestration"). This removal of bone is done on both the left and right sides (hence "bilateral"). Through this opening, the extruded disc material is removed, a procedure known as a "discectomy". The surgeons reported that the Plaintiff had a centrally prolapsed disc at L4/L5 and both nerve roots were compressed as a result of the extruded disc material. The Plaintiff recuperated in hospital after the surgery and was discharged on 8 August 1979 after she was able to sit up wearing a corset and walk about.

36 However the Plaintiff continued to complain of pain at the follow up outpatient clinic review. She had an epidural oradexon injection on 8 November 1979. This entailed injection of oradexon, an anti-inflammatory agent, into the epidural space at the level from which the symptoms were thought to originate. The epidural space is the space surrounding the dura. This injection can give effective relief from symptoms cause by inflamed tissues. However in the months that followed the Plaintiff on various occasions continued to complain of pain as well as symptoms of numbness and hypoesthesia from the level of the umbilicus and over the whole of her leg, unexplained by her previous history. On 29 December 1979, an urgent myelogram was done for her because of her such symptoms. The myelogram did not reveal any abnormality in the spinal cord, save for a small anterior indentation at the L4/L5 level probably due to a disc protrusion. The Plaintiff was discharged on 8 January 1980.

37 On 4 March 1980, the Plaintiff was seen at the specialist outpatient clinic and reported experiencing less back pain. But she reported a new problem of a painful neck that was aggravated by neck movements. The doctors suspected that she might have cervical spondylosis. From then on the neck pain with symptoms radiating to her right arm were to trouble her on and off. Another myelogram was scheduled in March 1981 but the Plaintiff missed the appointment as she was admitted to another hospital for menstrual bleeding. On 28 October 1981 she was admitted again. On admission her complaints appeared to relate to her neck pain as well as backache and right sciatica with numbness over the lateral aspect of the right foot. A myelogram performed on 29 October 1981

revealed a central prolapsed disc at L4/L5. She suffered another injury at work on 23 November 1981 after falling from a chair. Following this the option of another surgery was discussed with her in the specialist outpatient clinic and arrangements were made for her to be admitted for surgery in view of the central disc prolapse at L4/L5 that had been demonstrated by the myelogram. That admission eventually commenced on 4 January 1982. Again at admission, the Plaintiff's neck pain that radiated to her right shoulder with weakness and numbness of her right arm was highlighted. On 11 January 1982, she was operated on for the second time by Dr. William Fung. The diagnosis at the surgery was a prolapsed disc at the L4/L5 right side with presence of post-operative adhesions caused by scar tissue from the first surgery causing the nerve root to adhere to the vertebra. A fenestration and discectomy was performed, this time only on the right side at the L4/L5 level. Initially after this surgery, her complaints of pain continued although it was almost always of her right leg rather than backache. The option of having an epidural oradexon injection was therefore offered and this was performed on 1 February 1982. She was discharged on 6 February. The ward staff recorded in their observations that she had been inconsistent in her complaints, appearing to be in pain in the presence of the doctors, but comfortable at other times.

(ii) 1982 to 1987

38 By 23 March 1982, the Plaintiff was reportedly better and on 20 April 1982, she was described to be well and quite happy with her treatment. She had indicated on this occasion that she wanted to carry on working and was given 3 weeks' light duties before resumption of normal duties. On 9 July 1982, she reported only slight pain. But on 25 July 1982, the Plaintiff had another accident at work (this was her third one at the work place since July 1977), when she knocked her back against a table. The first accident had resulted in her being assessed for workmen's compensation on 28 April 1978 and awarded 5% disability. On 7 January 1983 she was assessed a second time at the Workmen's Compensation Clinic for the fall she sustained on 23 November 1981 from a chair but she was given 0% compensation on the basis that her injury appeared to have been a contusion and her PID symptoms had existed prior to her fall. On 6 February 1984, the Plaintiff was seen at the specialist outpatient clinic but all her documented complaints related to the neckache and stiffness and how it had affected her arm. The following day, 7 February 1984, she returned, apparently in pain with a very stiff cervical spine, and was admitted for these problems. The Plaintiff was pregnant at the time.

39 During her February 1984 admission, she was managed and treated both for her neckache and her backache. However the main complaint and main diagnosis appeared to relate to her cervical spondylosis and in fact that was the reason for the admission. As her complaints started to be likened to right sided hemiplegia on 12 February 1984, she was transferred to Ward 46 on 14 February 1984 for further investigation. On 15 February 1984, she was physically examined by the attending neurologist who found no definite deficit in her upper limbs except for a slight reluctance to use her right hand fully. Her reflexes were found to be normal. The impression was that the Plaintiff had cervical spondylosis with mild root compression at C7/C8. Neck physiotherapy was ordered to continue and she was discharged on 16 February 1984.

40 She was seen at the specialist outpatient clinic on 30 March 1984 and 2 May 1984. On the latter occasion she reported backache on and off but severe backache for 3 days with pain over the anterior aspect of the thigh. She was then 5 months pregnant. She reported that her pain continued to trouble her when she was seen again on 19 June 1984. Eventually she was admitted for traction and rest for pain and sciatica on 3 July 1984. However she refused traction, and an epidural oradexon injection was again offered to her and performed on 9 July 1984.

41 On 20 December 1984, the Plaintiff was seen again for the complaint of pain in the neck and the right shoulder for 1 week. On 4 January 1985, it was noted that she had pain in the neck and back and was to be referred to the neurologist. On 25 January 1985, the Plaintiff was seen again at the Workmen's Compensation Clinic for the third time. Her complaints of backache and weakness were noted. While the attending doctor queried how much of her symptoms were due to functional overlay, he did accept that she had some weakness (reportedly of the right upper and lower limbs) and reaffirmed the earlier recommendation of 15% disability (made to the Medical Director of the hospital where the Plaintiff was employed) for purposes of workmen's compensation.

42 Following this visit to the Workmen's Compensation Clinic where her assessment had been confirmed at 15% disability, the Plaintiff was not seen at the SGH again for 2 years and 9 months, until 3 November 1987.

43 On 3 November 1987, the Plaintiff was seen at the SGH specialist outpatient clinic where she complained of neck pain. On 5 November 1987 she returned to the outpatient clinic where she again complained of neckache. She reported experiencing the neckache for the past 1 week with the pain radiating down the right arm and associated with a numb feeling in her right hand. No other history of illness was noted at that point. She was admitted for management of her neck pain. Dr. Liao Kian Huat ("Dr. Liao") was the doctor who took the history and reviewed her condition after admission. This was what he recorded:

> Chief Complaints:
>
> cervical spondylosis – neck pain for 1 week
> recurrence of backache with right S1 sciatica for 3 weeks.
>
> Present illness
>
> Aged 37, Indian woman, housewife
>
> - has neck ache for past 1 week radiating down right arm associated with numbness over right hand
>
> - had low backache since 12 years ago after had a fall from staircase with right S1 sciatica associated with numbness of leg. Told to have suspected PID.
>
> - Had 2 operations for backache
>
> - 1st in 1979 by Dr. William Fung SGH but symptoms not relieved
>
> - 2nd in 1981 by Dr. William Fung SGH
>
> - After operation still have on and off backache with right S1 sciatica but pain free for past 3 years.
>
> - Now had recurrence of backache for past 3 weeks and pain over neck for 1 week. Pain for both getting worse.
>
> - Last night developed right S1 sciatica pain running down over lateral side of arm and forearm and ulnar aspect of right hand with no preceding injury, resistant to analgesic treatment.

- No other joint pain, bowels and urine okay.

- No other medical history of note. No diabetes, hypertension, tuberculosis or asthma

- Drug allergy – allergic to possibly marcain and oradexon.

44 Over the next few days, the medical records of that November 1987 admission showed that she was treated and monitored for her neck pain. She was discharged when her symptoms improved on 9 November 1987.

(iii) 1992 to 1996

45 The Plaintiff was not seen again at the SGH until almost 5 years later, on 1 June 1992 when she went to the specialist orthopaedic outpatient clinic complaining of backache associated with right sciatica for 2 weeks. She was admitted for further management. In the days after her admission, she specifically requested to be under the care of Dr. Tay. That was how he came to be involved in the Plaintiff's care yet again.

46 Given her presenting history and the fact that the Plaintiff had had a recurrence of her backache in the 2 weeks prior to 1 June, the decision was made to manage her conservatively. An epidural oradexon was recommended and the Plaintiff consented to the procedure. On 5 June 1992, the epidural oradexon was administered by the attending anaesthetist Dr. Leela Nair and it was documented at the post-operative review that the Plaintiff was well.

47 On 6 June 1992, it was recorded that the Plaintiff had reported improvement in her backache. On 10 June 1992, she again reported that her backache was getting better. Unfortunately following the epidural oradexon procedure the Plaintiff also reported that she had headache and giddiness. These symptoms were consistent with a puncture of the dura which is a complication of the epidural procedure. These symptoms troubled her but it was documented that by 5.45 p.m. on 10 June 1992, her headache was better and she had no neck stiffness. During this admission, the Plaintiff was well enough to be moving about without the need to rest in bed, and in fact the nurses had documented that the Plaintiff refused to rest in bed despite being advised to do so. On 11 June 1992 although the Plaintiff still complained of headache and giddiness, her neck was found to be supple on examination. And at about 2.15 p.m. that day, the Plaintiff requested to go home and was discharged only to return a few hours later complaining of nausea and headache and insisting on a re-admission. The specialist outpatient notes recorded the following :-

> Just discharged this morning, apparently at patient's request. Now complain of nausea/headache. Patient unhappy. Wants admission to Ward 75, specifically to Room 3.

At the ward, the doctor who clerked her case wrote :

> Patient was just discharged today. Now readmitted with complaint of nausea/headache. At A&E patient was very unhappy and wanted admission badly … No loss of consciousness, fainting. No slurring of speech. No vomiting. Patient refuses SLR test. Unable to assess [range of movement].

48 The Defendants contended that it was clear from the contemporaneous entries in the Plaintiff's

medical records that she was readmitted because she was distressed by the headache and nausea symptoms that she had likely suffered as a complication of the epidural oradexon injection on 5 June 1992. Between 12 and 16 June 1992, all the complaints and findings documented by the doctors also related to her neckache, neck stiffness, headache and giddiness. It was only on 17 June 1992 that the Plaintiff was noted by the doctors to complain again of pain and right sciatica. "Pain & Sciatica" was again highlighted to the ward doctors on 19 and 20 June 1992. In view of the apparent return of her back-related symptoms, an MRI scan was performed on 26 June 1992. The MRI scan reported the following findings:

> The right L5 nerve root is surrounded by a rim of enhancement as it exits through the neural foramen. This is compatible with fibrosis. No disc protusion.

The Defendants contended that an MRI scan was an effective and sensitive means of investigating conditions such as the Plaintiff's. It demonstrates the soft tissues well to allow good visualization of the area around L4/L5.

49 Following the findings of the MRI scan, the Plaintiff was seen by the anaesthetist, Dr. Leela Nair. Her pain relief medication was reviewed and Transcutaneous Electromagnetic Nerve Stimulation ("TENS") machine treatment was recommended. This was done on 29 June 1992 but the Plaintiff did not agree to use it again thereafter. She continued to complain of pain up to her discharge from hospital on 6 July 1992.

50 On 22 July 1992, the Plaintiff was seen by Dr. Tay at the specialist outpatient clinic. Dr. Tay documented that the Plaintiff's *"sciatica was worse than [her] backache."* Dr. Tay examined the Plaintiff and recorded that she had a tender right knee. He also noted that she did not want an injection.

51 The Plaintiff's next consultation at the SGH was 11 months later, on 30 June 1993. She went to the specialist outpatient clinic and was seen by another doctor. Her symptoms were recorded as: *"Neck pain + +, Sciatica + ."* She did not want to be admitted but requested an early appointment, in a week's time, to see Dr. Tay. However, on the following day, 1 July 1993, she returned complaining of neck pain. She said that she was unable to move her neck. This time she wanted to be admitted into hospital. She was admitted for further management on the same day.

52 During this hospital admission, there were 2 medical problems that were being managed. The first was the neck pain, the second was the back pain and leg symptoms. The Plaintiff was again jointly managed, with the anaesthetist Dr. Leela Nair making various recommendations regarding optimizing her analgesic therapy, and with physiotherapy. In addition she was given an appointment to consult the Pain Clinic psychiatrist, which she did not attend. On 18 July 1993, it was recorded that the Plaintiff's condition was stable, that she had been seen by Dr. Tay the day before, and that she "clinically felt better". She was discharged on 19 July 1993.

53 On 5 August 1993 the Plaintiff attended the specialist outpatient clinic appointment and was noted to be better with some pain in the neck and lower back. On 19 September 1993 Dr. Tay saw her again for an outpatient review. On this occasion the Plaintiff complained of pain in the right arm/shoulder. Dr. Tay documented that upon his examination of the Plaintiff, "Abduction and Impingement" were found to be positive. This appeared to be the main presenting complaint at this review.

54 There was only one visit, on 8 September 1994, at the specialist outpatient clinic when Dr. Tay attended to her. Right sciatica was noted. On examination of the Plaintiff, Dr. Tay documented a positive SLR and bowstring test. Between 8 September 1994 and 19 June 1996, the Plaintiff did not

return to see Dr. Tay. On 19 June 1996, the Plaintiff returned to the specialist outpatient clinic where it was noted that she had neck and leg pain, right sciatica consistent with the S1 level. The Plaintiff returned almost 6 months later, on 9 December 1996. This time the complaint was noted as inter-scapular pain (i.e. pain between the shoulder blades).

(iv) 1997

55 On 18 February 1997, the Plaintiff was seen by Dr. Tay at the specialist outpatient clinic. The complaint documented was that of pain in the neck radiating down the right upper limb.

56 On 20 March 1997, the Plaintiff had a fall at home. She landed on her buttocks and hit her left knee. She went to the SGH. When she was seen at the A&E Department she did not mention her fall, but stated that she was due for another operation and now had back pain with numbness of the right leg. It was recorded at the A&E Department that the Straight Leg Raising test ("SLR") done for her was 0 for the right leg and 30 for the left leg, "with sciatica". At the orthopaedic clinic review, she reported her fall. She complained of lower back pain but no sciatica. However her SLR was 45 for her left leg and 10 for the right. She was admitted into hospital and the history taken was as follows :-

> last seen by Mr Tay last month, advised for further operation because myelogram was 'abnormal'. This morning, fell at home and landed on buttocks. Now complain of exacerbation of lower back pain. No sciatica (R) lower limb weakness, also hit (L) knee. In pain – obese ++
>
> EHL/FHL (R) 4/5, SLR 45 (L) 10 (R)
>
> Uncooperative with back examination because of pain.
> X-ray (lumbo sacral spine) – loss of lumbar lordosis
> Decrease in L4/5 disc space."

57 There is some dispute regarding the Plaintiff's pain and condition during this hospitalization. The Defendants contended that although the Plaintiff had lower back pain and sciatica, the medical records document that the pain did not appear to be of the degree suggested by the Plaintiff. This was particularly so from the nurses' notes which detailed the pain as being on and off and of varying degrees. There was also some dispute as to whether the Plaintiff's pain was so severe that she was not able to walk. It was documented that the Plaintiff was walking or able to ambulate, albeit slowly or with a slight hunch, on 29 March, 2, 4, 10 and 18 April 1997.

58 After the Plaintiff's admission on 20 March 1997, her condition was kept under observation and treated conservatively. The Defendants said that this was because the fall had exacerbated her symptoms and after such a traumatic injury, those symptoms could improve with time. However the Plaintiff continued to complain of pain and a further MRI scan was performed on 4 April 1997. That did not reveal any evidence of recurrent disc herniation but showed epidural scar tissue. The following was written in the MRI report (1PB 43-44) :-

> There is a soft tissue intermediate density seen in the spinal canal overlying the L4/S1 disc and extending caudally along the L5 level anterior and to the right of the thecal sac. Distortion of the thecal sac is seen which may be due to previous surgery. This lesion enhances markedly with gadolinium and is consistent with granulation tissues.

Comment:

Previous surgery has been performed. Enhancing soft tissue density within the spinal canal is in keeping with epidural scar tissue. No evidence of recurrent disc herniation is seen.

59 On 5 April 1997 it was documented that the Plaintiff was upset about her persistent back pain and asked for a second opinion from Prof. Tan. She reported her request on 6 April 1997 at which time Prof. Tan was on leave and due to return only on 10 April 1997. The Plaintiff was prepared to wait. In the meantime she refused to allow the pain management anaesthetist to examine her. Prof. Tan came by on 9 April 1997 in the late afternoon. After reviewing her medical records and examining the Plaintiff he wrote as follows:

4.20 pm : Patient reviewed.
She is troubled by her low back pain (R) leg.
Clinically she is unable to stand upright.
SLR 10/70, EHL 4/5.
sensation decreased L5 and S1

MRI – scar tissue around L4, 5 with compromise of spinal canal.

I think that her problem is due to the fibrosis around L4, 5. However, she also has a strong supratentorial element of pain. I've explained to her about the pros and cons of surgery. She must be prepared to accept a less than satisfactory outcome although surgery is advised since all conservative measures have failed.

The notation relating to the MRI showing scar tissue around L4/L5 with compromise of the spinal canal was Prof. Tan's interpretation of the MRI scan films he reviewed.

60 In relation to that consultation, the nurses documented that Prof. Tan had spoken to the Plaintiff and her husband *"re : KIV surgery"*. And the following day the Plaintiff was noted to be "keen for surgery". The Defendants contended that from this, it was clear that the Plaintiff had understood that Prof. Tan had offered her the option of surgery.

61 On 12 April 1997, the Plaintiff asked to consult Prof. Tan again. Dr. Tay had admitted to having his own reservations about operating on the Plaintiff. The Plaintiff was still under his care and he had ordered conservative management to continue in the meantime. A dietician had seen the Plaintiff but the Plaintiff had not felt that she had a problem. The Plaintiff was subsequently noted to be anxious and angry and wanting to speak to Prof. Tan. It was arranged for Prof. Tan to meet with the Plaintiff's son and the Plaintiff was informed of this. Eventually on 15 April 1997, the Plaintiff's son met and discussed the Plaintiff's condition and the possibility of surgery with Prof. Tan. On 16 April 1997, a request was made on behalf of the Plaintiff for a copy of her MRI report and medical reports, presumably to facilitate her seeking further opinions. This was acceded to by Dr. Tay. At the same time, the Plaintiff made a further request, which was to ask Dr. C T Tan for a second opinion. Dr. C T Tan was then, and still is, the Head of the Spine Service at the SGH. On 17 April 1997 it was documented that the Plaintiff *"wants 2nd opinion from spine surgeon"*. Dr. C T Tan was informed and agreed to it. He saw her at about 5.00 p.m. that day, having reviewed the medical records beforehand. He recorded that the examination was limited by the fact that the Plaintiff was unable to get out of bed. Nevertheless he proceeded with the tests that he could still perform with the Plaintiff lying down. The following is what he documented :-

> 5.00 pm : Previous surgeries noted. Persisting pain and (R) sciatica since. Claimed that the pain is getting worse following several falls. React sharply even flexing (R) knee. Unable to get out of bed. SLR 10 /80 . Slight weakness (R) FHL. Reflexes (R) = (L). Plantar reflexes downward. Review of recent MRI showed scar tissue surround the dura at L4-5 level.
>
> Her symptoms probably due to epidural fibrosis with emotional element being quite marked. Suggest epidural dexamethasone. The chance of success with surgery I feel is small in view of chronicity of the problem and likelihood of scarring again after surgery.

62 Dr. C T Tan was of the opinion that the chance of success with surgery was limited and he had suggested that epidural dexamethasone be tried instead. After the review and hearing the advice from Dr. C T Tan, the Plaintiff told the nurses that she wanted to see Prof. N. Balachandran ("Prof. Bala") for a *"last opinion"*. That request was noted by the doctors the following day, 18 April 1997, and this request was conveyed to Prof. Bala. On 20 April 1997, it was documented that the Plaintiff told the ward doctor that she *"wants [an] operation"*, but *"refuses epidural oradexon"*.

63 On 21 April 1997, it was written in the medical records that the Plaintiff's husband wanted to speak to Prof. Tan. Later, the Plaintiff was informed that Prof. Bala would not be seeing her. It was then documented that the Plaintiff was upset and wanted to go home, and that she no longer wanted arrangement to be made for Prof. Tan to speak to her husband. She was recorded as saying that she was in pain and was upset that no surgery was going to be done for her. The Defendants contended that this was because she was disappointed at Prof. Bala's refusal to see her because in the morning she had requested arrangement be made for her husband to speak to Prof. Tan and something must have caused her to change her mind. She was discharged on 22 April 1997 at her request, with an appointment to see Dr. Tay at the specialist outpatient clinic.

Prof. Aziz's evidence

64 On 30 April 1997, the Plaintiff went to the NUH and was seen by Prof. Aziz at the outpatient clinic. According to Prof. Aziz's medical records, she informed him that she had 2 previous operations at the SGH for *"removal of disc at L4 L5 level"* in 1977 and 1981. Her complaint was persistent low back pain with pain radiating to the back of her right thigh, the back of her right calf and to her right heel, which Prof. Aziz explained was commonly known as sciatica or nerve root pain. The Plaintiff reported that this nerve root pain had become severe in the one month preceding her visit. On questioning, she said that she also had difficulty in walking long distances and that after walking a certain distance she experienced sciatica on the right side. When asked how far she was able to walk before she felt such symptoms, the estimate given was the distance of about one bus stop length. This symptom is called neurogenic claudication, named after the Roman emperor Claudius I (10BC – 54AD) who suffered from an affliction that, among other things, made him walk with a pronounced limp. Prof. Aziz explained that this symptom of neurogenic claudication was characteristic of spinal stenosis or, more specifically, nerve root canal stenosis on the right side. The Plaintiff also complained of pain in the right leg on coughing and sneezing.

65 Prof. Aziz said that the Plaintiff was unable to sleep on her back (supine posture), when the spine would be in extension, due to pain. She could only sleep in a lateral position by lying on her left side of her body when the spine would be in a flexed position. Prof. Aziz explained that this symptom was again classical of spinal stenosis. He had considered spinal instability as a possible condition. However he noted in the outpatient notes that he was not personally convinced that clinically there was spinal

instability, although he noted that it was possible. As he could not rule out this possibility he ordered further investigations to be done, i.e. anterior–posterior, lateral and stress X-rays.

66 In his physical examination of the Plaintiff, Prof. Aziz found that her spine was tender at the L5 level. However he could not test her spinal movements because she was in severe pain. Prof. Aziz performed a straight leg raising test and noted a marked limitation on the right side with the Plaintiff being able to tolerate the leg being raised up to 20 only. There was decreased sensation in the right lower limb in the dermatones of L4, L5 and S1. He was unable to assess the motor power in both lower limbs due to pain. Ankle jerks and knee jerks on both sides could not be elicited, also due to pain. His clinical diagnosis was that she had root canal stenosis at L4/L5 on the right side and this was based on:

(i) characteristic history of neurogenic claudication;

(ii) characteristic history of change in sleeping posture

(iii) sciatica on right side; and

(iv) limitation of straight leg raising of right leg

67 On examination of the X-rays, Prof. Aziz found that a fenestration had been done at L4/L5 level more on the right side. The stress films showed that the sagittal plane translation of L4 over L5 vertebral body measured about 1 millimetre and the sagittal plane rotation of L4 over L5 vertebral body measured about 3 degrees. In his opinion, radiologically there was no evidence of spinal instability. Based on the clinical presentation, Prof. Aziz felt that the Plaintiff required further radiological investigation namely a CT myelogram. This investigation was essential for him to confirm his clinical diagnosis of root canal stenosis with a view to carrying out surgery if necessary depending on the results of the CT myelogram.

68 On 8 May 1997 the Plaintiff was admitted to the NUH. A CT myelography was performed on 9 May 1997. From this, Prof. Aziz found right L5 nerve root "cut-off" on the antero-posterior view as well as the right oblique view. Flexion and extension views of the myelograms, which were also stress films of the lumbar spine showed sagittal plane translation of L4 over L5 vertebra to be about 2 millimetres and the sagittal plane rotation to be about 3 degrees. He was of the opinion that there was no radiological evidence of spinal instability. Prof. Aziz said that the CT scans at L4/L5 showed vacuum phenomenon at L4/L5 disc indicating disc degeneration at that level. There was no significant compromise of the central canal. However, there was significant compromise of the lateral recess or nerve root canal on the right side indenting the thecal sac on the right side. There was no filling of right L5 nerve root indicating compression of the right L5 nerve root. There were also degenerate and hypertrophied L4/L5 facet joints particularly on the right side contributing to this nerve root compression.

69 Prof. Aziz said that his pre-operative diagnosis, taking into consideration the history, clinical findings and radiological findings including CT myelograms, was right L5 nerve root canal stenosis. He found no evidence of spinal instability. Prof. Aziz's surgical plan was right L5 nerve root decompression and spinal fusion between L4 and L5 augmented with pedicle screw instrumentation. Prof. Aziz said that the Plaintiff was also reviewed by his colleague in the Spine Division, Mr Joseph Thambiah whom he had asked to be his first assistant in the surgery. Mr Thambiah agreed with Prof. Aziz's diagnosis and surgical plan for the Plaintiff. Prof. Aziz anticipated the surgery to be technically demanding since this was going to be her third operation and much fibrosis and adhesion would be expected. He brought the case up for discussion in the Division of Spine Pre-Operative Round on 12 May 1997. The

team of surgeons in the Division agreed with his pre-operative diagnosis and surgical plan.

70 The operation was performed on 13 May 1997. Prof. Aziz found much fibrosis on the right L5 nerve root. He performed a wide decompression with laminectomy of L5 and partial laminectomy of L4 including right L5 nerve root canal decompression and postero-lateral spinal fusion between L4 and L5 augmented with pedicle screw instrumentation. Spinal fusion is the fixing of two vertebrae so that they are unable to move relative to each other and they in effect act as a single elongated vertebra. Prof. Aziz said that he carried out the spinal fusion for two reasons:

(i) it was his normal practice to fuse the spine prophylactically after multiple operations and this operation was the third for the plaintiff; and

(ii) as he had performed a wide laminectomy in order to effectively perform right L5 nerve root canal decompression, the stability of the spine could be compromised. Therefore he decided to fuse the spine prophylactically.

71 Prof. Aziz said that the Plaintiff recovered uneventfully from the surgery and was discharged on 31 May 1997. Thereafter he saw her at the outpatient clinic. When reviewed on 6 July 1997 she was well. On 12 September 1997 she complained of low back pain. On 13 October 1997 she was well. On 21 November 1997 she was well. Straight leg raising was 80 degrees on both sides and X-rays showed good spinal fusion. When reviewed on 31 August 1998 she was well. On 28 December 1998 she had no more pain but complained of some numbness in the back of her right knee. He last saw her on 9 July 1999. She had no more problems in the low back. There was full range of motion in the spine. Straight leg raising was 80 degrees on both sides and she was discharged from further outpatient follow-up.

Evidence of the Experts

72 The situation can be summarised in this manner. The Plaintiff had suffered from PID, or slipped disc, in 1977. She underwent two operations in 1979 and 1982 for removal of the disc material. However over the next fifteen years she continued to suffer from various symptoms, including back pain, sciatica, neck pain etc. According to her, they were intolerable at certain times during this period. For part of this period she was treated conservatively at the SGH. Dr. Tay treated her from 1992 to 1997 but to no avail. In 1997, she decided to go to the NUH for treatment. After Prof. Aziz's operation, she felt well with no more back pain. The question is whether the Plaintiff had a cause of action against Dr. Tay, and vicariously the second Defendant, in respect of the treatment she received between 1992 and 1997.

73 The Plaintiff called one expert to give evidence on her behalf. The Defendants called three. This is not an abnormal ratio. But the decision does not rest on the number of experts a party can muster but the quality of their evidence. I first set out their evidence before proceeding to analyse them.

Dr. Andrew Ransford

74 The Plaintiff's expert was Dr. Andrew Ransford, Emeritus Consultant Orthopaedic and Spinal Surgeon at the Royal National Orthopaedic Hospital Trust in London, U.K. He had been in private practice as an Orthopaedic Surgeon for nineteen years, specialising in spinal surgery especially in connection with the neck, scoliosis and lumbar spine. He retired from clinical practice in April 2000. Dr. Ransford was Chairman of Surgery in University College Hospital from 1986 to 1989 and Chairman of Bloomsbury Surgeon & Anaesthetists from 1989 to 1991. He was also Chairman of the Seddon Society

in 2000 and Chairman of The Zimmer Fellowship. His involvement in the international arena included being a Visiting Scoliosis Surgeon in Malta and Egypt.

75 Dr. Ransford was an examiner at the University of London for the M.B.B.S. course. He was an F.R.C.S. examiner for the Royal College of Surgeons in the United Kingdom, Scotland (Edinburgh) and Sri Lanka. He was the Regional Adviser in Orthopaedics with N.W. Thames. He was President of the British Cervical Spine Society in 1997 and 1998 and the British Scoliosis Society in 1999 and 2000. Dr. Ransford had made well over one hundred presentations in various meetings and at society gatherings. His academic work included authoring or co-authoring 35 peer-reviewed articles in medical journals. He had written chapters in a number of textbooks on surgical practice in the area of the spine. He had presented lectures in Australia, Japan, Korea, Spain, United States, France and Argentina. Dr. Ransford had testified in medico-legal cases in various courts throughout the United Kingdom, on behalf of the patients and doctors in almost equal proportion. He had given evidence mostly in cases involving spinal surgeries and orthopaedic claims related medical negligence cases in the United Kingdom.

76 Sometime in May 1999, Dr. Ransford was approached by the Plaintiff's solicitors to provide an opinion on the treatment she received at the SGH between 1979 and 1997. He was furnished with the relevant medical records and X-ray films and other radiological findings, namely (i) medical notes obtained from the SGH spanning from 1992 to 1997; (ii) medical notes obtained from the SGH spanning from 1979 to 1987; (iii) medical notes from the NUH in the year 1997; (iv) all medical reports of the Plaintiff; and (v) outpatient records of the Plaintiff. In June 2000 he examined the Plaintiff in his London clinic. Dr. Ransford formed his opinion of the matter from the documents given to him and his physical examination of the Plaintiff.

77 Dr. Ransford summarised the Plaintiff’s medical history as follows. She had injured her back from a fall at work in 1977. Conservative treatment failed and in 1979 Dr. Fung operated on her for PID at L4/L5. He did a bilateral fenestration and discectomy, i.e. he approached from both sides of the spine, cut some bone to create openings on both sides and through these openings removed the disc fluid. However the pain recurred and Dr. Fung performed a second operation in 1982. He discovered that fibrosis had taken place. This time more disc fluid taken out. But the pain continued to recur even after this second operation. Dr. Ransford was of the view that the wrong operation was performed in 1979 and 1982. However as the Plaintiff’s claim did not extend to those events he did not press the point. He said that at best, what those operations did was to cause fibrosis and some instability to the Plaintiff’s spine at L4/L5. Dr. Ransford was of the view that this became apparent in X-rays taken in 1992 which showed a differential degeneration of the disc at L4/L5, where the anterior had compressed more than the posterior creating a wedge shape (the "wedge" effect) and causing the facet joints to be stretched to such an extent that they did not contribute to the stability of the L4/L5 joint.

78 Dr. Ransford was of the opinion that the cause of the Plaintiff’s condition was spinal instability. He reached this conclusion primarily from X-ray films and radiological findings obtained between 1979 and 1997, bearing in mind the medical history of the Plaintiff. He said that from his examination of the X-ray films, it appeared to him that the Plaintiff was indeed suffering from post-discectomy instability after the second operation in 1982. He could also detect some evidence to suggest spinal instability on plain X-rays obtained in 1992 and obvious instability in 1996. Under cross-examination, he explained that the X-rays of 1982, 1992, 1996 showed that the disc at L4/L5 had degenerated more anteriorly than posteriorly and that this caused spinal instability. He said that L4 and L5 vertebrae are connected by the disc and two facet joints. When there is asymmetrical disc degeneration, the segment is tilted and the facet joints are pulled apart and do not contribute to spinal stability.

79 Dr. Ransford's main contention was that in 1992, Dr. Tay ought to have suspected spinal instability. At the very least he ought to have considered this possibility because instability after a discectomy operation was quite common. In spinal instability the joint is flexed beyond its normal range (hypermobility) and this causes inflammation in the surrounding tissue, in turn causing back pain. Dr. Tay ought to have ordered a flexion/extension X-ray, which was the normal test for spinal instability. In a flexion/extension X-ray the patient is made to bend forward as much a possible for a film to be taken, and then bend backward for the second film. Any instability would show up as a lateral displacement of the two adjoining vertebrae. But because patients often do not co-operate in flexion/extension X-rays due to pain, false negative results are common. Therefore even if negative, Dr. Tay ought to have ordered other tests to rule out instability. This could be done by getting the patient to wear a brace and if the pain went off after a few months this would more or less confirm that the pain was due to spinal instability. Dr. Ransford also said that physical examination was important in the diagnosis of spinal instability. A reliable symptom was the "catch sensation" experienced by a patient when trying to straighten up after bending. He said that a thorough physical examination required the patient to be undressed to her inner garments. The Plaintiff had told him that Dr. Tay had not conducted such an examination. Dr Ransford said that failure to conduct a thorough physical examination would also have resulted in the failure to properly diagnose spinal instability. He conceded that the Plaintiff appeared prone to exaggeration but said that where a patient did not seem to be cured, she would sometimes exaggerate to attract attention. A good doctor had to take this into account and interpret the symptoms accordingly. He should not dismiss it wholesale.

80 Dr. Ransford said that in 1992 Dr. Tay had believed that the Plaintiff's problem was caused by fibrosis which compressed the nerves at the spine. But this would cause sciatica (i.e. pain radiating to the legs) rather than low back pain. If the fibrosis had caused adhesion of the nerve root to the bone, then movement of the spine would tug at the nerve root and this would cause pain. Dr. Ransford said that Dr. Tay had before him a patient who had several admissions for long periods after suffering a fall. She was going through severe pain and in not investigating for spinal instability Dr. Tay was clearly negligent. The Defendants had conceded that neither Dr. Tay nor any of the other SGH doctors who had attended to the Plaintiff had diagnosed spinal instability. Dr. Ransford said that they should have done so, or at least ordered investigations for this. He contended that Dr. Tay had failed to appreciate the following factors:

(a) that the Plaintiff had undergone two precious disc excision;

(b) that the disc at L4/L5 had degenerated badly;

(c) that the L4/L5 discs showed non-uniform narrowing which showed wedging;

(d) the progression of degeneration which showed retrolisthesis in 1996;

(e) that the Plaintiff suffered from predominant back pain;

(f) that the Plaintiff's back pain increased with movement;

(g) the condition at the facet joints; and

(f) the Plaintiff's history.

Prof. Sean Hughes

81 Prof. Sean Hughes was the Defendants' first expert witness. He is the Professor of Orthopaedic Surgery at the Imperial College School of Medicine, London and the Head, Division of Surgery, Anaesthetics & Intensive Care of the University. He is concurrently the Clinical Director of Surgery and Anaesthetics of the Hammersmith Hospitals NHS Trust, Honorary Consultant to the National Hospital Queen Square and Honorary Consultant to the Royal Navy. He was a past President of the British Orthopaedic Research Society and Vice-President of the Royal College of Surgeons, Edinburgh. He has held the position of Professor of Orthopaedic Surgery at the University of Edinburgh.

82 Prof. Hughes sits on the editorial board of the following publications: "Current Opinion in Infection", "Journal of Bone and Joint Surgery", "Medical Audit" and "Modular Textbook of Orthopaedics". He has sat in the editorial boards of "Journal, Royal College of Surgeons of Edinburgh", "Journal of Bone and Joint Surgery" and "Hip International". He has written 13 books, 30 chapters in various other books and published 177 peer-reviewed papers.

83 Prof. Hughes had reviewed the Plaintiff's medical history made available to him. He noted that this type of presentation was not unique to most spinal surgeons, namely, a young person who had injured her back at work and who then failed to respond to conservative treatment. Then after a prolonged period with relatively severe signs on examination, but minimal signs on investigation, the patient underwent an operation from which she did not make a good recovery. In the Plaintiff's case, in spite of extensive assessment at that stage and the exclusion of any underlying pathology, such as a cauda equina syndrome, she continued to have back pain and leg pain. Prof. Hughes said that it was reasonable to perform the second operation which was some five years after the original episode and three years after the first operation. Unfortunately this too only produced partial relief. Prof. Hughes noted that further extensive assessments were carried out for the Plaintiff including myelography, MRI and pain clinic management without any real improvement. Eventually a further operation was performed in May 1997 which appeared to bring great relief.

84 Prof. Hughes was of the view that there was no evidence of any departure from accepted medical practice. He said that the indication for the first operation in 1979 was acceptable although the outcome was not good. However, especially with the knowledge at that time, it was a reasonable operation to perform. The investigations and assessments made after this operation were perfectly correct. As for the second operation, the indications for it were acceptable, although with hindsight, it might not have been all that valuable. He said that the follow up care after that was exemplary along with appropriate investigations and management.

85 Prof. Hughes said that the role of a third operation for disc degeneration was far from proven and most series reported an outcome of pain relief of much less than 50%. He said that it was also known that patients with the so-called "failed back syndrome", a condition which the Plaintiff's medical history and presentation fitted into, did not have good long term results from spinal stabilisation. Prof. Hughes said that he himself would not have rushed into any further third operation without clear evidence of what he was going to do and achieve.

86 Prof. Hughes disagreed with Dr. Ransford's opinion that the Plaintiff's condition was caused by spinal instability because there was no evidence pointing to it. In his view the 1982 to 1997 X-rays did not demonstrate the evidence or suggestion of spinal instability that Dr. Ransford contended. While Prof. Hughes agreed that there was a differential loss of height, slightly more so in the anterior disc space as compared to the posterior disc space, he did not think that this difference was pronounced or anywhere close to the degree where one would begin to suspect spinal instability. Prof. Hughes said that such a disc deformity was not an uncommon finding in a significant section of the adult population, even amongst those who are asymptomatic, i.e. who did not encounter any symptoms. He would not have concluded that such a radiological finding was in itself suspicious of

spinal instability in the absence of definitive findings, such as translation or displacement at the spinal segment, that resulted in a loss of alignment in the bony vertebral column. Prof. Hughes also pointed to the fact that the flexion/extension X-rays done at NUH on 30 April 1997 did not show any evidence of spinal instability, which Dr. Ransford had agreed with.

87 As for Dr. Ransford's opinion that Dr. Tay ought to have investigated for spinal instability, Prof. Hughes said that this view was not justified. He said that in the first place, a skilful appreciation of the Plaintiff's medical problems was not an easy task. Throughout the time she had been treated at the SGH, the Plaintiff had been individually assessed by many doctors and thought to exhibit a marked psychological element to her pain symptoms. This was both with regards to the degree of pain she experienced as well as the extent of the areas where such symptoms were reportedly felt. There was also a record of various assessments the Plaintiff requested for workmen's compensation purposes. Dr. Tay and other doctors such as the pain management specialist had obviously recognised that there was a significant psychological element involved and an attempt had been made to refer her to a psychiatrist in 1993. Prof. Hughes noted that there were on occasions a pattern of inconsistency in the degree and extent of her pain reported and her ability to ambulate during her hospitalisation and said that this would have led one to suspect that the Plaintiff might have had a tendency to over-emphasise her symptoms. Prof. Hughes pointed out that Dr. Ransford himself had acknowledged that this was probably the case. Prof. Hughes said that this could not only limit the extent of the physical examination that can be performed, but it can also lead to the clinical information elicited being less than ideal, thereby confounding the diagnosis to be made. Nevertheless, Prof. Hughes was of the view that Dr. Tay had taken the Plaintiff's complaints seriously and had been careful to correlate this with the objective findings. Prof. Hughes said that the following features were of particular significance regarding the Plaintiff's clinical presentation:

> (i) Prior to 1997, the Plaintiff's condition was consistent with chronic back pain following previous spinal surgery, what would be termed as "failed back syndrome". There were periods of time during which she did not return to seek specialist treatment at the SGH and one would have to assume that her chronic back pain was not then so severe. On various occasions she had returned to the SGH only after sustaining a fall following which she felt the back pain and sciatica worsen;
>
> (ii) In June 1992, the Plaintiff was admitted for her low back pain and right sciatica. She underwent an epidural oradexon injection. The medical records suggested that she obtained some relief from this treatment. She subsequently sought re-admission as a result of headache and nausea following the epidural injection. During this re-admission she also received treatment for her neck pain and related symptoms. At the outpatient visit on 22 July 1992, the Plaintiff reported that her sciatica was worse than her backache, and she also had a tender right heel;
>
> (iii) In July 1993 the Plaintiff was admitted again. However her predominant complaint was initially her cervical spondylosis, although she was also treated for her back pain symptoms as well. In the years that followed, the Plaintiff had a range of complaints when seen at the outpatient clinic, from her neck pain and back pain, to her right arm and shoulder pain, right sciatica and interscapular pain;
>
> (iv) The Plaintiff then had a fall on the morning of 20 March 1997, and this led to her hospitalisation due to exacerbation of her backache.

88 Prof. Hughes said that patients with spinal instability usually have an onset of back pain which was often related to the degree of movements or activities they indulged in. He disagreed with the suggestion that the fact that the Plaintiff had an exacerbation of her back pain following her falls was suggestive that she had spinal instability because almost any chronic back condition could be aggravated by a fall. He said that there was no basis to say that this was evidence of spinal instability. Furthermore, patients with an unstable spine often had severe onset of back pain with what would usually be regarded as normal movement and activities, and not only when they sustain a fall.

89 Prof. Hughes said that the Plaintiff's symptoms as well as the findings elicited during physical examination such as straight leg raising and toe movements suggested that her symptoms were not necessarily dependent on the degree of spinal movements. He was of the view that they strongly suggested nerve root involvement and said that this was confirmed by the MRI scans. As for Dr. Ransford's suggestion that the nerve root symptoms were triggered off by unstable spinal movements at the L4/L5 segment, which in turn caused the nerve root that had been stuck to the disc space by fibrosis to be irritated and inflamed, Prof. Hughes said that it was wrong to assume that there must be spinal instability before the fibrosis can cause symptoms and signs. While this was a theoretical possibility, he was unable to see any clinical evidence to positively support the contention that such a condition was present in the Plaintiff.

90 Prof. Hughes said that there was clear evidence of other causes for the Plaintiff's medical problems. Therefore he felt that the arguments put forward by Dr. Ransford at best did no more than suggest that spinal instability might have been a theoretical possibility, in addition to the more impressive findings and evidence of nerve root fibrosis, degenerative changes of the disc (which could cause back pain) and possibly mild spinal stenosis seen in the Plaintiff's case. In respect of Dr. Ransford's contention that Dr. Tay should have specifically investigated for spinal instability by ordering flexion/extension X-rays and also by putting the Plaintiff on a trial with a brace or plastic jacket, Prof. Hughes had this to say. Clinicians do not routinely order further investigations to rule out a condition because it was a theoretical possibility. To require doctors to do so would lead to serious repercussions in the way they practised. Patients would be over-investigated and clinicians would be practising defensive medicine to the detriment of patients. Prof. Hughes pointed out that, Dr. Ransford himself had referred to literature that suggested that flexion/extension X-rays were not of value in post lumbar discectomy instability. The issue of what investigations were appropriate depended on whether there was clinical evidence to warrant such investigations being performed. Based on the available information regarding the Plaintiff's documented medical history, clinical presentation and other findings, Prof. Hughes did not think that flexion/extension X-rays ought to have been taken. Spinal instability would not have been high in the list of likely diagnoses and in such a situation it was accepted practice not to call for such investigations. As for the use of a brace or plastic jacket, Prof. Hughes disagreed that it was usually employed as a diagnostic tool for spinal instability. He doubted its effectiveness in limiting spinal movements and did not think it was of any value.

91 Prof. Hughes said that post-discectomy instability was as yet not clearly defined in orthopaedic literature and it remained very much a matter of opinion. His own view was that the question of diagnosing spinal instability was far from clear except in patients who suffer injuries to the spine, be it from trauma or infection or tumours. He said that spinal fusion was still not widely practised in the UK and Europe and probably also in the Far East, particularly in the 1990's. Prof. Hughes felt that Dr. Ransford was relying heavily on hindsight and had made assumptions to fit the conclusion he reached with the benefit of that hindsight. He concluded that Dr. Tay as well as the other doctors who had assessed the Plaintiff during her last admission to the SGH had made a careful study of her medical history and clinical signs and symptoms, and had come to a correct and reasonable conclusion and

diagnosis of her condition.

Prof. Donald Chan

92 Prof. Donald Chan was the Defendants' second expert witness. He is the Warren G. Stamp Professor of Orthopaedics and Head of the Division of Spine Surgery at the Department of Orthopaedic Surgery, University of Virginia, USA. In 1990 he was awarded "Doctor of Medicine" by the Board of Regents of the University of the State of New York. He has been a Visiting Professor to universities all over the world, including the National University of Singapore. He has published numerous academic papers and books on spinal disorders.

93 Prof. Chan reviewed the Plaintiff's medical history and formed the opinion that the first two operations in 1979 and 1982 were appropriate treatments. He said that the treatment of the Plaintiff's subsequent repeated episodes of pain with non-operative techniques, such as physical therapy, pain management including epidural injections, and pelvic traction was appropriate. He was of the view that the doctors at the SGH had appropriately exercised a cautious approach to the management of her low back problem as she was someone with multiply operated back and chronic pain syndrome. Prof. Chan said that a spinal fusion in this type of situation did not assure correction of the problem in the long run. He said that spinal fusion procedures should only be done as a last resort, one reason being that there was a possibility that that the adjacent disc will undergo degeneration and become symptomatic, particularly at the L5/S1 level which, in the Plaintiff's case was already showing some degenerative changes. Prof. Chan felt that the doctors at the SGH had properly exercised a cautious approach to the management of the Plaintiff's complicated low back problem by treating her conservatively. He said that in her type of situation, a spinal fusion did not guarantee pain relief or functional return to gainful employment. Prof. Chan was of the view that Dr. Tay did not deviate from the acceptable standard of care, and was not negligent in the management of the Plaintiff's problem.

94 Prof. Chan disagreed with Dr. Ransford's view that the two operations the Plaintiff had in 1979 and 1982 had rendered her spine unstable. From the X-ray films he saw evidence of narrowing of the disc space at L4/L5, starting from the film dated 23 July 1982. The later films in 1996 and 1997 showed some progression of the disc space narrowing at L4/L5. However he saw no evidence of spondylolisthesis or subluxation of L4/L5, i.e. signs of non-alignment or slipping of the bony vertebrae that could indicate the possibility of hypermobility at the L4/L5 motion segment. Prof. Chan disagreed with Dr. Ransford's view that the mere presence of a disc space narrowing with a mild degree of angular deformity caused by a slightly greater loss of height at the anterior disc space was, by itself, sufficient to indicate spinal instability. Prof. Chan said that it was not possible to make a statement, as Dr. Ransford had done, that the spine was unstable based on those films. He said that one could only say that, as expected, there was progressive disc degeneration at L4/L5 but no degenerative spondylolisthesis which could indicate instability. Prof. Chan said that the progressive disc degeneration in the Plaintiff's case was not unexpected in view of her medical history. Similar degenerative changes might be found in a large number of the population, even in those without symptoms. But to say that such radiologic evidence of degenerative changes would by itself indicate the possibility of spinal instability, if taken to its logical conclusion, would imply that all such patients should be treated or investigated for spinal instability. He said that this would not accord with accepted medical practice.

95 Prof. Chan said that, apart from the absence of any radiological evidence of subluxation or non-alignment, the radiographs did not suggest that the previous fenestrations had by themselves resulted in any degree of loss of the bony structure such as would lead one to suspect hypermobility at the segment. Furthermore, the facet joints appeared to be intact and this was also demonstrated

in the NUH CT myelogram. He pointed out that Dr. Ransford had conceded that the myelogram showed the facet joints to be intact. He also pointed out that Dr. Ransford had also accepted that the flexion/extension X-rays taken at the NUH on 30 April 1997 did not show any evidence of spinal instability. In view of these factors, Prof. Chan was of the opinion that there was no radiological evidence of spinal instability on the part of the Plaintiff when she was treated at the SGH.

96 Prof. Chan disagreed with Dr. Ransford's position that the Plaintiff's clinical presentation suggested spinal instability. This was because throughout the better part of the Plaintiff's treatment at the SGH, she had complained of back pain with a significant complaint of right sciatica. Neurological symptoms or signs were demonstrated during physical examination (straight leg raising and toe movements) as well as in an early EMG study. These suggested that there was significant involvement of the nerve root, and was totally consistent with the subsequent findings from imaging studies. Prof. Chan said that Dr. Ransford had focussed on the Plaintiff's low back pain as a clinical sign of spinal instability, but this was a non-specific and subjective symptom. Prof. Chan pointed out that Dr. Ransford had conceded that spinal stenosis and degenerative disc disease itself can cause back pain. Prof. Chan said that to rely on back pain alone as clinical evidence of spinal instability was inappropriate. He also dismissed Dr. Ransford's postulation that spinal instability could cause sciatica by causing the nerve root to be tethered and stuck to the L4/L5 disc space such that unstable movements of the spinal segment caused a corresponding irritation of the nerve root and painful sciatica as a result. He said that this did not take into account the fact that the fibrosis around the nerve root can cause sciatica and pain even without a hypermobile spinal segment and therefore this should not constitute clinical evidence of spinal instability. This, said Prof. Chan, was an attempt to suggest that the more impressive clinical findings consistent with nerve root fibrosis and mild spinal stenosis as well as the degenerative changes might not absolutely rule out a possible spinal instability element at play as well. But even if that were so, one would still need clinical evidence to support any conclusion that the spine might have been unstable at the same time. However the overall clinical picture was not one in which symptoms were associated with the degree of spinal movements which is a major indication of spinal instability.

97 As for Dr. Ransford's reference to clinical symptoms or signs of spinal instability such as "catch" sensations, Prof. Chan pointed out that the Plaintiff had been seen and examined at the SGH on various occasions over the years and it did not appear that she had complained of anything resembling "catch" sensations upon straightening her back or getting up from a sitting position. Prof. Chan was of the opinion that Dr. Tay and the attending doctors at the SGH were reasonable in concluding that the Plaintiff's clinical presentation was entirely consistent with the radiological evidence, and that nerve root fibrosis was a significant factor contributing to her failed back syndrome. Prof. Chan pointed out that Dr. Ransford himself had stated that spinal instability should have been entertained as a possible diagnosis in the *"absence of disc herniation, stenosis and other lesions"*. But there was reliable evidence of a lesion, namely the nerve root fibrosis, to which the symptoms could be attributed. And there was some evidence of mild spinal stenosis which Prof. Tan Ser Kiat had described as *"L5 nerve root fibrosis with compromise of the spinal canal"*. Therefore, Prof. Chan disagreed that this was the sort of case where the clinicians should have been obliged to consider and rule out spinal instability in the absence of other attributable organic causes for the symptoms.

98 As for the issue of whether there should have been specific investigations ordered to rule out spinal instability, such as flexion/extension X-rays, or trial with a brace or plastic jacket, Prof. Chan pointed out that further investigations would usually be ordered if there were clinical grounds warranting it, or there was an index of suspicion from a patient's medical history. In other words, it was not usual practice to order investigations to rule out a condition merely because it was theoretically possible. He said that such a practice would otherwise lead to unnecessary over-

investigation that would often be difficult to justify. On the facts of the case, based on the Plaintiff's clinical presentation, history and existing radiological and other findings during her treatment at the SGH, Prof. Chan said that the index of suspicion for spinal instability had been rather low, which would explain why flexion/extension X-rays were not thought to be indicated. As for the use of a brace or plastic jacket, Prof. Chan said that there were inherent limitations to their use as diagnostic tools. To immobilise the L4/L5 segments effectively, it might have been necessary to immobilise pelvic movements as well which a normal brace or plastic jacket might not achieve. He said that furthermore, a brace or plastic jacket did not limit rotation movements of the spine. He was therefore doubtful about the value of a brace or plastic jacket in investigating spinal instability. Prof. Chan pointed out that subsequent flexion/extension X-rays on 30 April 1997 did not demonstrate spinal instability. It was his view that any such X-rays done earlier would not have demonstrated otherwise.

Dr. Pesi Chacha

99 Dr. Pesi Chacha was the third expert called by the Defendants. He is a consultant Orthopaedic surgeon in private practice. He is also a Visiting Consultant to the Department of Orthopaedic Surgery at the SGH and Changi General Hospital. He was previously the Professor of Orthopaedic Surgery at the National University of Singapore, having retired in 1980. Dr. Chacha did not have the advantage of the full medical reports and other documents and radiographs available to the other experts. As such his opinion was of limited use and neither the Plaintiff nor the Defendants relied on it. It is therefore not necessary for me to deal with his evidence.

The Law

100 The parties agree that the Plaintiff must establish that (i) the Defendants owed her a duty of care; (ii) such duty had been breached; and (iii) such breach had caused injury, loss or damage to the Plaintiff. The Defendants admit that they owed her a duty of care as she was their patient at the material time. But they deny that they were ever in breach of that duty in not diagnosing or investigating for spinal instability. They also aver that even if such duty had been breached it had not caused her any injury, loss or damage because her condition was not caused by spinal instability.

101 The law specifies the standard of care to be that of an ordinary competent practitioner exercising ordinary professional skill. In assessing the standard of care, the court is guided by the evidence of medical experts. But where, as here, there are differing opinions on the part of the experts the defendant would not be in breach of the duty of care if his position is accepted by a responsible body of medical professionals in that area even if the diagnosis or treatment were wrong. This is the *Bolam* test, expounded by McNair J in *Bolam v Friern Hospital Management Committee* [1957] 2 All ER 118. In that case McNair J, in the course of instructing the jury, said as follows (at p. 121):

> "The test is the standard of the ordinary skilled man exercising and professing to have that special skill. A man need not possess the highest expert skill at the risk of being found negligent. It is well established law that it is sufficient if he exercises the ordinary skill of an ordinary competent man exercising that particular art. … I referred, before I started these observations, to a statement which is contained in a recent Scottish case, *Hunter v Hanley* ([1955] SLT 213 at p 217), which dealt with medical matters, where the Lord President (Lord Clyde) said this :
>
> "In the realm of diagnosis and treatment there is ample

> scope for genuine difference of opinion, and one man clearly is not negligent merely because his conclusion differs from that of other professional men, nor because he has displayed less skill or knowledge than others would have shown. The true test for establishing negligence in diagnosis or treatment on the part of a doctor is whether he has been proved to be guilty of such failure as no doctor of ordinary skill would be guilty of if acting with ordinary care."
>
> … I myself would prefer to put it this way: A doctor is not guilty of negligence if he has acted in accordance with a practice accepted as proper by a responsible body of medical men skilled in that particular art. … Putting it the other way round, a doctor is not negligent, if he is acting in accordance with such a practice, merely because there is a body of opinion that takes a contrary view."

102 *Bolam's* case was approved by the House of Lords in *Whitehouse v Jordan* [1981] 1 All ER 267 and in *Maynard v West Midlands Regional Health Authority* [1985] 1 All ER 635 (in which the passage from *Hunter v Hanley* cited in *Bolam's case* was approved). In *Sidaway v Board of Governors of the Bethlem Royal Hospital* [1985] 1 All ER 643, Lord Bridge stated at p. 660:

> "Broadly, a doctor's professional functions may be divided into three phases: diagnosis, advice and treatment. In performing his functions of diagnosis and treatment, the standard by which English law measures the doctor's duty of care to his patient is not open to doubt. 'The test is the standard of the ordinary skilled man exercising and professing to have that special skill.' These are the words of McNair J in *Bolam v Friern Hospital Management Committee* [1957] 2 All ER 118 at 121, approved by this House in *Whitehouse v Jordan* [1981] 1 All ER 267 at 277, *per* Lord Edmund-Davies and in *Maynard v West Midlands Regional Health Authority* [1985] 1 All ER 635 *per* Lord Scarman. The test is conveniently referred to as the *Bolam* test."

In the same case, Lord Scarman said at p. 649:

> "The *Bolam* principle may be formulated as a rule that a doctor is not negligent if he acts in accordance with a practice accepted at the time as proper by a responsible body of medical opinion even though other doctors adopt a different practice. In short, the law imposes the duty of care; but the standard of care is a matter of medical judgment."

103 The Privy Council (on appeal from the Federal Court of Malaysia) in *Chin Keow v Government of Malaysia* [1967] 1 WLR 813 approved the *Bolam* test. *Bolam's case* has been applied by the High Court in *Jason Carlos Francisco v Dr L M Thng & Anor*, Suit No. 573/1998 (6 August 1999, unreported) and *Vasuhi Ramasamypillai v Tan Tock Seng Hospital Pte Ltd* [2001] 2 SLR 165. In *Yeo Peng Hock Henry v Pai Lily* [2001] 4 SLR 571, the Court of Appeal accepted the authority of *Bolam's case* as well as *Bolitho v City & Hackney Health Authority* [1998] AC 232.

104 *Bolitho's* case is central to the Plaintiff's submission and it is necessary for me to consider it in detail. The case involved a two year old child who was admitted to hospital suffering from respiratory difficulties. At one point his condition turned acute and the attending doctor, Dr. Horn, was summoned. She did not attend to him but the child recovered from this episode without any treatment. He suffered a second episode of acute respiratory difficulties and Dr. Horn was summoned

once more. Again she did not attend but again the child recovered. However shortly after that he collapsed from respiratory failure and cardiac arrest. He was successfully resuscitated but by then had sustained severe brain damage. The child's condition had caused his windpipe to be blocked and intubation would have prevented the tragedy. The trial judge found that Dr. Horn was negligent in not attending to the child. The question then turned to causation, i.e. if Dr. Horn had attended upon being summoned during those two episodes, would she have intubated him. Dr. Horn gave evidence that given the description of his condition at the time, as described by the nurses who were attending to him, she would not have done so. The trial judge held that in that case, the issue was whether Dr. Horn would have been negligent if she had not intubated, and to determine it he applied the *Bolam* test. The House of Lords approved this approach but did not completely agree with the manner in which the trial judge applied the *Bolam* test.

105 At the trial there were two schools of thought among the eight medical experts, all of them distinguished, called by both sides. Five of them were called on behalf of the plaintiff and they were of the view that, at least after the second episode, any competent doctor would have intubated. One of these five was a Dr. Heaf. The three experts called by the defendants all said that, on the symptoms presented by the child, intubation would not have been appropriate. Dr. Dimwiddie was one of them. Lord Browne-Wilkinson, with whom all their Lordships agreed, said at p. 238:

> "Having made his findings of fact, the judge directed himself as to the law by reference to the speech of Lord Scarman in *Maynard v. West Midlands Regional Health Authority* [1984] 1 W.L.R. 634, 639:
>
> > "... I have to say that a judge's 'preference' for one body of distinguished professional opinion to another also professionally distinguished is not sufficient to establish negligence in a practitioner whose actions have received the seal of approval of those whose opinions, truthfully expressed, honestly held, were not preferred. If this was the real reason for the judge's finding, he erred in law even though elsewhere in his judgment he stated the law correctly. For in the realm of diagnosis and treatment negligence is not established by preferring one *respectable* body of professional opinion to another. Failure to exercise the ordinary skill of a doctor (in the appropriate speciality, if he be a specialist) is necessary." (Emphasis added.)
>
> The judge held that the views of Dr. Heaf and Dr. Dinwiddie, though diametrically opposed, both represented a responsible body of professional opinion espoused by distinguished and truthful experts. Therefore, he held, Dr. Horn, if she had attended and not intubated, would have come up to a proper level of skill and competence, i.e. the standard represented by Dr. Dinwiddie's views. Accordingly he held that it had not been proved that the admitted breach of duty by the defendants had caused the catastrophe which occurred to Patrick."

106 Counsel for the plaintiff submitted to the House that, notwithstanding that there was a responsible body of doctors that held the view that intubation in this case would not be appropriate, given the circumstances of the case it was unreasonable and illogical not to anticipate the recurrence of a life-threatening event and perform the intubation which all the experts acknowledged would have saved the child. He submitted that the trial judge was wrong in law in treating the *Bolam* test as requiring him to accept the views of one truthful body of experts even though he was not persuaded

of its logical force. Counsel argued that it was ultimately for the court, not the experts, to decide what was the standard of care required of a professional in the circumstances of each case. Lord Browne-Wilkinson had some sympathy for this submission and stated as follows (at p. 241):

> "… I agree with these submissions to the extent that, in my view, the court is not bound to hold that a defendant doctor escapes liability for negligent treatment or diagnosis just because he leads evidence from a number of medical experts who are genuinely of opinion that the defendant's treatment or diagnosis accorded with sound medical practice. In the *Bolam* case itself, McNair J. [1957] 1 W.L.R. 583, 587 stated that the defendant had to have acted in accordance with the practice accepted as proper by a "*responsible* body of medical men." Later, at p. 588, he referred to "a standard of practice recognised as proper by a competent reasonable body of opinion." Again, in the passage which I have cited from *Maynard's* case [1984] 1 W.L.R. 634, 639, Lord Scarman refers to a "respectable" body of professional opinion. The use of these adjectives – responsible, reasonable and respectable – all show that the court has to be satisfied that the exponents of the body of opinion relied upon can demonstrate that such opinion has a logical basis. In particular in cases involving, as they so often do, the weighing of risks against benefits, the judge before accepting a body of opinion as being responsible, reasonable or respectable, will need to be satisfied that, in forming their views, the experts have directed their minds to the question of comparative risks and benefits and have reached a defensible conclusion on the matter."

107 Hence the court has to be satisfied that not only is there a body of opinion supporting the defendant's position but that such opinion has a logical basis. However Lord Browne-Wilkinson sounded this note of caution at p. 243:

> "… In the vast majority of cases the fact that distinguished experts in the field are of a particular opinion will demonstrate the reasonableness of that opinion. In particular, where there are questions of assessment of the relative risks and benefits of adopting a particular medical practice, a reasonable view necessarily presupposes that the relative risks and benefits have been weighed by the experts in forming their opinions. But if, in a rare case, it can be demonstrated that the professional opinion is not capable of withstanding logical analysis, the judge is entitled to hold that the body of opinion is not reasonable or responsible.
>
> I emphasise that in my view it will very seldom be right for a judge to reach the conclusion that views genuinely held by a competent medical expert are unreasonable. The assessment of medical risks and benefits is a matter of clinical judgment which a judge would not normally be able to make without expert evidence. As the quotation from Lord Scarman makes clear, it would be wrong to allow such assessment to deteriorate into seeking to persuade the judge to prefer one of two views both of which are capable of being logically supported. It is only where a judge can be satisfied that the body of expert opinion cannot be logically supported at all that such opinion will not provide the benchmark by reference to which the defendant's conduct falls to be assessed."

108 In my opinion *Bolitho's* case, while clarifying the law, adds nothing new to it. The Evidence Act contains provisions on the treatment of expert evidence in ss 47, 48 and 53 and these state as follows:

Opinions of experts

47. —(1) When the court has to form an opinion upon a point of foreign law or of science or art, or as to the identity or genuineness of handwriting or finger impressions, the opinions upon that point of persons specially skilled in such foreign law, science or art, or in questions as to the identity or genuineness of handwriting or finger impressions, are relevant facts.

(2) Such persons are called experts.

Illustrations

(a) The question is whether the death of A was caused by poison.

The opinions of experts as to the symptoms produced by the poison by which A is supposed to have died are relevant

(b) The question is whether A, at the time of doing a certain act, was by reason of unsoundness of mind, incapable of knowing the nature of the act or that he was doing what was either wrong or contrary to law.

The opinions of experts upon the question whether symptoms exhibited by A commonly show unsoundness of mind, and whether such unsoundness of mind usually renders persons incapable of knowing the nature of the acts which they do or of knowing that what they do is either wrong or contrary to law, are relevant.

(c) The question is whether a certain document was written by A. Another document is produced which is proved or admitted to have been written by A.

The opinions of experts on the question whether the 2 documents were written by the same person or by different persons are relevant.

Facts bearing upon opinions of experts

48. Facts not otherwise relevant are relevant if they support or are inconsistent with the opinions of experts when such opinions are relevant.

Illustrations

(a) The question is whether A was poisoned by a certain poison.

The fact that other persons who were poisoned by that poison exhibited certain symptoms, which experts affirm or deny to be the symptoms of that poison, is relevant.

(b) The question is whether an obstruction to a harbour is caused by a certain sea-wall.

The fact that other harbours similarly situated in other respects but where

there were no such sea-walls began to be obstructed at about the same time is relevant.

Grounds of opinion when relevant

53. Whenever the opinion of any living person is relevant, the grounds on which such opinion is based are also relevant.

Illustration

An expert may give an account of experiments performed by him for the purpose of forming his opinion.

109 Implicit in these provisions is the role of the court as the final arbiter on the question of which opinion is the correct one and in fulfilling such role the court may be required to investigate into the credibility of the opinion given by the experts. There are two aspects to this investigation: firstly, the demeanour of the expert witness and secondly, the soundness of his opinion. As to demeanour, in *P.P. v Tubbs* [2001] 4 SLR 75, Yong CJ said at 24:

> "24 … The fact that the bulk of the evidence arose from expert testimony was of no special significance. The trial judge would … have to assess the demeanour of the expert witnesses in deciding on the reliability and soundness of their opinions."

And as to soundness, the Malaysian Federal Court in *Wong Swee Chin v P.P.* [1981] 1 MLJ 212 cited similar provisions of their Evidence Act and said as follows (at p. 213):

> " In the Evidence Act, 1950, opinion of experts are under certain conditions admissible in evidence. Who are experts are explained in section 45 of the Act. Section 46 provides that facts not otherwise relevant are relevant if they support or are inconsistent with the opinions of experts when such opinions are relevant. DW2 was called as an expert witness. Our system of jurisprudence does not generally speaking, remit the determination of dispute to experts. Some questions are left to the robust good sense of a jury. Others are resolved by the conventional wisdom of a judge sitting alone. In the course of elucidating disputed questions, aids in the form of expert opinions are in appropriate cases placed before juries or judges. But, except on purely scientific issues, expert evidence is to be used by the court for the purpose of assisting rather than compelling the formulation of the ultimate judgments. In the ultimate analysis it is the tribunal of fact, whether it be a judge or jury, which is required to weigh all the evidence and determine the probabilities. It cannot transfer this task to the expert witness, the court must come to its own opinion. Therefore the nature of DW2's evidence must be examined in the light of the above principles.

However on a matter that is clearly outside its scope of technical competence the court must make a finding on the basis of expert evidence before it. The court may not venture its own opinion on the matter – see *Saeng-Un Udom v P.P.* [2001] 3 SLR 1 at 27.

110 Viewed in this context, the law is simply this: the court would investigate every opinion given by the medical experts and make a determination as to its credibility bearing in mind the demeanour of the witness and the soundness or logic of the grounds upon which he has arrived at that opinion. This

determination is of course greatly assisted by the process of cross-examination during which the witness would be challenged with the views of the experts on the opposing side as well as with the literature on the subject. At the end of this the evidence of an expert witness for the defendant may be rejected if the court finds that it is wanting in logic or on the basis of his demeanour. But if this evidence is not rejected, it must follow that the defendant's position is supported by a responsible body of opinion and he would not be adjudged negligent.

The Issues

111 The first issue is whether the Plaintiff had spinal instability. If she did not, then the Defendants are not liable even if her symptoms would have alerted a competent doctor to the possibility. The burden of proving that she had spinal instability rests upon the Plaintiff. Dr Ransford was of the opinion that the Plaintiff had spinal instability. This was based primarily on the X-ray films and other radiological findings obtained between 1979 and 1997, bearing in mind the Plaintiff's medical history. He explained that the X-rays of 1982, 1992, 1996 showed that the disc at L4/L5 had degenerated more anteriorly than posteriorly and that this had caused spinal instability. However this was disputed by the Defendants' experts, Prof. Hughes and Prof. Chan, who said that the differential degeneration was of such a small order that it was not possible to form the conclusion that there was spinal instability. They pointed out that the flexion/extension X-ray taken did not show spinal instability. Although this often gives false negatives, nevertheless the absence of any indicia of spinal instability in those films does not help the Plaintiff's case. Also the Plaintiff did not manifest any clinical signs of spinal instability. Prof. Hughes and Prof. Chan both said that it was not possible to make a finding based purely on X-rays and radiological findings and that there must be clinical signs before one could conclude that there was spinal instability.

112 In my view an important factor is the evidence of Prof. Aziz who was the last person to carry out a full investigation of and operate on the Plaintiff. He had not been able to elicit any indication of spinal instability in his history taking or clinical examination of the Plaintiff. There was also no radiological evidence of instability from the flexion/extension X-rays taken at the NUH on 30 April 1997. Indeed during the operation itself he did not find any sign of spinal instability. Prof. Aziz's operation was on the basis of his finding of stenosis. When he operated on the Plaintiff he found much fibrosis around the nerve root as he had expected; in fact he had made prior arrangement for assistance to free the trapped nerve. After clearing the fibrosis he performed a wide decompression. He then did a prophylactic fusion of the L4/L5. The operation was carried out as he had planned and the outcome was what he had anticipated.

113 In the circumstances I cannot but hold that the Plaintiff had not proved that she had spinal instability immediately prior to the operation performed by Prof. Aziz.

114 If I am wrong and the Plaintiff did have spinal instability, then it is necessary to consider the second issue, i.e. whether Dr. Tay was negligent in not investigating for and discovering this condition between 1992 and 1997.

115 Dr. Ransford was of the view that as far back as 1992, Dr. Tay ought to have considered the possibility of spinal instability because this was quite common after a discectomy operation. He said that the X-rays showed that there was differential degeneration of the disc at L4/L5 which showed a "wedge" effect. He contended that Dr. Tay ought to have ordered a flexion/extension X-ray and conducted other tests such as examination for the "catch sensation" and the use of a brace. He said that Dr. Tay was led astray by his diagnosis of fibrosis compressing the nerves at the spine.

116 Against this are the views of the Defendants' experts, Prof. Hughes and Prof. Chan. Prof. Hughes was of the view that the Plaintiff's case was a complicated one. It was made worse by what was perceived to be a psychological element to her pain symptoms – in blunt terms, she appeared to be exaggerating her pain. There was evidence of this in that there was, on occasion, a pattern of inconsistency in the degree and extent of her pain reported. She was able to walk about during her hospitalisations. Indeed in 1984, within the period that she had said that she was in constant pain, she had given birth to a child. At this point I should add that the Plaintiff certainly did exhibit such a tendency in giving her evidence. There are many aspects of her evidence that suggest a propensity towards exaggeration. Her claims are in stark contradiction to the contemporaneous records of the doctors and nurses. So if she was telling the unmitigated truth it would mean that the medical staff at the SGH had been recording a pack of lies over the years. Since there is no reason for them to single her case out for such treatment, it would necessarily mean that they had been systematically doing it for all patients. Her claim that Prof. Tan and Dr. C T Tan were at first keen to help her but withdrew after they learnt that she was Dr. Tay's patient is also incredulous. Prof. Tan was and is Dr. Tay's senior at the SGH. To suggest that they both did not know whose patient she was when they examined her is rather disingenuous. I have no doubt that she had been much troubled by her back pain over the years. But I also have no doubt that her tendency towards exaggeration had greatly complicated matters for the doctors concerned.

117 Both Prof. Hughes and Prof. Chan were of the opinion that the symptoms and signs in the Plaintiff's case did not indicate that she had spinal instability and that they all pointed towards a nerve root problem. As for the X-rays, they were of the opinion that the "wedge" effect shown there was insignificant and did not justify further investigation specifically for spinal instability, which was only a theoretical possibility. Prof. Chan said that the degenerative changes found in the radiological studies of the Plaintiff's spine were quite common among many people, even those without symptoms, and would not justify further investigation for spinal instability in the absence of clinical signs.

118 The Plaintiff did not challenge the credentials of Prof. Hughes and Prof. Chan. Indeed Dr. Ransford said that he regarded both of them as *"top-rate"* in their professions and people who would give respectable and responsible opinions. Accordingly the Defendants have satisfied what I would term, for convenience, the classic *Bolam* test in that there is a responsible body of medical opinion supporting the approach and treatment rendered by Dr. Tay.

119 The Plaintiff however relied primarily on what I would term, again out of convenience, the *Bolitho* test. Counsel for the Plaintiff, Mr Sreenivasan, took great pains to persuade me that the opinions of Prof. Hughes and Prof. Chan were not based on logical grounds. They were extensively cross-examined by him. Mr Sreenivasan submitted that the answers they provided were not logical. He provided detailed submissions on many areas where he said they had gone wrong. It is understandable why he had done this. Given the acceptance of their eminence in the field, this was the only remaining avenue he had. However I do not propose to set out the full extent of Mr Sreenivasan's submissions because I find that the evidence of Prof. Hughes and Prof. Chan to be, on the whole, cogent and credible. Where they could be accused of being hesitant in their answers it was because Mr Sreenivasan had pursued a point too forcefully; and I say this without intention to suggest that he had conducted the case otherwise than with the greatest of probity and integrity. I did not find anything in the evidence of Prof. Hughes and Prof. Chan that did not accord with good sense and logic.

120 Although it is not necessary for me to go further than that, I feel constrained to state that it was Dr. Ransford's evidence that I found to be less satisfactory. He appeared to me to have taken a rather adventurous view when he said that the "wedge" effect observed in the X-rays pointed to spinal instability as he was unable to produce much support for this. Prof. Hughes suggested that Dr.

Ransford had made assumptions to fit the conclusion he reached with the benefit of hindsight. I find this suggestion to be not without justification in view of the somewhat tenuous basis upon which Dr. Ransford had formed his strongly held position. Dr. Ransford had said that it was negligent on the part of Dr. Tay not to have conducted the tests to rule out the possibility of spinal instability. But that, as the Defendants' experts had pointed out, would tantamount requiring Dr. Tay to pursue every theoretical possibility. I would imagine that when a patient consults a doctor for an ailment, the doctor elicits the symptoms from questioning the patient and the signs from examining her. In a difficult case, the fog of uncertainty as to the diagnosis may still not be lifted and the doctor has to decide what further tests she should undergo. The patient relies on the skill and experience of the doctor to not only order the correct tests but also not order the wrong ones. That in my view is in the nature of this aspect of medical practice. I do not think it reasonable for a doctor to require tests for every possibility, remote or otherwise, he can think of.

121 I would therefore hold that the opinions of Prof. Hughes and Prof. Chan as to the appropriateness of the treatment by Dr. Tay of the Plaintiff are sound and logical. In the premises the Plaintiff's claims against the Defendants must fail and the action dismissed.

122 I will hear parties on the question of cost.

Sgd:

LEE SEIU KIN
JUDICIAL COMMISSIONER

Copyright © Government of Singapore.