Scottish Parliament Region: Lothian

Case 200603419: Lothian NHS Board

Summary of Investigation

Category

Health: Clinical treatment; diagnosis

Overview

The complainant (Mr C) attended the Royal Infirmary of Edinburgh (Hospital 1) for spinal surgery. Complications of surgery left him with nerve damage and restricted mobility. Mr C complained that staff of Lothian NHS Board (the Board) carried out his surgical procedure incorrectly and that hygiene standards and staff attitudes were poor during his stay at Hospital 1.

Specific complaints and conclusions

The complaints which have been investigated are that:

(a) the Board failed to perform Mr C's spinal surgery correctly *(upheld)*;

(b) hygiene standards at Hospital 1 were poor *(upheld)*; and

(c) the Board's staff acted unprofessionally when dealing with Mr C *(no finding)*

Redress and recommendations

The Ombudsman recommends that the Board:

(i) introduce a policy of carrying out appropriate diagnostic scans prior to any exploratory surgery;

(ii) formally apologise to Mr C; and

(iii) remind all ward staff of the procedure to be followed in the event of a linen shortage.

The Board have accepted the recommendations and will act on them accordingly.

Main Investigation Report

Introduction

1. On 1 February 2006, the complainant (Mr C) attended the Royal Infirmary of Edinburgh (Hospital 1) for spinal decompression and fusion surgery; a procedure that involves the insertion of screws and metal braces into the vertebrae, to reposition them. Following his surgery, he was found to have limited movement of his right foot. Mr C's spine was re-explored the following day and the consultant orthopaedic surgeon (Consultant 1) concluded that one of the screws may be pressing against one of Mr C's nerves, causing a 'tenting' effect. The screw was repositioned in a less oblique position. Mr C continued to experience problems with his right foot and was returned to Hospital 1 for further examination on 15 February 2006. In Consultant 1's absence, a second consultant orthopaedic surgeon (Consultant 2) took over Mr C's care and arranged imaging of his spine. This showed that another of the screws inserted during Mr C's first operation had been malpositioned. Mr C underwent a third operation for that screw to be repositioned, however, continues to experience reduced mobility and requires ongoing treatment.

2. Mr C complained that his spinal surgery was not carried out correctly by Consultant 1 and that his attitude following the surgery was unprofessional. He also raised concerns about the standard of hygiene within Hospital 1 during his stay. Mr C raised his concerns in a formal complaint to Lothian NHS Board (the Board) on 23 May 2006. Although the Board investigated the points that he raised and were cooperative in meeting with Mr C to discuss his complaints and how they could be resolved, they were unable to do so to his satisfaction and Mr C, therefore, brought his complaint to the Ombudsman in February 2007.

3. The complaints from Mr C which I have investigated are that:

(a) the Board failed to perform Mr C's spinal surgery correctly;

(b) hygiene standards at Hospital 1 were poor; and

(c) the Board's staff acted unprofessionally when dealing with Mr C.

4. In his complaint to the Ombudsman, Mr C raised additional issues relating to specific events involving the Board's staff and cleanliness within the ward during his stay. As the Board have answered these points to Mr C's satisfaction, during subsequent meetings, they have not been included in this report.

Investigation

5. In order to investigate this report, I have reviewed all of the complaint correspondence between Mr C and the Board. I have also corresponded with the Board, reviewed their clinical records for Mr C and sought professional medical advice from an independent professional adviser (the Adviser).

6. I have not included in this report every detail investigated but I am satisfied that no matter of significance has been overlooked. Mr C and the Board were given an opportunity to comment on a draft of this report.

(a) The Board failed to perform Mr C's spinal surgery correctly

7. In June 2004, Mr C was diagnosed by a physiotherapist as having a spondylolisthesis, a condition whereby one vertebra shifts out of position relative to its neighbouring vertebra. In Mr C's case, his L5 vertebra had shifted forwards relative to the S1 vertebra, at the base of his spine. He was referred to Hospital 1 and was seen by Consultant 1 in August 2004. At that time, Mr C reported back pain radiating to the front of his right thigh. An MRI scan showed that he had substantial nerve compression in his L5 vertebra. Accordingly, Consultant 1 suggested that Mr C undergo spinal decompression and fusion surgery. The aim of this procedure is to bring the vertebrae back into alignment. Screws are drilled into the pedicle section of two adjoining vertebrae. These serve as anchors for braces that hold the vertebrae in place and allow new bone growth, which ultimately fuses them together.

8. Mr C visited Hospital 1 again, on 17 January 2005, for review following a CT scan. The scan showed that he had substantive nerve root compression at his L5 vertebra. He was placed on the waiting list for spinal decompression and fusion surgery, which was subsequently scheduled for 1 February 2006. In response to my enquiries regarding this complaint, the Board told me that it was Consultant 1's normal practice to advise patients of the risks of surgery at this stage, although they conceded that there is no written record of this having been done on this occasion.

9. On 17 January 2006, Mr C attended a pre-admission clinic with Consultant 1. Consultant 1 noted in Mr C's clinical records that he had discussed with Mr C the potential complications of spinal decompression surgery. Specifically, Mr C was advised that patients could experience nerve root injury, damage to the nerves supplying the bladder, infection and dural tear (a tear in the watertight sac of tissue that surrounds the spinal cord). The

clinical note for this consultation also confirms that Mr C was in a great deal of discomfort and that it was appropriate to proceed with surgery. Mr C signed a consent form confirming that details of the operation had been explained to him by Consultant 1.

10. Mr C's spinal decompression surgery was carried out on 1 February 2006. The accompanying clinical record documents the procedure. It states:

> 'The spine was exposed and the pedicles identified. Pedicle screws … were inserted into L5 … and S1. Both L5 nerve roots were traced out having removed the lamina of L5. A substantial amount of material from the spondylolysis was removed on the left side. On the right side, the screw was tight up against the dura but we did not feel that the screw had entered the spinal cord.
>
> Bone was harvested from the iliac crest on the right side and laid along the lateral masses. Distraction was applied to the screws and rods inserted'.

11. The clinical records also document Mr C's post-operative state and note that immediately following the operation he was very drowsy and did not appear to be moving his right foot quite as well as his left. A further note completed by Consultant 1 on the evening of 1 February 2006 states that Mr C remained extremely drowsy and that he continued to have weakness of dorsiflexion (bending the ankle so that the top of the foot moves toward the shin) in his right foot. Consultant 1 suggested that the anaesthetic used during the operation may be temporarily anaesthetising one of Mr C's nerves, or it could be that he had placed traction on the nerve during the operation. He noted that the nerve root canal had been clear at the time of surgery, therefore, he was happy to leave Mr C overnight to see if the nerve recovered. If there was no sign of recovery the following day, a further operation would be required to reopen Mr C's spine and ensure that the nerve root was not decompressed or the screws out of position.

12. Mr C showed no sign of recovery on 2 February 2006 and his spine was, therefore, reopened that day. The clinical record of the operation states:

> 'The pedicle screw at L5 on the right side was certainly too medially placed and probably the L5 nerve root was tented around it. The screw was first removed releasing the traction placed on the spine. The nerve root canal (both L4 and L5) were decompressed to allow the nerve root probe to easily enter the foramen. The L5 nerve root was visualised. There was no

evidence of a dural tear. The L5 pedicle screw was then moved laterally and inserted in a much less oblique position. There was no doubt that on this occasion the screw was right down the centre of the pedicle as solid bone was encountered all around the screw track. The S1 screw was not removed as [Mr C] had been plantar flexing his foot normally'.

13. Following the second operation, Mr C's progress was again documented in the clinical records. A note taken on 3 February 2006 records that he was now dorsiflexing his toes and plantar flexing (bending the ankle so that the top of the foot moves away from the shin) his foot normally. He continued to have weakness of dorsiflexion of his right ankle, however, Consultant 1 expected this to recover gradually over the following few days. Mr C was encouraged to mobilise as much as possible in bed. He was allowed to mobilise out of bed over the following week and his condition was carefully monitored. Consultant 1 noted that Mr C continued to have residual weakness in his right ankle and that he had developed numbness in his right heel.

14. Mr C remained in hospital and his progress was reviewed by Consultant 2 on 10 February 2006, as Consultant 1 was on annual leave. Mr C told me that, at that time, he remained in great pain. Consultant 2 suggested that it would be appropriate to carry out a CT scan of Mr C's spine before any further action was taken. This was arranged for 14 February 2006 and the scan results showed that the S1 pedicle screw had been malpositioned. The radiologist's report said that the right S1 screw did not lie in the pedicle, but ran through the lamina and right S1 lateral recess. The right S1 nerve root was noted as appearing to lie between the screw and the lateral cortex of the lateral recess. The other screws were noted to be intra-pedicular.

15. A third operation was carried out on 16 February 2006 to reposition the S1 pedicle screw. The clinical notes record that the S1 pedicle screw was identified and the surrounding bone removed carefully, avoiding further compression of the compromised S1 nerve root. The S1 pedicle screw was removed and a replacement screw positioned using Image Intensifier control. The new screw was inserted and its position checked by Image Intensifier, as well as direct vision. At the conclusion of the procedure, the S1 nerve root was recorded as being free and decompressed along its entire length. Mr C was reportedly reviewed in recovery and found to be moving his left leg normally. It was noted that he was neurologically unchanged on his right side, having right foot drop and absence of sensation on the sole of his right foot.

16. Following his third operation, Mr C was reported as having made reasonable progress, with a clinical note taken on 18 February 2006 recording that he had increasing sensation in his right heel. A further note by Consultant 1, on 20 February 2006, recorded that Mr C now had some dorsiflexion of his right foot and that a transcutaneous nerve stimulator would be ordered for him from Slovenia. This piece of equipment would be used to maintain Mr C's muscle tissue while his foot drop resolved. In his complaint to the Board, Mr C commented that this consultation was the first time that he had seen Consultant 1 since his second operation. He said that Consultant 1 admitted having made mistakes during his surgery and that, with hindsight, he acknowledged that a CT scan should have been carried out to assess Mr C's condition prior to the second operation.

17. Mr C was discharged from Hospital 1 on 25 February 2006 and referred for physiotherapy.

18. Mr C returned to Hospital 1 on 10 April 2006 for review with Consultant 1. Consultant 1 recorded that Mr C was making very poor progress and that he had encountered problems with the physiotherapy arrangements. He had not been able to attend more than two or three times. It was noted that, whilst Mr C's left leg was entirely normal neurologically, Mr C was unable to weight bear on it. Consultant 1 remarked that Mr C should be able to walk and weight bear on this leg normally and suggested that further rehabilitation and counselling at Astley Ainslie Hospital (Hospital 2) may be appropriate. A referral was subsequently sent to Hospital 2 on this basis.

19. Mr C attended Hospital 2 for rehabilitation between 18 April and 18 May 2006, however, continued to experience reduced mobility and back pain. By this point he had lost faith in the Board's ability to handle his care needs and he, therefore, asked to be treated by a different health board. He was referred to Tayside NHS Board on 4 April 2007 and continues to work on his rehabilitation with them.

20. On 30 May 2006, in light of the problems that he had encountered since his surgery, Mr C wrote a formal complaint to the Board. In his complaint, he raised a number of specific questions about Consultant 1's attitude and what he understood to be mistakes made during his surgery. Mr C did not initially receive a response to his complaint and was later advised by the Board that

they had not received it. He re-sent his complaint letter and eventually received a full response from the Board, which was dated 26 January 2007.

21. In their response to Mr C's complaint, the Board were open about the fact that both the L5 and S1 screws had been malpositioned during surgery and they were apologetic for the problems that this caused. They explained that appropriate imaging techniques were used to ensure that the pedicle screws were positioned correctly. The Board also noted that it is never possible to be 100% certain that the screws are in the correct position and that this, as well as the potential for complications, carrying significant consequences, was explained in detail by Consultant 1 prior to the surgery. The Board's letter explained that spinal decompression surgery was a routine procedure and that Consultant 1 could recall only one other case where one of his patients was required to return to theatre for a second operation. They told Mr C that one of the problems with spondylolisthesis is that due to the orientation of soft tissue and nerves in the operating area, it is inevitable that some traction will be placed on nerves during surgery. The Board assured Mr C that the pedicle screws had not been placed into the nerve, nor did they directly damage the nerve, however, the nerve had been tented around the screw head. Again, it was noted that nerve damage generally resolves given time, but that this can take several months.

22. At my request, the Adviser reviewed Mr C's medical history and the notes detailing his surgery. He confirmed that spinal decompression and fusion surgery was a recognised and appropriate treatment for the type of lower back pain that Mr C presented with. He was also satisfied that Consultant 1 had discussed the potential complications of surgery with Mr C and gained appropriate consent before operating.

23. I asked the Adviser whether, on a very basic level, it should have been obvious to the surgical team that the screws were malpositioned at the time of their insertion during Mr C's first operation, as this appeared to have been confirmed, upon sight, when Mr C's spine was reopened on 2 February 2006. The Adviser told me that the surgeon would not necessarily be able to tell that the screws were malpositioned at the time of their insertion, as the surgeon cannot always see where he or she is drilling. He explained that a combination of medical expertise and external imaging is required to guide the screws into the correct position.

24. The Adviser asked Consultant 1 to clarify some of the terms used in the clinical records, particularly those relating to the identification of the pedicle screw sites. Consultant 1 explained his general practice for pedicle screw insertion and noted that this was a procedure that he performed regularly. He explained that, once the spine is exposed, and the correct vertebrae identified, a pedicle seeker (spiked probe) is placed at the correct point and visualised on a lateral image intensifier view (an x-ray viewed on a screen). The apex of the pedicle is then burred off using a diamond burr to reveal the cancellous (spongy) bone and a pedicle seeker is inserted. A feeler is then inserted to ensure that the pedicle is not breached. A screw of the correct length is then inserted under image intensifier control. Once inserted, the position of the pedicle screw is checked from other angles using the image intensifier and confirmed by Consultant 1, the registrar and any students that may be present. The Adviser confirmed that the technique described by Consultant 1 was standard.

25. Consultant 1's notes for Mr C's first operation commented on the position of the L5 pedicle screw and stated that 'On the right side, the screw was tight up against the dura but we did not feel that the screw had entered the spinal cord'. Again, the Adviser asked for clarification of this statement. Consultant 1 explained that, due to the shape of the pedicle (hemispherical proximally and triangular distally), the pedicle screw's width, when inserted, may force the sides of the pedicle outwards at the narrower, triangular end. The above statement referred to Consultant 1's belief that the L5 pedicle screw was lying in the centre of the pedicle but that it was neither perforating the pedicle wall, nor breaching the dura. Consultant 1 further explained that, had the pedicle wall been breached, he would have moved the screw at that stage, however, generally it is better not to move the screws, as this could loosen them. The Adviser commented that this entry in the notes showed that Consultant 1 had been able to check the position of the L5 pedicle screw at the time of the first operation and was able to confirm that the pedicle wall had not been breached and that the screw had not caused injury to the dura or surrounding nerve roots.

26. The Adviser noted that the L5 pedicle screw was found to be malpositioned upon reopening Mr C's spine on 2 February 2006. The second operation re-positioned the L5 pedicle screw but the S1 pedicle screw was left in place, as Mr C was plantar flexing his foot well. Failure to be able to do this would indicate a malpositioned S1 screw. Following the second operation, Consultant 2 carried out a CT scan of Mr C's lower back, which showed that the

S1 screw had been malpositioned. The Adviser said that, had a CT scan been carried out prior to the second operation, then the malpositioned S1 screw would have been apparent at that point and a third operation would have been unnecessary.

(a) Conclusion

27. Nerve damage is a complication of spinal decompression surgery that can occur even when the pedicle screws are inserted correctly. I am satisfied that Consultant 1 explained the potential for such complications to Mr C in detail prior to his first operation on 1 February 2006.

28. The Adviser told me that, when performing the three operations on Mr C's spine, both Consultant 1 and Consultant 2 used standard, recognised techniques to locate the pedicle and insert the pedicle screws. I consider the clinical process to be sound and that all reasonable precautions were taken to ensure that the pedicle screws were placed correctly. I accept that, due to the nature of this surgery, the surgeon cannot be certain of the placement of the pedicle screws. This was highlighted by the evident malpositioning of both the L5 and the S1 pedicle screws during Mr C's spinal surgery.

29. Following his first operation on 1 February 2006, Mr C's restricted movement in his right foot led Consultant 1 to reopen his spine. His clinical note on 2 February 2006 recorded his finding that the L5 pedicle screw was malpositioned, and was 'probably' tenting the nerves. The S1 pedicle screw was not checked at that time, as Mr C's symptoms did not indicate that it was malpositioned. A CT scan, carried out following the second operation showed that the S1 screw was malpositioned, and that it was interfering with the nerve roots. The Adviser confirmed that, had the CT scan been carried out following Mr C's first operation, the problem with the S1 screw would have been evident and he would only have required two operations, rather than three. A scan taken following the first operation would also have confirmed whether the L5 pedicle screw was tenting a nerve and required to be repositioned. Consultant 1's comments following the first operation suggest that the position of the L5 screw had been checked during surgery and found to be satisfactory.

30. The Board have acknowledged that Mr C's pedicle screws were positioned incorrectly. This impacted on Mr C's nerve roots and caused mobility issues for which he now requires ongoing treatment. I accept that the complications of surgery that Mr C encountered are an ever-present risk related to this

procedure and that all reasonable precautions were taken to avoid malpositioning of the screws. However, I was concerned to learn that two screws were malpositioned, and that Mr C was subjected to an unnecessary surgical procedure due to the lack of a CT scan, which should have been carried out as a matter of routine, following his first operation. As such, I uphold this complaint.

(a) Recommendation

31. The Ombudsman recommends that the Board introduce a policy of carrying out appropriate diagnostic scans prior to any exploratory surgery.

32. The Ombudsman also recommends that the Board formally apologise to Mr C.

(b) Hygiene standards at Hospital 1 were poor

33. During his stay at Hospital 1, Mr C raised a number of concerns regarding hygiene standards and the attitudes of various staff members. The clinical records note that he first discussed his concerns with nursing staff on 8 February 2006, however, there is no record as to what specific points were raised. A further note made by a nurse caring for Mr C (Nurse 1) on 10 February 2006 recorded that Mr C had complained to ward staff about, amongst other things, the cleanliness in the ward. He was reportedly advised that appropriate action would be taken, including discussion with Hospital 1's domestic manager. Nurse 1 recorded that a further discussion was held with Mr C on 14 February 2006 with similar issues being raised. She noted that she had spoken to Mr C's mother and that a meeting had been arranged for the following day.

34. On 15 February 2006 Nurse 1 recorded that she and the clinical nurse manager (Nurse 2) had met with Mr C and, subsequently, his mother to discuss their concerns. No detail was recorded in the clinical note, but it was noted that a further meeting was arranged for 17 February 2006 for Mr C's mother to talk to Nurse 2 in more depth. The meeting took place as scheduled and Mr C's wife also attended. Nurse 2 provided Mr C with a basic written summary of the complaints raised and followed this up with a formal written response to his family's concerns, on 23 March 2006. The hygiene-related complaints raised at the meeting were that: there had been no towels available for patients' showers and baths over an entire weekend during Mr C's stay; general cleanliness was

poor within the ward, particularly the toilet facilities; and a discarded wound dressing had been left on the shower floor for some time.

35. In her formal response, Nurse 2 explained that the lack of linen had been the result of a problem with Hospital 1's laundry equipment and that measures were taken at the time to minimise any impact on patients. She further explained that Mr C's concerns would be raised with Hospital 1's domestic contractors and that, as is normal practice at Hospital 1, nursing staff would continue to communicate with domestic service supervisors in an attempt to improve and maintain the standards of cleanliness within their respective wards.

36. Mr C was not satisfied with Nurse 2's response and noted that, the lack of towels over one weekend of his stay was not managed well and that staff had suggested that he use paper towels to dry himself after showering. In their letter to Mr C of 26 January 2007, the Board reiterated that the lack of towels was due to an equipment problem.

37. The Board did not comment further, in writing, on Mr C's general hygiene complaints. However, Mr C met with staff of the Board in an attempt to resolve his outstanding complaints and to arrange his ongoing treatment. I understand that the Board were ultimately able to satisfy Mr C that they had taken appropriate steps to ensure adequate levels of hygiene on the wards, however, he remained unhappy that the issues had arisen at all, and that it had taken assertive behaviour on his, and his mother's, part for any action to be taken. Mr C advised me that he remained dissatisfied with the Board's explanation of the linen supply shortage.

38. When investigating this complaint, I asked the Board to explain in more detail what had happened to the linen supply during Mr C's stay at Hospital 1 and what action had been taken to ensure that the problem did not recur.

39. The Board advised me that their records showed that, around the time of Mr C's stay at Hospital 1, they experienced a number of laundry equipment breakdowns, which resulted in a reduction in laundry delivery amounts. They told me that their normal procedure is for deliveries to Hospital 1 to be arranged one day in advance, which should mean that, while stock may not be in the ward, the next day's stock should be on site awaiting delivery. In an emergency, ward staff are able to contact the linen pool to obtain stock. The Board said that, given the time that had passed since Mr C's stay, they

could not confirm what level of linen was available to his ward, and could only presume that the staff member in charge would have followed this procedure. They further explained that, if calling the linen pool fails to source additional linen supplies, then staff would routinely contact other areas within Hospital 1 to source unused supplies.

(b) Conclusion

40. I am satisfied that Mr C's general complaints regarding ward cleanliness have been addressed by the Board during their meetings with him, and that appropriate measures are in place to monitor hygiene levels.

41. I am unable to establish, with any certainty, the extent of the linen shortages that Hospital 1 experienced during Mr C's stay, or the actions of ward staff when attempting to rectify the issue. The Board's records do, however, confirm that the laundry equipment was malfunctioning around the time of his stay. Furthermore, I have been given no reason to doubt Mr C's recollection of events.

42. I am satisfied that the Board have an appropriate procedure in place to maintain ward linen levels, and I consider that any failure to implement this procedure during Mr C's stay at Hospital 1 is likely to have been an exceptional occurrence. I do, however, accept Mr C's position that the linen service failed on this occasion. Adequate supplies of laundered linen are a very basic requirement for patients in any hospital and I was concerned to learn that this was not available for an, albeit short, part of Mr C's stay at Hospital 1. As such, I uphold this complaint.

(b) Recommendation

43. The Ombudsman recommends that the Board remind all ward staff of the procedure to be followed in the event of a linen shortage.

(c) The Board's staff acted unprofessionally when dealing with Mr C

44. During his stay at Hospital 1, Mr C raised a complaint about the attitude of some of the staff members caring for him. As with his complaints regarding ward cleanliness, some of the issues that he raised were addressed to his satisfaction by the Board during meetings with them. Mr C, however, remained dissatisfied with the general approach of ward staff and with Consultant 1's attitude when dealing with him.

45. Mr C highlighted one specific incident on 21 February 2006. This was the first time that Mr C had met with Consultant 1 following his second operation. Mr C said that Consultant 1 had admitted making mistakes during the first operation and that, with the benefit of hindsight, a CT scan should have been carried out prior to the second operation. Consultant 1 reportedly joked that, considering the problems that Mr C had when first attending Hospital 1, 'two out of three ain't bad'. Mr C felt that such a flippant remark was inappropriate in light of the complications of surgery that he had encountered and the neurological problems that he was now experiencing.

46. In response to the Board's investigation into Mr C's complaint, Consultant 1 said that he could not recall the exact comments that he had made during his conversation with Mr C. He explained that his main intention during that time was to try to encourage Mr C and reassure him that, generally, nerve root weakness recovers over time, albeit after several months. He apologised if his tone was deemed to be flippant.

47. I asked the Board what guidance they provided to staff with regard to communication with patients. The Board told me that they do not issue specific guidance to their staff on communicating with patients. They explained, however, that good communication should form the basis of all interactions with patients and other members of the public and that this notion is inherent in all of their policies. The Board advised me that, since Mr C's complaint, the clinical staff involved in his care have actively undertaken to improve their communication skills and attended a communications skills course in November 2007. Additionally, Consultant 1 sought specific information from the International Society for study of the Lumbar Spine, regarding the information that is provided to spinal surgery patients worldwide. This resulted in the production of an information sheet that is now provided to all spinal surgery patients prior to their surgery. The information sheet explains the surgical and recovery process, as well as the potential risks of surgery. It covers the specific complications that Mr C encountered.

(c) Conclusion

48. It is impossible for me to comment constructively on the content of specific conversations that took place between Mr C and staff at Hospital 1. The Board have shown that they have taken positive action to improve their staff's communication skills, as a direct result of Mr C's complaint, and I am satisfied that their basic approach to staff and patient relations is well principled.

49. I have no concerns over the Board's general approach to communication with patients and commend them for their willingness to make improvements where issues have been raised. Whilst I acknowledge Mr C's dissatisfaction with the attitude of specific individuals during his stay at Hospital 1, there is insufficient evidence available to confirm the details of the events that he described. I am, therefore, unable to reach any firm conclusions on this aspect of Mr C's complaint.

(c) Recommendation

50. The Ombudsman has no recommendation to make.

51. The Board have accepted the recommendations and will act on them accordingly. The Ombudsman asks that the Board notify her when the recommendations have been implemented.

Annex 1

Explanation of abbreviations used

Mr C	The complainant
Hospital 1	The Royal Infirmary of Edinburgh
Consultant 1	A consultant spinal surgeon at Hospital 1
Consultant 2	A consultant spinal surgeon at Hospital 1
The Board	Lothian NHS Board
The Adviser	A professional medical adviser to the Ombudsman
Hospital 2	Astley Ainslie Hospital
Nurse 1	A nurse caring for Mr C at Hospital 1
Nurse 2	A clinical nurse manager at Hospital 1

Annex 2

Glossary of terms

Dorsiflexion	Backwards flexing of the foot or hand or their digits
Dura	The outermost layer of the tissue membrane that surrounds the spinal cord
Foramen	An opening, or hole, in a bone
Iliac crest	The external edge of the pelvis
L5	The fifth vertebra in the lumbar region of the spine
Lamina	A thin membrane or layer of tissue
Pedicle	A strong portion of the spinal vertebral bone that connects the front of the spine to the back of the spine
Plantar flexion	Downward flexion of the foot or hand or their digits
S1	The first vertebra in the sacral region of the spine
Spinal decompression surgery	A procedure whereby two vertebra are clamped in position, allowing for new bone growth, which fuses the vertebra together
Spondylolisthesis	A forward shift of one vertebra upon another, due to a defect in the bone or in the joints that normally bind them together