Scottish Parliament Region: Mid Scotland and Fife

Case 201202957: Forth Valley NHS Board

Summary of Investigation

Category

Health: Hospital; Orthopaedics

Overview

The complainant (Ms C) raised a number of concerns that her spinal injury was not properly assessed by staff at the emergency department and that a log roll was performed improperly leading to further injuries, and that there were further unreasonable delays by staff at the orthopaedic ward she was admitted to in fully investigating and identifying her spinal injury.

Specific complaint and conclusion

The complaint which has been investigated is that Stirling Royal Infirmary's identification and treatment in mid-June 2011 of Ms C's spinal injuries were below a reasonable standard (*upheld*).

Redress and recommendations

The Ombudsman recommends that the Board:	*Completion date*
(i) carry out an audit of the standard of their trauma management;	18 December 2013
(ii) ensure that the findings of National confidential enquiry into patient outcome and health report *Trauma who cares?* are implemented and amend their protocol accordingly, in particular to ensure that senior emergency department doctors will be available to initially assess and provide on-going advice for all victims of trauma;	18 December 2013
(iii) review the actions of Consultant 1 in light of this report and take appropriate action; and	23 October 2013
(iv) make a further formal apology to Ms C for the failures identified.	23 October 2013

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

Main Investigation Report

Introduction

1. On 7 June 2011, Ms C fell from a horse and was admitted to the emergency department at Stirling Royal Infirmary Hospital (the Hospital). She was examined at 13:15 and a controlled roll (log roll) was performed. The on-call orthopaedic doctor also examined her and an x-ray of the pelvis was undertaken which showed no bony injury. The diagnosis at this point was muscular back-pain following trauma. Ms C was admitted to an orthopaedic ward in the evening.

2. On 8 June 2011, Ms C was reviewed by an orthopaedic consultant surgeon (Consultant 1). A catheter was inserted into Ms C's bladder for urinary retention. A computerised tomography (CT) scan, which was only visualised up to the lumber 3 vertebrae (L3), showed a fracture of the transverse process of L3 and L4. Ms C was transferred to a rehabilitation ward on 15 June 2011. A consultant in ageing and health (Consultant 2) reviewed her and, in light of Ms C's symptoms, ordered an MRI scan which showed a severe lumber 2 vertebrae (L2) fracture causing cauda equinus syndrome. Ms C was subsequently transferred to a spinal unit.

3. Ms C complained that Forth Valley NHS Board (the Board) failed to properly investigate her spinal injury until her transfer to a rehabilitation ward on 15 June 2011 and that the delay in diagnosing the severe L2 fracture was unreasonable. She said that as a result of the Board's failures, she suffered physical, emotional and psychological consequences; she has post-traumatic stress disorder and problems with her bladder, bowel and sexual function.

4. Ms C complained to the Board on 29 May 2012. The Board responded on 21 September 2012. Ms C remained unhappy with the response and brought her complaint to my office on 11 October 2012.

5. The complaint from Ms C which I have investigated is that the Hospital's identification and treatment in mid-June 2011 of Ms C's spinal injuries were below a reasonable standard.

Investigation

6. During the course of the investigation of this complaint, my complaints reviewer obtained and examined a copy of Ms C's medical records and the

Board's complaint file. She also made enquiries of the Board and obtained advice from two advisers to the Ombudsman on the clinical aspects of the complaint; a specialist orthopaedic surgeon (the Surgical Adviser) and a specialist emergency consultant (the Medical Adviser).

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

Clinical background

8. Following a fall from a horse, Ms C was admitted to the emergency department at the hospital on 7 June 2011 complaining of lower back pain. She arrived at 12:36. She was seen by a triage nurse who noted a pain score of 5/10 (the worst pain being 10/10) for which she was prescribed morphine and painkilling gas en route by ambulance staff. Her observations were taken, which were normal. At 13:15, a senior trainee in emergency medicine (in their final year before becoming a consultant) log rolled Ms C off a spinal board. He noted there was no tenderness along the whole length of the spine and that the pelvis was not tender. Oral analgesia was prescribed and given that the observations were stable and there was no bony tenderness, the senior trainee felt no x-rays were required at this time. Ms C was placed on the 'waiting to be seen box' until her case was picked up by a junior doctor at 14:15.

9. A junior emergency doctor carried out the secondary survey. They documented a comprehensive history and performed a clinical examination of Ms C which included a normal set of observations, the fact that there was no bony tenderness in the back or pelvis and that her neurological status was normal. The pain score was now recorded as about 7/10 at rest and 10/10 when Ms C attempted to move. The junior emergency doctor took advice from the senior trainee who suggested that there was no indication for an x-ray and Ms C should be reviewed once analgesia had time to work. Later, the junior emergency doctor noted that the pain score was 3-4/10 and a physiotherapist was asked to help mobilise Ms C. The physiotherapy notes indicated that after a minimal attempt to mobilise Ms C, she complained of 'pain ++ over lower back and SI joints'. At 17:13, Ms C was seen by the orthopaedic doctor on call. He noted that there was no spinal tenderness, but that there was discomfort in the paraspinal muscles on the left side of her back in the region of L4-L5. It was noted that there was no neurological injury but that straight-leg raising was limited on the right due to pain. A pelvic x-ray was requested which was

reported as normal and Ms C was admitted to the orthopaedic team for pain control. Ms C was admitted to an orthopaedic ward at 19:35. The entry in the medical records on admission to the time stated that 'x-ray - no bony injury'.

10. The following morning, it was noted that Mrs C had not passed urine since the previous morning. Pain relief was administered and it was noted that she had severe lower back and leg pain on movement. Ms C was reviewed by Consultant 1. A catheter was inserted into Ms C's bladder for urinary retention. On 10 June 2011, Consultant 1 ordered a bone scan. Ms C's clinical notes stated 'still complaining of severe pain and inability to move. Think the best thing is to do a bone scan to exclude an occult fracture of the back or pelvis'. Radiology carried out a CT scan, which was only visualised up to L3. It showed a fracture of the transverse process of L3 and L4. This became the working diagnosis as the cause of Ms C's back pain. On 13 June 2011, Consultant 1 advised that Ms C should be mobilised as able. It was noted in the records that Ms C still had some altered sensation to buttocks.

11. Ms C was transferred to a rehabilitation ward on 15 June 2011. Consultant 2 reviewed her and noted that she had reduced perineal and buttock sensation as well as reduced anal tone, and urinary retention. She ordered an MRI scan which showed a severe L2 fracture and, as a result, a haematoma and bone extending posteriorly causing cauda equinus syndrome. Ms C was subsequently transferred to a spinal unit.

Complaint: The Hospital's identification and treatment in mid-June 2011 of Ms C's spinal injuries were below a reasonable standard

Mrs C's account

12. Ms C said that the only physical examination she received in the emergency department consisted of a doctor running his thumb once down her spine pressing on her vertebrae. In relation to the log roll, Ms C said that the nurses handled her roughly and rolled her over in a 'haphazard' way. She was in incredible pain when they moved her because her spine was twisted and she was sweating and blacking out. The experience was terrifying because she could not move her back and had no way of supporting herself on her side. Ms C believed that the worst of her injuries occurred then because her vertebrae in her spine was cracked wide open and it was after this incident that the numbness set in. Ms C went on to say that she was left untreated following the initial examination in the emergency department for over five hours. She also had urinary retention before she was admitted to the ward at 19:35 but was

not catheterised until the following day. She said it was unreasonable that nobody suspected that she had nerve damage when medical staff were aware she had urinary retention. The pain was consistently focused on her lower back with shooting pains down her legs and as time went on, the numbness extended from her waist to her thighs which she believed was another indicator of nerve damage. Ms C complained that medical staff failed to x-ray her spine until she was transferred to another hospital. She had repeatedly told medical staff that there was something seriously wrong and that she was not suffering just from muscular pain or bruising, but she was ignored. Ms C now suffers from post-traumatic stress disorder and still has problems with her bladder. Her bowel does not function properly and she has lost sensation in her buttocks, thighs and pelvic area. She believed that her injuries could have been much worse if she had allowed medical staff to mobilise her during her admission to the orthopaedic ward.

Consultant 1's statement

13. Consultant 1 said that when Mrs C's case was first presented to him by junior doctors, he specifically asked them if there was spinal tenderness and a neurological problem. He was assured that there was not. However, when he reviewed Ms C in the ward she seemed to be in severe pain. The pain team was requested to review her and she was also catheterised. His view at that point was that she had to remain in bed until the diagnosis was made. On 10 June 2011, she was still in severe pain and unable to move. He ordered a bone scan (that would localise the problem) in order to detect a fracture of the back or of the pelvis since clinically it was not entirely clear where the problem was (there was pain in the hip area and paraspinal spasm). However, radiology carried out a CT scan instead and issued a report that there was a fracture of the transverse process of L3 and L4. On checking, Consultant 1 identified the fractures but did not notice that the CT scan was only done up until L3. Consultant 1 was, therefore, reassured that the pain, which was still severe, was due to paraspinal spasm after the L3 and L4 fractures. Consultant 1 said that if a bone scan had been carried out then the L2 fracture would have been detected. On 13 June 2011, he advised that Ms C should be mobilised as able. Ms C said that she was forced to mobilise, but this was not his intention. However, he subsequently had to hand over Ms C and did not see her afterwards. Consultant 1 said that he agreed with Mrs C's complaint that a serious fracture was missed while she was under his care and was sorry that this happened. It affected the whole department and was discussed fully by healthcare professionals after. There were a number of factors which led to the

failure to diagnose Ms C while under his care that he said included the handover; the assessment by orthopaedic junior doctors which misled the whole picture; and that investigations proposed were not done.

The Board's response

14. The Board said that the initial examination in the emergency department (7 June 2011) was undertaken carefully and included a log roll (by a doctor and four members of nursing staff) onto Ms C's side to examine her back. The doctor identified no specific bony tenderness. When Ms C was next examined, it was noted that she had severe pain on movement but there was no altered sensation or weakness in the legs and no bowel or bladder dysfunction at this time. The on-call orthopaedic doctor saw Ms C later that day and noted that while the lower left leg lift was normal, there was difficulty in sustaining her right leg left. An x-ray of the pelvis was undertaken and no bony injury noted. The diagnosis at this point was muscular back pain following trauma and Ms C was admitted to an orthopaedic ward.

15. The following day (8 June 2011) the Board said Consultant 1 recalled specifically asking his team if Ms C had any spinal tenderness or nerve injury. He was told that there was not. Ms C had severe pain over the pelvis and lower back and had a catheter inserted into the bladder for urinary retention. On 10 June 2011, Ms C was still in pain and Consultant 1 asked for a bone scan to exclude other bony injury. This was not made clear to radiology and a CT scan of the pelvis was undertaken since pain in that area was considered the main problem. The reason a CT scan was undertaken instead of a bone scan was not fed back by the junior orthopaedic doctors to Consultant 1. The CT scan showed fractures of transverse process of L3 and L4. Ms C was diagnosed with paraspinal muscle spasm at this point.

16. The Board went on to say that when Ms C was transferred to another hospital on 15 June 2011, Consultant 2 reviewed her and noted that her symptoms raised the possibility of compression at the lower end of the spinal-cord. Consultant 2 requested an MRI, which identified a serious problem.

17. The Board hoped that they had explained why the fracture of Ms C's L2 was missed. The Board concluded that communication between and within teams should have prompted further investigation and a number of documented events should have triggered further investigation such as urinary retention, bowel activity, pain down the legs and altered sensation to buttocks. (It was not

documented when this altered sensation started.) The Board said that the fracture clearly resulted in nerve damage but they were unable to determine whether an earlier investigation would have changed the long-term outcome. Ms C's complaint highlighted significant issues and those involved have been asked to review the care given and consider what action they individually may have taken that would have led to a different outcome.

18. In response to my complaint reviewer's enquiries, the Board said that the responsibility for requesting radiological investigation is with consultant staff. The request for a bone scan was unusual and the junior doctor was not clear about the first consultant's concerns. The consultant radiologist relied on the junior doctor to discuss the situation further with Consultant 1 and anticipated that any concerns with the proposed investigation (CT scan) would be raised. From a radiological viewpoint, the appropriate investigation from the information available was undertaken. When discussing the complaint, the consensus between Consultant 1 and a consultant in emergency medicine (asked to consider what went wrong) was that initially there were a lack of x-rays requested by the emergency department. It was now agreed that if a diagnostic test request was changed by a radiologist, then they will alert the consultant requesting the test. It was also agreed that following trauma meetings (where consultant surgeons discuss patients suffering from trauma with their team and sometimes healthcare professionals from other specialities), then further discussions will take place with a radiologist about any clinical concerns. The emergency department has now developed a protocol for the management of back injuries which specifically highlights 'red flags' that will prompt further investigation. Finally, the Board noted that a lumbar spine CT is often used for patients with a significant trauma injury to further investigate a fracture that is initially identified on an x-ray.

Advice received

19. The Medical Adviser explained that victims of a significant mechanism of injury will in most emergency departments be initially assessed by a trauma team which should be led by the emergency department's most senior doctor. The trauma team will perform a rapid primary survey, which is a recognised international system devised by the American College of Surgeons for picking up and dealing with any immediate life-threatening injuries. This system of care is called advance trauma life support (ATLS) and has been adopted in all UK emergency departments.

20. My complaints reviewer asked the Medical Adviser if the Board's investigation and management of Ms C's spinal injury was reasonable while she was at the emergency department on 7 June 2011. The Medical Adviser said that the initial assessment of Ms C was reasonable even though a trauma team was not activated in this case. It is accepted practice for patients who arrive on a spinal board to roll them onto a soft surface as soon as practically possible; emergency department staff perform this on a daily basis and are trained to do so in a safe and secure manner. Ms C was log rolled off the spinal board about 46 minutes after her arrival, which was within the range of acceptable practice given that her observations were recorded as normal. The log roll was performed by a senior trainee who documented that there was no bony tenderness along the whole length of the spine and tenderness in the pelvis. This is usually a good general indication that a fracture is unlikely to prove to be present, but does not represent a full assessment. By this stage, a primary survey and log roll had been completed (and the possibility of an immediate life-threatening injury was excluded) and it was acceptable to provide oral analgesia and wait for the secondary assessment to be completed. This was reasonable given the clinical findings at the time. In relation to the log roll, the Medical Adviser said that there was no evidence in the medical records that the log roll was carried out improperly. However, there were significant shortcomings in the care and treatment provided after this initial assessment.

21. The Medical Adviser said that when Ms C had a second survey (a top to toe examination) completed an hour later, she was still in considerable pain despite strong pain relief, which a junior emergency doctor recognised as a problem and discussed it with a senior emergency doctor. However, the senior doctor failed to review Ms C, which the Medical Adviser said was a significant failing. When the junior emergency doctor reviewed Ms C for the second time, the pain had improved and healthcare professionals decided to attempt to mobilise her. The junior emergency doctor discussed the case with a senior trainee in emergency medicine who suggested that there was no indication for x-ray in view of the continuing absence of bony tenderness and suggested that Ms C should be reviewed once analgesia had time to work. However, the Medical Adviser said that the attempt to mobilise Ms C failed dismally as Ms C was in pain with the slightest movement. Furthermore, the attempt to mobilise Ms C was aided by a physiotherapist who referred her back to the doctors for review, but instead of being seen by an experienced senior doctor, she was reviewed by the junior emergency doctor. In both these instances, there were missed opportunities for requesting an appropriate x-ray of the spine. Instead,

healthcare professionals carried out an x-ray of the pelvis. The Medical Adviser said that a senior emergency doctor should always be involved in this type of scenario and would have recognised the requirement for an x-ray which is continued pain together with the type of injury Ms C had. The lack of review biasing emergency doctor was a recognised problem highlighted by the National confidential enquiry into patient outcome and health's report *Trauma, who cares*?.

22. My complaints reviewer then asked the Surgical Adviser if the Board's investigation and management of Ms C's spinal injury was reasonable during her admission to an orthopaedic ward. The Surgical Adviser said it was a reasonably straightforward trauma case; Ms C fell off a horse, which is a very common cause of potential serious injury and experienced significant back pain. A spinal injury should have been suspected from when Ms C was first admitted to hospital. The Surgical Adviser explained that a clinician following the standard approach to trauma patients (ATLS) would have carried out an x-ray of the spine. This would have revealed the severe L2 fracture which was causing cauda equina compression (a serious condition caused by compression of the nerves in the lower spine which can lead to paralysis). Instead, the Surgical Adviser said that there were a number of extremely significant failures when Ms C was admitted to the ward under the care of Consultant 1:

- when Ms C went into urinary retention, Consultant 1 should have suspected the possibility of nerve damage or cauda equina compression at this point and prompted an immediate and comprehensive radiological investigation of the spine;
- Consultant 1 ordered a bone scan which is not an appropriate investigation for a spinal injury;
- radiology carried out a CT scan, which is a secondary investigation that should be carried out after initial x-rays. Furthermore, the CT scan only went up to L3. The first consultant said he did not notice the CT scans only went up to L3 which was unacceptable, it would be obvious from the scans themselves (that showed less severe fractures of L3 and L4); and
- Consultant 1 advised mobilisation, which was unreasonable because the possibility of a spinal injury had not been correctly investigated.

23. The Surgical Adviser described these failures as 'a case of serious basic mistakes in the primary assessment and investigation of a very significant

injury, which should have been evident from the start' and a 'prime example of gross basic errors in … this reasonably straightforward trauma case'.

24. My complaints reviewer asked the Surgical Adviser if these failures led to an injustice to Ms C. The Surgical Adviser said that he did not believe her handling in the emergency department contributed to or exacerbated her spinal injury and that it was undoubtedly the accident which caused damage to her spine. However, Ms C will have suffered significant pain as a result of the incorrect diagnosis and management. Possible further and permanent neurological damage will also have occurred as a result.

25. Given the seriousness of the criticisms by my Surgical Adviser, I shared their full advice with the Chief Executive of the Board during my investigation.

Conclusion

26. Ms C complained that the Board's assessment and treatment of her spinal injury was unreasonable. The advice I have accepted is that there were significant failures by healthcare professionals in the emergency department and orthopaedic ward in their investigation of Ms C's spinal injury. These failures led to a significant personal injustice to Ms C in that she suffered significant pain and possible further and permanent neurological damage. Furthermore, the evidence suggests systemic failures within and between the emergency department and the orthopaedic ward which may impact on the future care of patients with similar injuries. The failures in the emergency department concern two missed opportunities for review by a senior doctor and request for appropriate x-rays. Had the healthcare professionals in the emergency department followed standard practice, then an x-ray of Ms C's spine would have been carried out and the seriousness of her injury would have been identified much sooner. However, the failures by Consultant 1 in this case are of even greater concern.

27. The standard by which I judge a clinician's actions is whether they were reasonable in the circumstances. In reaching my decision in this case, I considered whether Consultant 1's decisions and actions taken were within a range of what would be considered acceptable professional practice at the time in question. Given the evidence and information available to Consultant 1 about Ms C's condition, I am extremely concerned about their failure to properly assess and investigate Ms C's spinal injury. The advice I have accepted is that Consultant 1 made serious and basic mistakes. This raises questions about

their competence, which the Board needs to address as a matter of urgency. I uphold the complaint. I make a number of recommendations to address the failures identified.

Recommendations

28. I recommend that the Board	*Completion date*
(i) carry out an audit of the standard of their trauma management;	18 December 2013
(ii) ensure that the findings of National confidential enquiry into patient outcome and health report *Trauma who cares?* are implemented and amend their protocol accordingly, in particular to ensure that senior emergency department doctors will be available to initially assess and provide on-going advice for all victims of trauma;	18 December 2013
(iii) review the actions of Consultant 1 in light of this report and take appropriate action; and	23 October 2013
(iv) make a further formal apology to Ms C for the failures identified	23 October 2013

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

Annex 1

Explanation of abbreviations used

Ms C	The complainant
The Hospital	Stirling Royal Infirmary Hospital
Consultant 1	A consultant in orthopaedic surgery at the hospital
CT scan	Computerised tomography scan
L3, 4 etc	Lumbar 3, 4 etc vertebrae
Consultant 2	A consultant in ageing and health at the hospital
The Board	Forth Valley NHS Board
The Surgical Adviser	A consultant in orthopaedic surgery who provided advice
The Medical Adviser	A consultant in emergency medicine who provided advice
ATLS	Advance trauma life support
NCEPOD	National confidential enquiry into patient outcome and health

Annex 2

Glossary of terms

Cauda equina compression	a condition caused by compression of the nerves in the lower spine which can lead to nerve damage
Log roll	a controlled manoeuvre to roll the patient so that the spine can be visually inspected and manually examined
Perineum	area between the vaginal opening and rectum
Transverse process	a bony protrusion from the back of a spinal bone (vertebrae)