Scottish Parliament Region: Highlands and Islands

Case 201001241: Highland NHS Board

Summary of Investigation

Category

Health: Hospital; Orthopaedics; clinical treatment; diagnosis

Overview

On 2 July 2010 an Independent Advice and Support Worker from the Citizens Advice Bureau (Ms C), complained to the Scottish Public Services Ombudsman about Highland NHS Board (the Board) on behalf of her client (Mr A). The complaint was that there had been a failure to identify why Mr A was not healing from a fracture of his left tibia and fibula, sustained whilst playing football in May 2008. Ms C complained that the pain Mr A suffered following his fracture was not assessed properly. She also complained that the clinicians involved in his care did not consider the possibility of any other underlying conditions that may have been present. Mr A was ultimately diagnosed as suffering from osteosarcoma of the left knee.

Specific complaints and conclusions

The complaints which have been investigated are that:

(a) the Board did not appropriately investigate Mr A's failure to heal from his left tibia and fibula fracture (*not upheld*);
(b) Mr A's ongoing pain was not assessed properly (*upheld*); and
(c) the Board failed to consider the possibility of the presence of underlying conditions (*upheld*).

Redress and recommendations

The Ombudsman recommends that the Board:	*Completion date*
(i) review the procedures within orthopaedic related departments to ensure they have robust systems in place to identify red flag symptoms;	17 August 2011
(ii) draw the findings of this report to the attention of all clinical staff involved in Mr A's care and treatment throughout the period of 10 May 2008 to 12 May 2009, so that they can learn from it; and	17 August 2011

(iii)	provide Mr A with a full apology for the failures identified in this report.	20 July 2011

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

Main Investigation Report

Introduction

1. Ms C complained on behalf of Mr A that Highland NHS Board (the Board) failed to diagnose and treat an osteosarcoma which was found present in Mr A's left knee on 12 May 2009. During the previous year, Mr A had been attending an Orthopaedic Out-patient Clinic in Raigmore Hospital (the Hospital) for the treatment and review of a left tibia and fibula fracture he sustained whilst playing football on 9 May 2008.

2. Following his injury, Mr A was taken to the Hospital by ambulance and admitted after confirmation of a fracture to his left tibia and fibula on 10 May 2008. On 11 May 2008 he underwent surgery for tibial nailing, with two locking screws (proximally and distally). He was discharged on 14 May 2008 with follow-up.

3. Mr A was seen two weeks later on, 27 May 2008, at the Orthopaedic Out-patient Clinic (the Clinic). He was subsequently seen on 27 June 2008, 12 August 2008 and 16 September 2008. During his Clinic appointment on 16 September 2008 when he was seen by a Speciality Registrar in Orthopaedics (Doctor 1), it was proposed and agreed that the removal of the proximal screws would be helpful to promote healing, which had been slow up to that point. He was placed on the waiting list for removal of the proximal screws and for a left knee arthroscopy. Mr A described walking with a slight limp and severe pain in his left knee over the preceding two weeks up to the September appointment. This procedure and further examination of his knee was carried out in the Hospital on 31 October 2008 (the two distal locking screws remained in-situ). Further to this, Mr A was seen a month later on 2 December 2008, where a slight improvement was noted, and seen again on 30 December 2008. During this appointment it was confirmed that the distal locking screws had broken, which was considered to be an indicator of the fracture dynamising (healing).

4. On 10 February 2009, during the out-patient appointment Mr A saw a Consultant Orthopaedic Surgeon (Consultant 1) and it was agreed he should continue with the physiotherapy he was having and that he would be reviewed in three months.

5. Further to this, at the Clinic on 12 May 2009 it was noted there was a change in the clinical presentation in so far as Mr A advised that increased pain in his knee was keeping him awake at night, which was considered by the clinical staff to be a significant change. He underwent a further x-ray and it was confirmed he had a likely neoplasm in his left distal femur (osteosarcoma).

6. Ms C complained to the Board on 17 December 2009 and again on 23 February 2010. The Board responded to Ms C on 20 January 2010 and again on 26 March 2010.

7. The complaints from Ms C which I have investigated are that:

(a) the Board did not appropriately investigate Mr A's failure to heal from his left tibia and fibula fracture;
(b) Mr A's ongoing pain was not assessed properly; and
(c) the Board failed to consider the possibility of the presence of underlying conditions.

Investigation

8. As part of this investigation my complaints reviewer has spoken to the complainant's representative and the complainant. She has reviewed the clinical records and the complaint information provided by the Board. She has also made written enquiries to the Board. An Adviser to the Ombudsman, a consultant orthopaedic surgeon (the Adviser), has provided clinical advice.

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

(a) The Board did not appropriately investigate Mr A's failure to heal from his left tibia and fibula fracture

10. Ms C complained that following Mr A's fracture the Board did not investigate his failure to heal properly. Ms C complained there were opportunities missed to investigate what was wrong with Mr A each time he visited the Clinic.

11. From the clinical records it was noted that Mr A was discharged on 14 May 2008, with review and removal of sutures planned for two weeks. Mr A was reviewed on 27 May 2008, when the clips were removed and he was allowed to partially weight bear. He was then seen on 27 June 2008 by

Consultant 1, when he was x-rayed and it was noted that he could weight bear up to full weight if he was happy to.

12. On 12 August 2008 he was seen again. It was noted that he had been slow to get active but was now much more active and that this would hopefully continue over the next month. It was noted that, if not, it might mean removal of some of the screws, to allow his fracture to dynamise a little and stimulate further healing.

13. On 16 September 2008 Mr A was seen by Doctor 1, who noted that Mr A had experienced sharp knee pain over the past two weeks, which had happened acutely with no apparent injury. Mr A had shown Doctor 1 that all the pain was coming through his knee and not his tibia. It was noted on examination that his knee did not have any joint line tenderness, movement was good with full extension and that Mr A was possibly presenting with anterior cruciate ligament injury.

14. In November 2008 Mr A was admitted for knee arthroscopy and removal of the tibial screws. The arthroscopy was normal. Mr A was examined again in December 2008, when it was noted that the pain in the fracture site had improved. On 10 February 2009 Mr A was reviewed by Consultant 1, when it was noted that he was experiencing a little anterior knee pain. This was considered to be due to the tibial nail becoming a little more prominent. At Mr A's next review, on 12 May 2009, he was noted to be complaining of ongoing knee pain which kept him awake at night. He was x-rayed that day which confirmed a likely neoplasm in his left femur.

15. In response to Ms C's complaints, the Board said the focus had been on Mr A's presenting symptoms. The Board explained to Ms C that the clinicians were not suspicious of Mr A's presenting symptoms until he described the pain in a significantly different way. They explained that, until 12 May 2009, all their attention was toward Mr A's fractured tibia and fibula. The Board said:

> 'In normal circumstances, tibial fractures should heal within 16-20 weeks. It was therefore thought that [Mr A]'s fracture was falling into the category of a delayed union or possible non-union. Due to this, the removal of the cross screws was undertaken to dynamise his fracture.'

16. On 12 August 2010, the Board provided a response to my complaints reviewer's enquiry letter. The Board advised there was no evidence of any

abnormality in the femur on x-ray at the time of the original accident in May 2008 and, thereafter, the x-rays taken were for standard tibial and fibula views. They stated that, unfortunately, due to the fact that anterior knee pain was common following a tibial nailing it was considered there was no need to x-ray the knee. The Board explained the screws were removed to allow the fracture to compress further and stimulate healing. They stated:

> 'Mr [A]'s persistent initial pain was thought to be due to the nail itself, as this is a common occurrence following tibial nail or anterior knee pain. It did however, become clear latterly when Mr [A] explained he was experiencing considerable night pain that something was occurring and that prompted the x-ray which sadly revealed the bony tumour.'

17. In the Board's view the clinical care had been entirely consistent with what the clinicians were expecting to provide, up to the presentation of a new description of the reported ongoing pain in Mr A's knee, as explained by him on 12 May 2009. They stated Consultant 1 and a Speciality Registrar in Orthopaedics (Doctor 2) who saw Mr A that day within the Clinic responded to the new description of pain that was keeping Mr A awake at night as this change was not what the medical staff had been expecting to hear.

18. The Board confirmed that that Mr A's fracture had not healed in a timely fashion. They were of the view that the surgery undertaken to remove the proximal screws did help the healing. However, they stated that the incidence of non-union following a tibial fracture was common after high velocity injuries, open fractures, significant distraction at the fracture and smoking. The Board referred to a definition of a non-union as:

> '… somewhat imprecise, but most people would certainly say that if a fracture has failed to heal after nine months with no significant healing over a three month period then a non-union can be said to be present. [Consultant 1] advises that Mr [A]'s fracture was beginning to unite following dynamisation of it, but, that it is impossible to say what the reason for the non-union might have been. It may or may not be relevant that Mr [A] was a smoker.'

Advice received

19. The Adviser indicated that overall, the care and treatment received by Mr A was reasonable in the particular circumstances. He commented that failure to heal over time was not an unusual problem and that Mr A was treated appropriately for this by dynamisation of the fracture. He considered the

development of the osteosarcoma was coincidental to the ongoing problem of the delayed union of the tibial fracture and although somewhat masked by it, it was not caused or related to the fracture in any way.

20. He considered that removal of the screws, together with the decision to perform arthroscopy at the same time, was appropriate in particular as this would require only one anaesthetic.

(a) Conclusion

21. There is evidence to demonstrate that clinical staff were mindful of the lack of healing during each visit Mr A made to the Clinic and carefully noted the small signs of progress observed during that time. The advice I have received and accept is that the failure to heal was treated appropriately by dynamisation of the fracture. Taking into account that failure to heal can be a recognised complication and the evidence that the clinical staff were monitoring Mr A's failure to heal in relation to his confirmed diagnosis of a fractured tibia and fibula, I do not uphold this complaint. I have no recommendations to make to the Board.

(b) Mr A's ongoing pain was not assessed properly

22. Ms C complained that despite visits to the Clinic, there was little done to assess Mr A's ongoing pain. As noted above, Mr A was seen regularly at the Clinic to follow up on his progress. By August 2008 it was noted that although he had been slow to get active he was, by then, more active and was weight bearing.

23. At the Clinic appointment on 16 September 2008, Doctor 1 saw Mr A and recorded:

> '[Mr A] is a smoker and I have emphasised to him the importance of this with respect to delayed bone healing. Furthermore, in the last couple of weeks [Mr A] has had severe left knee pain with no apparent injury. He said that the left knee became painful and he found it difficult to both flex and extend his knee and he walked in with a limp to clinic today. He assures me that all the pain is coming from his knee and none from his tibia.'

24. Doctor 1 confirmed:

> '[Mr A] therefore has two problems, one of delayed union and one of left knee pain possibly secondary to anterior cruciate ligament rupture. We

have therefore placed him on the waiting list for removal of proximal screws and left knee arthroscopy.'

25. Following this surgery, it was noted on 30 December that the pain in the fracture site had improved. Mr A was seen again on 10 February 2009 by Consultant 1 and the clinic letter from Consultant 1 to the GP noted:

'Certainly, x-ray shows that his fracture is consolidating. He now has much less pain around the fracture site though he has developed more knee pain.

When he was admitted for removal of his proximal screws and arthroscopy the knee was, essentially, normal.

He is having extensive physiotherapy, including hydrotherapy, and I think things are generally improving.

He is also now experiencing a little anterior knee pain and I am sure this relates to the fact that with dynamisation of his fracture his tibial nail is becoming a little more prominent proximally, though it is certainly not interfering with the joint.

He should bash on with physiotherapy and I will see him in three months time with an x-ray on arrival.'

26. The letter to Mr A's GP from Doctor 2 regarding the Clinic appointment held on 12 May 2009, describes the findings following examination and x-ray. It states:

'I saw [Mr A] along with [Consultant 1] in the clinic today. He was complaining of ongoing pain in his right knee which keeps him awake at night and has not improved with physiotherapy. He occasionally gets pain round about his distal tibia next to the fracture site. We note that his right knee pain started in September last year quite suddenly with no history of trauma. He had his proximal locking screws removed from his IM nail [Intramedullary Nail, used to align and stabilise fractures] and an arthroscopy which was essentially normal and was referred for physiotherapy. It was felt that his anterior knee pain was due to his tibial nailing which, as you know, is not uncommon.

He was re x-rayed today and this, unfortunately, shows what looks like a neoplasm in his left distal femur.'

27. In the Board's response to both of Ms C's complaint letters (paragraph 2), they explained the assessment of pain had focused on the fracture and in their view the treatment options considered and followed were aimed to alleviate the

presenting symptoms of the fracture and the slow healing. They stated that the ongoing assessment and treatment focused on the symptoms which, when presented and described were consistent with a picture of a fracture that was referred to as slow to heal.

28. The Board acknowledged that their focus had been on Mr A's fracture site with consideration given to assessing and resolving the symptoms. Additionally, they explained to Ms C that there had been signs of improvement at Mr A's fracture site which, until the significant x-ray examination, carried out on 12 May 2009, they had considered as signs of a response to the treatment of the fracture.

29. The Board commented that Consultant 1 would usually assess levels of pain regularly with the patient and ask about the level of pain in line with the condition of the fracture. The physiotherapy that was undertaken was to assist Mr A in improving his range of knee movement and the strength of his quadriceps muscle. Mr A was seen within the Physiotherapy Department regularly from 27 January 2009 through to the 2 April 2009. Further to that, as he changed employment he was referred to the Physiotherapy Department at Ross Memorial Hospital, although it appears as other events arose he did not attend the appointment there.

30. The Board advised that Consultant 1 agreed it was very likely the cancer was emerging at the time of Mr C's injury, but there were no clinical indicators to lead to any suspicion at that time. Consultant 1 said:

> '… in light of the subsequent events that Mr [A] experienced then his cancer must have been evolving at the time of his injury, though there was certainly no obvious clinical evidence.'

31. Additionally the Board stated:

> '[Consultant 1] advises that the term "red flag" is not a formal system. It is a term used to highlight symptoms that are commonly associated with malignancy. In the case of [Mr A] the significant red flag was that of night pain which is commonly indicative of a bony tumour.'

32. Following Mr A's Clinic appointment on 12 May 2009 a referral was made on 22 May 2009 to a second Consultant Orthopaedic Surgeon (Consultant 2) for ongoing care as a result of the diagnosis made.

33. In a separate letter from the Board dated 9 August 2010 to my complaints reviewer, Consultant 2, who met Mr A following his diagnosis of osteosarcoma, said he recalled the circumstances well and considered the treatment and response to the symptoms to have been normal under the circumstances. This was the case, until the description of the pain changed and further investigations revealed the osteosarcoma.

Advice received

34. The Adviser reviewed the clinical records and complaints file. In his view a further x-ray should have been undertaken in September 2008, when Mr A presented with knee pain. He considered that, given there was a note of sudden knee pain reported to Doctor 1 in September 2008, then further investigation by simple x-ray was mandatory. The Adviser considered the management of Mr A's pain at that time was not assessed properly and that appropriate investigations starting with simple x-ray should have been performed. These x-rays should have covered the area of discomfort, ie, the lower femur and patella, rather than the fracture.

35. The Adviser went on to say:

> '… medical advice is usually only to consider one cause for ongoing problems and it is I believe understandable that the clinicians were somewhat mislead by the ongoing problems with the tibial fracture. I think the examination by [Doctor 1] of 16.9.08, shows that the red flags were indeed present, but I think there was a general reticence to accept them due to the fact that the tibial fracture was present and un-united.'

36. He added had Mr A's knee been x-rayed then it is more than likely that an abnormality in the distal femur consistent with a neoplasm/osteosarcoma would have been visualised at that time. This would have been represented by increased ossification, lytic changes and perhaps periosteal ossification.

(b) Conclusion

37. While I have found that the clinicians involved in Mr A's care took reasonable account of Mr A's failure to heal, I do not consider that the same can be said about the way they investigated Mr A's on-going knee pain. It is clear from the evidence that when Mr A first reported sudden knee pain in September 2008 a further x-ray of the area of discomfort should have been undertaken. The advice I have received is had that happened then, it is likely that a neoplasm/osteosarcoma would have been visualised. It is of

considerable concern that the ultimate diagnosis of osteosarcoma was only made some eight months later, in May 2009 when an x-ray of the area of discomfort was eventually taken. In the circumstances, I have concluded that Mr A's pain was not assessed properly. I, therefore, uphold this complaint and make the following recommendations to the Board.

(b) Recommendation

38.	I recommend that the Board:	*Completion date*
(i)	review the procedures within orthopaedic related departments to ensure they have robust systems in place to identify red flag symptoms.	17 August 2011

(c) The Board failed to consider the possibility of the presence of underlying conditions

39. Ms C complained that the Board did not consider the possibility of other underlying conditions emerging. In particular she complained that had the diagnosis of osteosarcoma been made sooner Mr A may not have needed to have an amputation.

40. In their initial response to Ms C's complaint, the Board stated that there was no evidence of any abnormality in the distal femur or x-rays at the time of the original accident and x-rays thereafter were standard tibial and fibial views. They went on that, unfortunately, due to the fact that anterior knee pain is common following a tibial nailing it was felt that there was no need to x-ray the knee until Mr A's symptoms changed and it was clear that he was experiencing night pain.

41. In the Board's view the fracture and the failure to heal, masked the emerging condition evolving above the site of Mr A's original injury. They said:

> 'With regards evidence that the tumour was evolving post-fracture or synchronously, this is purely based on the fact that prior to his accident Mr [A] was not presenting with knee pain, in particular at night, and that the x-rays of his knee at the time of the fracture revealed no gross evidence of a bone tumour. There is no doubt that if the tumour had been found earlier that the outcome may have been different in which case there are two scenarios:
>
> 1. If Mr [A] had not fractured his tibia [Consultant 1] is sure he would have presented with knee pain which would have generated investigations

and subsequent disclosure of the bone tumour which may have resulted in him being suitable for an endoprosthesis.

2. If Mr [A]'s tibia had soundly united then he may well have been suitable for an endoprosthesis: however, a more definitive opinion on this should be obtained from [Consultant 2], Tumour Surgeon in Aberdeen. Unfortunately, Mr [A] fell into a third group, whereby his tibia had not united soundly and, as a result, had no solid distal anatomy that would have supported an endoprosthesis had it been suitable.'

42. The Board advised that osteosarcoma is a very unusual condition, though the commonest primary bone tumour, it occurs in only 0.3 per 100,000 per population. Tibial fracture is very common in the general population and, as a result, Mr A's pain was initially regarded as a result of his tibial fracture and it was not until the knee pain increased in severity and was occurring at night that the subsequent diagnosis was made. Until that time there was no suspicion and no indication of any other co-morbid disease process emerging. The Board advised the approach to identify the possibility of co-morbidity of conditions on a clinical basis is made by a treating clinician and that there had been no changes made to the assessment procedure of a trauma patient as a result of the issues in this particular case. Any fractures would pass through the orthopaedic unit and be treated by various means, whether operative or non-operatively. The identification of co-existing malignancy would depend on its clinical presentation at the time of the trauma/fracture which would subsequently generate the appropriate investigations. They re-iterated that this was a very unusual case and there was little doubt that had Mr A not had his tibial fracture his osteosarcoma would have presented sooner as, at that stage, he would have presented with knee pain with no other reason to cause this.

43. My complaints reviewer obtained comments from Consultant 2 in respect of the potential to avoid amputation when Mr A presented after the osteosarcoma was found. He said:

'It was highly unlikely that we were going to be able to perform limb salvage surgery given the extent of the tumour in particular the soft tissue extension of the tumour into his popliteal fossa. Unfortunately he [Mr A] did not tolerate his chemotherapy well and had significant side effects. The chemotherapy course was therefore cut short and we proceeded thereafter to above the knee amputation which had to be a high amputation to be sure of wide clearance from his tumour.'

Advice received

44. The Adviser has provided the following opinion:

'I think the tumour was symptomatic from September 2008 and my experience is that it had probably been present for around six months prior to this. Had the change in pain noted by [Doctor 1] been appropriately investigated then the diagnosis would have been made.'

45. The Adviser continued:

'My experience is that within osteosarcoma … the tumour is usually present for around six months prior to causing symptoms, but I would confirm that the earliest point of medical diagnosis would have been September 2008. Most cases of osteosarcoma usually fit into this category. The eventual diagnosis was made in May 2009. He therefore had a delay in diagnosis of around nine [eight] months.'

46. The Adviser added:

'If you allow for linear growth in a logarithmic manner between September and May it certainly became inoperable, by virtue of soft tissue extension, when the eventual diagnosis was made. My opinion is, and this is not an exact science, that if he had been diagnosed at any time up to around February 2009 it would have been more likely that the soft tissue extension would have been less and therefore limb salvage surgery could have been attempted.'

(c) Conclusion

47. Ms C has complained that the Board failed to consider the possibility of the presence of underlying conditions and as a result, had diagnosis been made sooner, amputation may have been avoided. I have already concluded that there was a delay in diagnosis of around eight months. It is clear from the evidence and advice received that had the possibility of an underlying condition been considered at the time the change in pain was initially noted in September 2008, the medical diagnosis of osteosarcoma was likely. Aligned to this is the fact that had an earlier diagnosis been made, it is more likely limb salvage surgery could have been attempted. I uphold this complaint. Although this is a rare form of cancer, I believe it is essential that the clinicians involved in Mr A's care are made aware of this report and its findings. I make the following recommendations.

(c) Recommendation

48. I recommend that the Board:	*Completion date*
(i) draw the findings of this report to the attention of all clinical staff involved in Mr A's care and treatment throughout the period of 10 May 2008 and 12 May 2009, so that they can learn from it.	17 August 2011

General recommendation

49. I recommend that the Board:	*Completion date*
(i) provide a full apology to Mr A for the failures identified in this report.	20 July 2011

50. 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 - Independent advice and support services care worker
Mr A	The aggrieved
The Board	Highlands and Islands NHS Board
The Hospital	Raigmore Hospital
The Clinic	The Orthopaedic Out-patient Clinic at the Hospital
Doctor 1	Specialist registrar in orthopaedics
Consultant 1	Consultant orthopaedic surgeon
The Adviser	An adviser to the Ombudsman, a consultant orthopaedic surgeon
Doctor 2	Speciality registrar in orthopaedics
Consultant 2	Consultant orthopaedic surgeon

Annex 2

Glossary of terms

Anterior	Forward, toward the front
Anterior cruciate ligament	A ligament in the knee that crosses from the underside of the femur to the top of the tibia
Arthroscopy	Knee arthroscopy is a type of keyhole surgery, used to look inside and treat the knee joint
distal femur	The lower extremity of the femur (or distal extremity), larger than the upper extremity of femur immediately above the knee joint
Endoprosthesis	An artificial device to replace a missing body part that is placed inside the body
Lytic changes	In orthopaedic terms, X-ray changes of loss of bone substance
Neoplasm	An abnormal mass of tissue as a result of neoplasia. Neoplasia (new growth) is the abnormal proliferation of cells. The growth of neoplastic cells exceeds and is not coordinated with that of the normal tissues around it. The growth persists in the same excessive manner even after cessation of the stimuli. It usually causes a lump or tumor. Neoplasms may be benign, pre-malignant (carcinoma in situ) or malignant (cancer)
Osteosarcoma	An aggressive cancerous neoplasm. It is the most common histological form of primary bone cancer
Periosteal ossification	Additional bone growth

Popliteal fossa	A space or shallow depression located at the back of the knee-joint. The bones of the popliteal fossa are the femur and the tibia
Proximal screws	The screws uppermost in the tibial nail that passes through the tibia in order to lock the nail with the bone and prevent rotation
Sutures	Material used in closing a wound with stiches