Senior House Officer, Dr C /

A Public Hospital

A Report by the

Health and Disability Commissioner

(Case 01HDC04614)

Health and Disability Commissioner
Te Toihau Hauora, Hauātanga

Parties involved

Mrs A	Complainant / Consumer's mother
Mr B	Consumer
Dr C	Provider
A public hospital	Provider

Independent expert advice was obtained from Dr Peter Freeman, emergency medicine consultant.

Complaint

On 27 April 2001 the Commissioner received a complaint from Mrs A about the treatment received by her son, Mr B, from Dr C. The complaint was that:

- *On 25 January 2001, at a public hospital, Dr C failed to x-ray Mr B's left shin laceration. In failing to perform an x-ray Dr C missed a glass fragment, and failed to ascertain that Mr B's tendon was damaged.*

An investigation was commenced on 6 July 2001.

Information reviewed

- Relevant medical records from the public hospital
- Relevant medical records from a private radiology centre
- Guidelines on Wounds and Lacerations in General used in the Accident and Emergency Department at the public hospital.

Information gathered during investigation

On 25 January 2001 Mr B was involved in an accident where a thick sheet of glass, which he had been carrying with another person, was dropped and cut into his lower left leg. Mr B advised that the sheet of glass had cut through his leg, hitting the bone.

Mr B drove himself to the Accident and Emergency Service at the hospital that same day. He was attended by Dr C, a senior house officer in the Emergency Department. Two student doctors were also present during the examination.

Dr C advises that on examination he found:

> "a large flap laceration (base distally) of the left leg at the level of the middle to distal third pre tibial region. The skin of the flap was cut, slightly obliquely on the medial border. The laceration extended through skin, sub-cutaneous fat and part of the anterior tibia was exposed. There was no detectable tendon or glass. Distally I found strong dorsiflexion of the ankle and toes against resistance. There was no sensory deficit and intact peripheral pulses."

In terms of the treatment provided that day, Dr C confirms that he:

> "… cleansed the wound with chlorhexidine, applied five vertical mattress sutures of 3/0 ethilon to the medial edge, which I found hard to appose due to the oblique nature of the flap. The remainder was sutured with six 3/0 vicryl rapide internally and eleven interrupted 3/0 ethilon."

Dr C also states that he advised Mr B to rest and keep his leg elevated for a few days. Mr B was prescribed a course of Augmentin and codeine, and then discharged that same day.

X-ray for glass fragments
No x-ray was taken while Mr B was in the Emergency Department to ascertain whether any glass fragments were lodged in the wound.

There are differing accounts as to why no x-ray was taken.

Dr C states that he advised Mr B that "an x-ray must be performed of the area to check for any glass fragments". Dr C's accounts of Mr B's response to this advice differ. When the issue of failing to perform an x-ray was first raised to the hospital by Mr B's mother, Dr C stated in his letter of response:

> "[Mr B] was adamant that the glass could not have broken, that there was no possibility of a glass chip being in the wound and declined the x-ray."

In Dr C's response to me, however, he recalls Mr B's response as being a:

> "… confident insistence that the pane of glass was thick and as I have documented in my clinical notes, he was adamant that the glass could not have broken, that there was no possibility of a chip".

Dr C does not state, in his response to me, that Mr B refused to have an x-ray.

Dr C's clinical notes also make no note of Mr B refusing to have an x-ray. They state:

> "[Mr B was] Adamant that the glass could not have broken – No possibility of chip."

Dr C admits, in his response to me, that he was "reassured" by Mr B's insistence that the pane of glass was thick and did not break. He states:

> "In fact in over a year and a half working in emergency medicine this has been the only laceration resulting from glass that I have not x-rayed. I unfortunately was reassured by [Mr B's] insistence that the pane was thick and did not break. I remember his response to my decision to x-ray the wound, which was to the affect of 'there's no need for that'. On reflection I could have insisted on an x-ray, however the patient had convinced me that [the] glass was intact."

Mr B advises that he did not refuse an x-ray at any time. While Mr B accepts that he did tell Dr C the glass was thick and was unlikely to have broken, he denies ever refusing an x-ray. Given Dr C's clinical notes and inconsistent statements, I accept that Mr B did not refuse an x-ray that day.

In terms of the advice given with regard to the consequences of not having an x-ray, Mr B states that Dr C did not advise him of such consequences. Dr C disputes this, noting that he "did consider or indeed inform [Mr B] of the need to x-ray, however he reassured me that the glass did not break".

Tendon damage

During the course of the examination on 25 January 2001, Dr C also examined Mr B for tendon damage. Dr C's clinical notes state:

> "Distally – full dorsiflexion ankle/foot against resistance. Toes – full dorsiflexion against resistance. Strong pulses. Sensations intact."

Dr C confirmed to me that he had:

> "… carefully checked the relevant muscle groups of that area and found no deficit … I feel I could not have taken any further measures to determine tendon injury."

As a result of the examination, Dr C concluded that there had been no tendon damage and therefore did not request an ultrasound or MRI scan.

Mr B confirms that Dr C had advised him that there was no tendon damage. He states that Dr C had commented that Mr B was lucky the wound was at the front of his leg rather than the back.

Subsequent treatment

Mrs A (Mr B's mother) advised that Mr B could not "weightbear" on his leg, nor put his foot on the ground, following the accident. His condition was such that they had to hire

crutches for him. She also stated that after the course of antibiotics was finished, the wound was still inflamed, tender and swollen.

On 28 March 2001 Mr B sought the assistance of a general practitioner.

On 29 March 2001 an x-ray and ultrasound were taken of Mr B's leg. The x-ray revealed that a glass fragment was lodged in the wound.

The ultrasound confirmed that the "tibialis anterior tendon was ruptured". It showed that there were "bunched up fibres of the tibialis anterior tendon at the proximal musculo-tendon junction".

Mr B subsequently underwent surgical repair, but has experienced ongoing difficulties.

Complaint to the hospital
On 30 March 2001 Mrs A, on behalf of her son, wrote to the hospital to complain about the treatment received.

The Clinical Director of Emergency Services, confirmed in his response to Mrs A that it was departmental policy to x-ray a wound where it is suspected that glass could be present.

The Clinical Director later provided a copy of the Department's guidelines and protocols for wound management. The "Guideline on Wounds and Lacerations in General" specifically states that "wounds caused by glass must be x-rayed".

Independent advice to Commissioner

The following independent expert advice was obtained from Dr Peter Freeman, a specialist in the field of emergency medicine:

> "On 25th January 2001, at [the] hospital, [Dr C] failed to x-ray [Mr B's] left shin laceration. In failing to perform an x-ray [Dr C] missed a glass fragment, and failed to ascertain that [Mr B's] tendon was damaged.
>
> What specific professional and other relevant standards apply in this case and did [Dr C] meet those standards?
> *The right to appropriate standards of service was not met. The guidelines on Wound and Lacerations in General were not followed (yellow tag 1).*
>
> Should all glass lacerations be x-rayed? Does tendon damage show up on x-ray?
> *Wounds caused by glass must be X-rayed. Tendon damage does not show up on X-ray. Ultrasound or MRI is required to image soft tissue defects.*
>
> In your opinion were [Dr C's] reasons for not x-raying [Mr B's] laceration on 25/01/2001, reasonable in the circumstances?

It can be difficult if the patient feels the likelihood of glass in the wound is minimal. [Dr C] documented 'Adamant that the glass could not have broken – No possibility of chip' (Yellow tag 2). However it would have been more appropriate to document advice for X-ray. [Dr C] should have insisted on an X-ray and it was not reasonable to be persuaded otherwise.

Was the examination [Dr C] performed appropriate to check for tendon damage? If not what further tests should have been performed?
[Dr C] describes 'Distally – full dorsiflexion ankle/foot against resistance. Toes full dorsiflexion against resistance' (Yellow tag 3). This demonstrates appropriate examination for functional deficit. Partial tendon damage can occur with apparent normal function. The muscles of the anterior compartment of the lower leg are: Tibialis Anterior, Extensor digitorum longus, Extensor hallucis longus and fibularis tertius. Of these muscles the Tibialis Anterior muscle is the main dorsiflexor of the ankle joint although the others do contribute to dorsiflexion to a lessor degree.

What is a flap laceration?
A flap laceration is a skin defect where the line of incision into the tissues is oblique such that a skin and soft tissues flap is created. This has relevance to wound healing because the flap may not have as good a blood supply as the surrounding tissues – particularly when the flap is 'distally based'.

Are pre-tibial lacerations difficult to treat? If yes, why?
Yes. Pre-tibial lacerations are notorious for poor healing and consideration must be given to maximise healing potential. The blood supply in this area is poor and the wound is often a flap laceration.

Any other issues raised by the supporting documentation?
The glass foreign body found later on X-ray was 10mm which would have been visible had an X-ray been taken on 25th Jan 2001. It would have been advisable to explore the wound in order to remove this glass foreign body as it is recognised that wounds heal poorly if there is a foreign body present. The poor healing of the wound in question is likely to have been partially a result of the 10mm glass fragment left in the wound and partly due to location and configuration."

Further clarification was sought from Dr Peter Freeman with regard to Dr C's examination for tendon damage. Dr Freeman was asked to clarify whether an ultrasound or MRI should have been requested, or whether the physical examination performed by Dr C was sufficient in the circumstances. The following is Dr Freeman's advice:

"I would confirm that I would regard [Dr C's] examination as being sufficient in eliciting tendon damage. This would be the generally accepted standard of care in the assessment of a patient with suspected soft tissue injury. My comment 'ultrasound or MRI is required to image soft tissue defects' refers to the imaging modalities available to demonstrate soft tissue defects. It was in fact ultrasound that eventually demonstrated division of the tibialis anterior tendon. This however would not be considered as a first line investigation in an injury of this nature unless the clinical suspicion was great

enough to warrant further investigation. In the case in question [Dr C] satisfied himself clinically that there was no tendon injury and I would accept this as an appropriate check for tendon damage.

Therefore either the tendon was only partially divided and subsequently ruptured or [Dr C's] examination was incorrect. I feel it is appropriate to give [Dr C] the benefit of the doubt for his examination and as the tendon was subsequently found to have divided it must be assumed that a partial tendon injury became a complete tendon injury at some time after [Dr C's] examination."

Dr C is no longer resident in New Zealand.

Code of Health and Disability Services Consumers' Rights

The following Rights in the Code of Health and Disability Services Consumers' Rights are applicable to this complaint:

RIGHT 4
Right to Services of an Appropriate Standard

1) *Every consumer has the right to have services provided with reasonable care and skill.*

2) *Every consumer has the right to have services provided that comply with legal, professional, ethical, and other relevant standards.*

Opinion: Breach – Dr C

Right 4(2)

Failure to comply with professional and other standards
In my opinion Dr C breached Right 4(2) of the Code of Health and Disability Services Consumers' Rights in the course of providing medical services to Mr B.

Right 4(2) states that every consumer has the right to have services provided that comply with "legal, professional, ethical, and other relevant standards".

The hospital's "Guideline on Wound and Lacerations in General" provided that "wounds caused by glass must be x-rayed".

Dr C in his response to the complaint confirmed that it is his ordinary practice to have wounds x-rayed where glass is involved. In this instance, however, he allowed himself to be influenced by Mr B's statement that the sheet of glass was thick and had not broken.

I accept my expert advisor's advice that Dr C should not have been persuaded by Mr B's statement that the glass did not break.

It was Dr C's responsibility to insist on an x-ray being taken, and to comply with the guideline. The wording of the guideline is such that it is mandatory for an x-ray to be taken, and does not allow for any discretion on the part of the doctor. As Mr B had not refused an x-ray, but merely queried the need for one, Dr C was bound to comply with the guideline and ensure that an x-ray was taken.

I therefore find Dr C in breach of Right 4(2).

Opinion: No breach – Dr C

Right 4(1)

Failure to provide services with reasonable care and skill
In my opinion Dr C did not breach Right 4(1) of the Code in failing to diagnose tendon damage.

Right 4(1) states that every consumer has the right to have services provided with reasonable care and skill.

I accept my expert advisor's advice that Dr C's clinical notes demonstrate that he had conducted an appropriate examination for functional deficit (in this case, tendon damage).

There was nothing to indicate upon Dr C's examination that there was tendon damage, or warrant the taking of an ultrasound or MRI scan. It was therefore reasonable of Dr C not to order an ultrasound or an MRI scan, or even an x-ray since an x-ray will not show tendon damage.

As my expert advisor has noted, partial tendon damage can occur with normal function. He further notes that it is possible that the partial tendon damage did not become a 'complete' tendon injury until after the examination; that is to say, it ruptured at some point following the examination by Dr C.

I therefore find that Dr C did not breach Right 4(1) of the Code.

Opinion: No breach – The Public Hospital

Vicarious liability
Employers are vicariously liable under section 72(2) of the Health and Disability Commissioner Act 1994 for ensuring that employees comply with the Code of Health and Disability Services Consumers' Rights. Under section 72(5) it is a defence for an employing authority to prove that it took such steps as were reasonably practicable to prevent the employee from doing or omitting to do the thing that breached the Code.

The public hospital employed Dr C as a senior house officer in the Emergency Department, and it was in this capacity that he assessed and treated Mr B.

Dr C breached Right 4(2) of the Code by not complying with the hospital's "Guideline on Wounds and Lacerations in General". However, I consider this to have been a clinical decision by an individual practitioner, and not a decision that was attributable to, or reasonably preventable by, the public hospital.

I am therefore of the opinion that the public hospital did not breach Right 4(2) of the Code of Health and Disability Services Consumers' Rights.

Actions

I recommend that Dr C review his practice in light of this report.

Further actions

- A copy of this opinion will be sent to the Medical Council of New Zealand.
- A copy of this opinion, with identifying features removed, will be sent to the Australasian College for Emergency Medicine (New Zealand Faculty), and placed on the Health and Disability Commissioner website, www.hdc.org.nz, for educational purposes.