

# SURGICAL SAFETY UPDATE

## Cases from the Confidential Reporting System for Surgery (CORESS)

### Unrecognised limb ischaemia following trauma

A 37-year-old man was admitted to the emergency department having been involved in a road traffic collision on his motorcycle. He had femoral shaft and tibial fractures in his right leg. He was taken over by the trauma team who assessed his limb and felt that perfusion was adequate and the limb viable.

The patient was placed on the emergency operating list for repair of his femoral fracture and placement of an external fixator, but the procedure was delayed due to a number of other trauma cases. Late in the day, some 12 hours after admission, it was recognised that the patient had a pale, cold leg with no ankle Doppler signals. A referral was made to the hub vascular unit and after further delay in securing transport, the patient was transferred for vascular assessment.

CT angiography at the receiving hospital confirmed occlusion of the femoral artery and complete occlusion of the distal arterial tree. The femoral artery was explored surgically, repaired with an interposition vein graft, and extensive distal thrombectomy was undertaken with fasciotomies before the femoral fracture was fixed.

The appearance of the leg failed to improve, however, and repeat CT angiography at 24 hours showed very limited perfusion of the leg from the level of the knee, with no run-off into the foot due to persistent thrombus. Four days after his accident an above-knee amputation was undertaken.

### Reporter's comments

Despite initial satisfactory appearances the extent of ischaemia in this patient's leg was not recognised, in association with an injury in which there was high risk of arterial damage. Any concerns at the time of admission should have led to early formal assessment of the limb circulation, including documentation of ankle Doppler signals and pressures, and CT angiography, if the patient was stable. The situation was compounded by delays in access to the emergency theatre and in transfer to the vascular unit, by which time the leg was beyond the limits of salvageability.

### CORESS comments

Many such patients will be sent directly to a major trauma unit as part of a trauma network. Where specialist

input is required, early transfer to a major trauma centre, which is able to provide pan-specialty services such as the vascular input required here, is indicated.

In this case there should have been a high index of suspicion for concomitant vascular injury in the presence of extensive lower-limb bone fractures. This should have led to regular monitoring of leg pulses and perfusion, with appropriate imaging as suggested by the reporter. Early referral for vascular assessment and intervention might have improved the eventual outcome.

### Differences of opinion in management for tongue laceration

A seven-year-old child with learning difficulties was brought to a tertiary unit by his mother and grandmother, having bitten his tongue with a resultant full-thickness laceration of approximately 45% of the left lateral aspect of the tongue. Perfusion was judged to be adequate.

He was reviewed by the on-call dental core trainee who had only recently started working at the hospital. The wound was not actively bleeding, but the region was sore and unlikely to heal favourably, and was at risk of infection. The core trainee discussed the case by telephone with the registrar on call, who was covering several local hospitals. The extent of the trauma was made clear and the core trainee indicated that she thought this would benefit from primary closure, the child having been starved since the incident.

However, the advice from the registrar, who did not see the patient, was to treat the lesion conservatively, to explain the likelihood of a scar or polyp formation and to review the patient again in a few days. This was documented and the patient handed over to the day team with arrangements for a follow-up appointment.

On subsequent review one week later, the wound was not healing adequately. The parent reported that the child was in pain, was unwell and had reduced appetite. The child was then seen by a consultant in the trauma clinic and was listed for theatre for debridement, revision and closure.

### Reporter's comments

The dental core trainee could have requested that the patient be seen by a senior member of the team if she was unhappy with the management advice. Failure

to do this may have been compounded by lack of familiarity with the hospital, and potentially by lack of accountability of the registrar who was covering numerous units.

In current surgical practice where specialties work in a team setting, no junior staff should be afraid to call the on-call consultant if they have a query, although concerns about bypassing the normal 'chain of command' may have influenced the trainee's actions in this situation.

### CORESS comments

The advice of the oral and maxillofacial surgeon on the Advisory Board was that usually, provided that the tongue flap is not devitalised, tongue lacerations heal without intervention. In this case it was reasonable to manage the wound conservatively, initially. Transverse lacerations usually heal spontaneously, while it may be necessary to trim a vertical laceration or indeed to occasionally remove a piece of tongue to facilitate healing.

There were broader hierarchical issues with respect to communication here. A Board member commented that a photograph of the lesion could have been sent to the registrar to inform decisions about clinical management if he was not able to examine the patient personally.

### Systems and communications errors leading to orthopaedic never event

An experienced surgeon put the wrong-sized implant into a male patient during a hip replacement.

The surgical team work together regularly and use the WHO Surgical Safety Checklist. They are strong supporters of both pre- and postoperative briefings. They work in a very busy environment where rapid surgical technique and turnaround is the norm. Expectations regarding continuous efficiency gains are a part of daily life.

Implant sizes were discussed during the preoperative briefing. The hip implant comprises four elements. The socket and a separate liner are packed together in one box, the head in a second and the stem in a third. Each element can be of a different size to suit the patient and each has specific measurement. The head, though, has two measurements – the head diameter, which must fit snugly with the socket that is fitted, and the length, which is an independent variable. One combination of these implant sizes was considered most likely to suit the patient, but another was brought into theatre as a contingency.

The surgeon made the final decisions regarding size during a visual examination after commencement of surgery. He was passed the correct-sized socket, which was then positioned. When ready for the head of the implant, the surgeon asked for a '+5' – a reference to the length not the diameter of the head. The diameter is not normally specified at that point as it is automatically defined by the size of the cup, which had already been implanted. It was seen as a given by all involved.

The runner passed the head to the scrub practitioner who confirmed the length as '+5', but not the diameter.

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**We are grateful to those who have provided the material for these reports.**

**The online reporting form is on our website, [coress.org.uk](http://coress.org.uk), which also includes previous Feedback Reports.**

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The surgeon assumed that he was being passed a head that matched the socket.

The socket and the head of the implants are packaged separately. The head length is identifiable on the box under a cellophane wrapper. The head diameter, however, is among other text and less prominent. Some manufacturers colour code the boxes, but the manufacturer of the product used in this case does not.

The operation was duly completed; the sticker from the implants attached to the operation notes and entered into the computerised national register.

The error came to light approximately 12 months later when the patient was reviewed in outpatients. The patient reported ongoing discomfort and occasional looseness of the joint when coming downstairs. While investigating possible causes, the surgeon reviewed the operation notes. He noticed that the implant stickers showed that the diameter of the socket and the head were incompatible.

The surgeon disclosed the error to the patient and apologised. The patient consented for a further operation to correct the error. The incident was reported and duly investigated. The patient made a claim for compensation and the Trust admitted liability.

When asked what he thought went wrong, the surgeon replied: "The runner thought the scrub nurse would check the size, the scrub nurse thought the runner had already checked it, and I thought the scrub nurse had checked it. In practice, therefore, no one had checked it. We all believed that what we were being passed was the right thing."

### CORESS comments

Despite the surgical team working in a safety-conscious environment, this incident arose out of a mixture of systems errors, which included variability in packaging of prostheses, communication problems and failure to employ routine safety protocols for checking the prosthesis prior to implantation.

This case is taken from a report of the NHS England Never Events Task Force to which CORESS contributed: 'Standardise educate, harmonise. Commissioning the conditions for safer surgery', February 2014 ([www.england.nhs.uk/wp-content/uploads/2014/02/sur-nev-ev-tf-rep.pdf](http://www.england.nhs.uk/wp-content/uploads/2014/02/sur-nev-ev-tf-rep.pdf)).

The findings of the former report led to the development of the 'National Safety Standards for Invasive Procedures (NatSSIPs)', which all surgical teams should incorporate into practice ([www.england.nhs.uk/patientsafety/wp-content/uploads/sites/32/2015/09/natssips-safety-standards.pdf](http://www.england.nhs.uk/patientsafety/wp-content/uploads/sites/32/2015/09/natssips-safety-standards.pdf)).

A subsequent comprehensive report on this topic has been published by the Healthcare Safety Investigation Branch, titled: 'Implantation of wrong prostheses during joint replacement surgery', June 2018 ([www.hsib.org.uk/investigations-cases/implantation-wrong-prostheses-during-joint-replacement-surgery](http://www.hsib.org.uk/investigations-cases/implantation-wrong-prostheses-during-joint-replacement-surgery)).