

Tourniquet-associated povidone-iodine-induced chemical burns

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DESCRIPTION

A 75-year-old man underwent routine left total knee arthroplasty under a spinal anaesthetic. An adequately sized pneumatic tourniquet with wool padding was used and a clear adhesive drape applied circumferentially around the thigh to isolate the tourniquet. A 10% w/w povidone-iodine solution had been used to prepare the left leg. The tourniquet was inflated just prior to cementation of the implants with a tourniquet time of 40 min. The total operative time was 95 min. The patient began to report thigh pain the following day. Examination of the thigh revealed erythema similar to the pattern of povidone-iodine staining with areas of blistering (figures 1 and 2) over the anterior and lateral thigh. Pain symptoms had resolved by day 4 postoperatively and the blisters had fully resolved by the 6-week outpatient review.

Tourniquet-associated complications include postoperative pain and swelling, injury to skin, nerves and vessels, necrosis of digits and compartment syndrome.¹ Chemical burns as a result of impregnation of the tourniquet padding with the chemical agents used for skin preparation have been previously reported and are rare.^{2 3} They can cause blistering, as in our case, which resolves within a few weeks, or progress to full-thickness injuries that can take several months to heal.³ A waterproof barrier is recommended to isolate the tourniquet to prevent such injuries.³ The adhesive drape used routinely to prevent such burns had likely peeled away in places during the preparation



Figure 2 Clinical photograph of the lateral thigh demonstrating multiple blisters (white arrows) and linear areas of erythema.

of the limb for surgery allowing for the pooling and impregnation of the cast padding.

Learning points

- ▶ Chemical burns associated with tourniquet use are rare and preventable.
- ▶ A waterproof barrier is recommended to isolate the tourniquet to prevent pooling and impregnation of the padding.
- ▶ Routine inspection of the tourniquet after surgery is advocated, especially after a spinal anaesthetic, where sensation may be absent for several hours after the surgery.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

- 1 Sharma JP, Salhotra R. Tourniquets in orthopedic surgery. *Indian J Orthop* 2012;46:377–83.
- 2 Dickinson JC, Bailey BN. Chemical burns beneath tourniquets. *BMJ* 1988;297:1513.
- 3 Yang JH, Lim H, Yoon JR, et al. Tourniquet associated chemical burn. *Indian J Orthop* 2012;46:356–9.



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Figure 1 Clinical photograph of the anterior thigh demonstrating a large blister (white arrow).

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