

An unusual case of an intra-muscular abscess diagnosed intra-operatively

Sir,

A 22-year-old male was referred to our unit complaining of a painful right forearm. He was an intravenous drug abuser and schizophrenic, and two days earlier he had injected an unidentified substance into the volar aspect of his right forearm.

Over the next two days his forearm had become painful and swollen and he found it too uncomfortable to move his fingers, preferring to hold them in a flexed position. He also complained of pins and needles in his right hand.

On examination, he was pyrexial at 37.5 °C. There was erythema of the volar surface of his right forearm, which was also swollen and tense and tender, particularly over the mid and distal portion. He held his fingers flexed and pain prevented both active and passive extension.

A diagnosis of incipient compartment syndrome was made and, in view of the forearm and erythema and pyrexia, it was suspected that there may be a sub-fascial collection of pus, possibly within the space of Perona. The patient was commenced on intravenous antibiotics and taken to the operating theatre on the day of admission.

Under general anaesthesia, with tourniquet control but no exsanguination, the distal volar forearm was incised through skin and deep fascia. There was obvious sub-fascial oedema and on opening the deep fascia a faint faecal odour was apparent. The forearm muscles were pink and contracted when stimulated. The space of Perona was explored but was free of pus. In view of the pre-operative symptom of finger paraesthesia the carpal ligament was divided, revealing oedema of the carpal tunnel but no pus. It was then noted that the patient's fingers, particularly the middle and ring fingers were still held in an unusually flexed position, with the distal inter-phalangeal (DIP) joints in about 80 ° of flexion. Further examination demonstrated that with the proximal inter-phalangeal and metacarpo-phalangeal joints extended, it was not possible to passively extend the DIP joints of the middle and ring fingers (Fig. 1). The cause of this appeared to be tightness of the flexor digitorum profundus (FDP) as the DIP joints could be extended with the MCP joints flexed, an extrinsic plus position. The FDP muscle belly was, therefore, explored and an intra-muscular abscess containing foul smelling pus was found.

After draining the abscess, antibiotic therapy and further wound care, the patient was discharged to outpatient review but did not reattend.



Fig. 1 With the patients MCP and PIP joints extended, the DIP joints of the middle and ring fingers are held in about 80 ° of flexion due to FDP tightness.

Subcutaneous abscesses are a well described complication of injecting substances of abuse into an arm, as is compartment syndrome.^{1,2} We were unable to find a report of an intra-muscular abscess in the literature as a result of intravenous drug abuse.

There has been one report of FDP contracture due to an inflammatory reaction to a tape-worm buried within the muscle.³

The case we have presented is of interest, because it was the presence of the DIPJ contractures that pinpointed the actual site of the pathology, a diagnostic clinical sign that was only elicited once the patient was anaesthetised and pain free.

References

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The antero-lateral thigh (ALT) flap: a pragmatic approach

Sir,

The *British Journal of Plastic Surgery* has had a defining role in bringing the anterolateral thigh (ALT) flap to the plastic surgical community through the publication of Song et al.'s seminal paper in 1984.¹ Review of this paper, however, does give rise to some confusion regarding the vascular anatomy of this highly versatile flap. Song et al. described the cutaneous artery emerging from 'the intermuscular septum at a fixed point situated at the junction of the middle and upper thirds of the thigh, where the rectus femoris muscle, vastus lateralis muscle and Fensor fasciae latae muscle meet.'

These surface markings are repeated in two popular surgical atlases.^{2,3} This contrasts with the anatomical description in Cormack and Lamberty's classic work which places the usual position of the largest perforator infero-lateral to the mid-point of the thigh.⁴

Iida et al.⁵ present a thoughtful study of the role of the colour Doppler scanner in planning the ALT flap for head and neck reconstruction in adults. They suggest that the ALT flap is not widely used because the flap elevation is often complicated and the anatomy variable. Our approach to this flap has been somewhat pragmatic.

We began by plotting perforators with the colour Doppler and with time and patience were able to detect multiple perforators (Fig. 1(A)) although these did not always have a precise anatomical correlation probably due to the size (<0.5 mm diameter—Fig. 1(B)). Our standard procedure now is to use the conventional (Cormack and Lamberty) markings and with the hand held Doppler listen for perforators in the region of the intersection of the surface markings of the intramuscular septum and the descending branch of the lateral circumflex femoral artery (LCFA). We do not plot all perforators but aim for at least two (Fig. 2(A)). The process takes around 5 min. If no perforator is found we examine the contralateral thigh. Peri-operatively we begin by making an incision on the medial aspect of the proposed flap and then extend this distally over the line of the intramuscular septum. We then look for the intramuscular septum, a process aided by observing the orientation of the muscle fibres. Having defined the septum we then explore the depth of the septum and usually have to incise the aponeurotic condensation on the medial side over the vastus lateralis to find the distal extent of the descending branch of the LCFA. Finger dissection

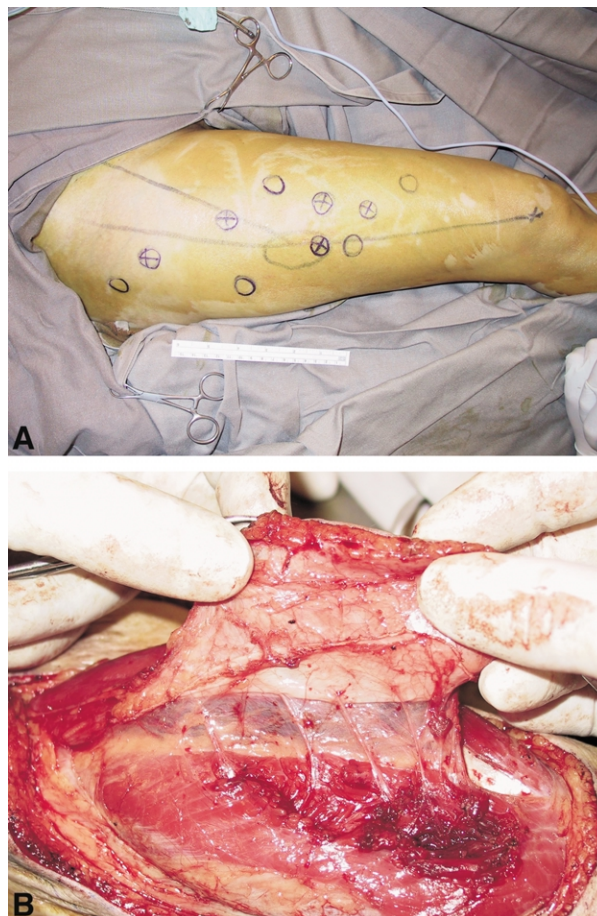


Fig. 1 (A) Multiple cutaneous perforators marked on the leg after an extensive investigation by the radiologist using the Duplex scanner. (B) The type of perforator difficult to detect. Four musculo-cutaneous vessels all with diameter <0.5 mm in an eight-year-old child.

sweeps the rectus medially and as we reach the inferior extent of the flap it is obvious, whether, we have a septal or muscular arrangement of perforators. The medial edge of the fascia, in the flap and overlying the rectus femoris is picked up and dissected laterally. As Iida et al. describe, this loose areolar tissue is dissected carefully as we search for a cutaneous perforator(s). The intramuscular septum is then explored proximally with finger dissection to expose the full extent of the descending branch of the LCFA and the origin of perforating vessels. We then begin to dissect out the perforators either by the 'open-cast' technique (Fig. 2(B)) or by tunnelling if the perforator is extremely laterally positioned (Fig. 2(C)). This technique is quick and simple for the vast majority of flaps and the question that has to be asked is whether the extensive pre-operative investigations are warranted on every case? We have decided it is not.

The anatomy is variable⁶ but we suspect that this