COMPARTMENT SYNDROME
CAUSED BY FALSE ANEURYSM

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A case is reported in which the measurement of compartment pressures using a blood pressure transducer (Matsen, Winquist and Krugmire 1980) provided the diagnosis of arterial false aneurysm as the cause of a compartment syndrome.

Case report. An 18-year-old man gave a history of striking the ulnar border of his left forearm against a wardrobe. He sustained a small cut which was sutured, but one week later he noticed increasing pain in the forearm, inability to move the fingers effectively and paraesthesiae in all the fingers. On examination, there was tenderness over the forearm flexor muscles, the fingers could not be extended actively or passively beyond the mid-position, and there was decreased sensation to light touch in the fingertips. A diagnosis of compartment syndrome was made and soft tissue swelling seemed to be the cause.

Under general anaesthesia, the pressure within the three forearm muscle compartments was measured using a standard blood pressure transducer (Matsen et al 1980). The pressure in the common extensor compartment was 29 mmHg and in the lateral compartment (brachioradialis and wrist extensors) it was 18 mmHg, but in the flexor muscle mass, the pressure was 60/50 mmHg, in an oscillating wave-form resembling an arterial pulse. The tip of the cannula was moved within the compartment so that it was away from the vessels, but the pulsatile recording continued. A false aneurysm was suspected and on re-examination it was possible to detect faint pulsation of the swollen forearm.

On exploration, a large haematoma was evacuated from within the flexor muscles and a false aneurysm was observed near the site of the skin laceration (Fig. 1). The opening in the artery was repaired and a flexor compartment fasciotomy performed; the other compartments were not decompressed because the pressure had fallen to below 10 mmHg. After 10 days the skin wound was closed and five weeks later he had regained full movement, power and sensation in the forearm; clinically, both the radial and the ulnar artery at the wrist were patent.

Discussion. In this case, the typical picture of a false aneurysm – injury by a sharp object, brisk haemorrhage and the subsequent development of a localised pulsatile swelling (Newmeyer 1982) – was not present. However, recordings showed that the intracompartmental pressure (60/50 mmHg) was greater than that which normally occurs in muscle capillaries, namely, 37 mmHg at the arteriolar end and 17 mmHg at the venule end (Ganong 1969). It is possible that the tip of the recording cannula was in the blood clot, next to the aneurysm (Fig. 1) but it seems more likely that pressure was transmitted through this to the surrounding muscle.

In the unusual case reported here, the pressure transducer not only confirmed that surgery was necessary, but also suggested the cause of the increased pressure and thereby assisted in planning the operation.

No benefits in any form have been received or will be received from a commercial party related directly or indirectly to the subject of this article.

REFERENCES

