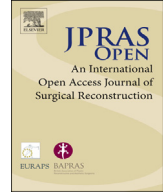




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Case report

A rare case of thigh compartment syndrome following ultrasound guided muscle biopsy

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ABSTRACT

Compartment syndrome in the thigh is rare and most frequently follows blunt trauma. Tissue biopsy is frequently performed to obtain a diagnosis for soft tissue lumps. We report a case of thigh compartment syndrome following an ultrasound guided biopsy for sarcoma in order to increase awareness of this rare complication amongst healthcare professionals.

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Introduction

Compartment syndrome arises when the pressure within an osseofascial compartment increases beyond the perfusion pressure resulting in ischaemia and ultimately necrosis if not treated. Thigh compartment syndrome (TCS) is rare and associated with a high morbidity and a mortality rate of 47%.¹ TCS most commonly follows blunt trauma (90% of cases).² Here we present a rare case of TCS secondary to a large haematoma in the vastus lateralis following an ultrasound guided muscle biopsy.

Case report

An 89-year-old man presented to the Emergency Department with pain and swelling in the right thigh the day after undergoing ultrasound guided biopsy of a mass within the right vastus lateralis

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where 2 core samples were taken with a 16 gauge Temno needle (Figure 1). Past medical history included myocardial infarction treated with coronary artery stents for which he was taking Clopidogrel 75 mg OD that had been stopped 5 days prior to biopsy.

The patient had thigh swelling and severe pain that was not relieved by opiate analgesia. Distal neurovascular status was intact. Average compartment pressures (Stryker® Pressure Monitor System) in the anterior compartment of the right thigh were 60 mmHg compared to 24 mmHg in the left thigh confirming the clinical suspicion of compartment syndrome. Computed tomography (CT) revealed a large intramuscular haematoma with active bleeding from a distal branch of the descending lateral circumflex artery (Figure 2) that was successfully embolised with coils (Figure 3).

The patient underwent decompression of the right thigh anterior compartment through a single fasciotomy at which all muscles were noted to be viable. Biopsy results revealed high grade sarcoma and the patient underwent functional compartmentectomy followed by radiotherapy.

Discussion

This is a rare case of compartment syndrome occurring as a result of bleeding following biopsy of a soft tissue mass. Multiple causes of TCS have been reported (Table 1 – after Khan³). The pathophysiology of compartment syndrome is thought to be that an increase in intracellular pressure (ICP) reduces venous drainage leading to fluid extrusion into the interstitial space, increasing tissue oedema that in turn further increases the ICP. Eventually, the pressure within the compartment exceeds that of the arterial perfusion pressure leading to ischaemia and irreversible tissue necrosis.⁴

The diagnosis of TCS is primarily clinical and the main feature of an acute presentation is severe pain out of proportion to the mechanism of injury not alleviated by analgesics and exacerbated by passive stretching of the affected compartmental muscles. Paraesthesia is an early sign but can progress to anaesthesia if left untreated. Pallor, paresis, and lack of pulses are all late features and crucially TCS can occur in the absence of these.⁵

An important adjunct in the diagnosis of TCS is manometry to measure the ICP; this is particularly useful in the multiply injured or obtunded patient where pain and neurological deficit cannot be clinically assessed. A Stryker® Pressure Monitor System can be used and although it only provides a single data point, its precision and ease of use can help with making the diagnosis. The Stryker system can be used at various time intervals to monitor the evolution of the ICP. For more comprehensive data, an arterial line transducer can be used to monitor the pressures continuously.⁶ A review by Al-Dadah



Figure 1. Ultrasound guided biopsy right vastus lateralis.

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