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## Case report

## Lower extremity sarcoma mimicking acute compartment syndrome

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## ABSTRACT

Compartment syndrome is defined as an increase in interstitial fluid pressure within an osseofascial compartment leading to microcirculatory compromise and myoneural necrosis. Common causes include trauma, reperfusion injury, compressive casts, crush injuries and burns. Other rare causes of compartment syndrome such as tumours and ruptured Baker's cyst have been reported in literature sporadically.

We present a patient who presented with clinically convincing symptoms and signs of a compartment syndrome in the leg secondary to a high-grade sarcoma in the calf musculature with a coexisting large ruptured Baker's cyst.

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## Introduction

Compartment syndrome is defined as an increase in interstitial fluid pressure within an osseofascial compartment leading to microcirculatory compromise and myoneural necrosis. Common causes include trauma, reperfusion injury, compressive casts, crush injuries and burns. Other rare causes of compartment syndrome such as tumours<sup>1–3</sup> and ruptured Baker's cyst<sup>4–6</sup> have been reported in literature sporadically. We know of no other reported cases where a patient has had both a sarcoma and a ruptured Baker's cyst in the same limb as a cause for the compartment syndrome.

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We present one such patient who presented with clinically convincing symptoms and signs of a compartment syndrome in the leg secondary to a high-grade sarcoma in the calf musculature with a coexisting large ruptured Baker's cyst.

## Case

A 68-year-old male with a history of hypertension presented to the Emergency Department (ED) complaining of acute onset severe pain and swelling of his right calf, with associated loss of sensation over the dorsum of the foot and inability to move his toes actively. These symptoms evolved over 10 h prior to his presentation with no history of precipitating trauma. A more detailed history revealed that the patient had presented to the General Practitioner four weeks earlier with pain in his knees with associated swelling at the back of the right knee. At that stage no marked swelling of his calf was noted, and the pain was suspected to be secondary to knee osteoarthritis and the swelling, a Baker's cyst. An ultrasound scan of his popliteal fossa at that time confirmed a "123 × 78 × 77 mm haemorrhagic Baker's cyst with free fluid adjacent to it which suggests rupture" (Figure 1). Plain radiographs of the right knee revealed "minor OA changes, with some chondrocalcinosis of the lateral compartment" (Figure 2).

Examination of the leg in the ED revealed an impressively swollen, tense and extremely tender calf musculature. The swelling of the calf was more posteromedial and eccentric than concentric. Visible distended veins were evident on the skin surface (Figure 3). The patient was unable to actively move any of his toes and confirmed complete lack of sensation over the dorsum of the foot with sensory blunting over the plantar aspect. There was severe pain in the calf on passive dorsiflexion of the great toe. The dorsalis pedis and posterior tibial pulses were feeble but palpable.

A clinical diagnosis of acute compartment syndrome secondary to ruptured Baker's cyst was made based on his previous radiological investigations. His routine blood investigations were within normal limits. An emergency fasciotomy was performed within an hour of the patient's admission.

The posterior compartments were released first. To the authors' surprise there was a lack of the muscle bulging associated with the release of a typical compartment syndrome in either the superficial or the deep posterior compartments. Within the deep posterior compartment, muscle was found to be brown in colour, necrotic, friable, and lacked the normal contractility of muscle fibres to physical stimulation. Specimens were obtained for histopathology and microbiological analysis. A decision was made not to decompress the antero-lateral compartments due to the abnormal posterior compartment findings, and the fact that the swelling had been almost exclusively postero-medial. The patient was substantially more comfortable after surgery.



**Figure 1.** Ultrasound confirming 123 × 78 × 77 mm haemorrhagic Baker's cyst with free fluid adjacent to it which suggests rupture.

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