Case report

Acute non-traumatic compartment syndrome of anterior compartment of leg: an unusual presentation: A case report

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1. Introduction

Acute compartment syndrome is a condition of elevated pressure within a closed osteofascial compartment that reduces capillary blood perfusion to muscles and nerves below a level necessary for tissue/cellular viability. The clinical features are continuous severe pain, painful passive stretching of the involved muscles and diminished sensations.

2. Case report

50-year-old male, a cottage industry owner, presented at 02:00 complaining of feeling cold, shivering and with severe pain in right leg. He had no prior history of leg pain. The previous morning he had played football for the first time for 15 min when the outside temperature was about two degree celsius. He had no fall, twisting of leg/foot, or direct trauma to the leg. Throughout the day he had performed his routine activities without any discomfort or pain. Approximately 12 h later he started feeling cold. He was put under 5 layers of blankets which did not help and the shivering persisted. Within an hour he developed pain in right leg and lower abdomen. He vomited twice and passed loose stools once.

Oral NSAID'S prescribed by a GP did not relieve his pain. Another GP gave an analgesic injection along with a tranquiliser. As the pain persisted he presented to the emergency services.

He was afebrile. Local examination revealed a swollen, wood-hard, tender, anterior compartment of the leg with dilated superficial veins (Figs. 1 and 2). Passive dorsiflexion of the toes and ankle were painful. Extensor hallucis longus and extensor digitorum longus had grade 1/5 motor power and tibialis anterior grade 2/5. The dorsum of the foot had hypoesthesia. Dorsalis pedis and posterior tibial pulses were well palpable.

Baseline haematocrit and biochemistry values were within normal limits. The radiographs were normal.

The patient was immediately taken to theatre for decompression. Fasciotomy by Mubarak's single longitudinal lateral incision was done within 6 h of onset of leg pain. There was no free blood/clots and no oedema fluid in the compartment. The anterior compartment muscles bulged, were dark brown and did not contract on pinching with tissue forceps but showed sluggish contractility on electrical stimulation (Fig. 3).

The wound was dressed and intravenous pentoxyphylline and antibiotics were administered along with supportive therapy.

When the effect of spinal anaesthesia wore off after 3 h, the patient had regained grade 3/5 motor power of EHL, EDL and tibialis anterior. After 12 h motor recovery was complete [grade 5/5]. Later on split thickness skin graft was applied which had 100% uptake (Fig. 4).

A year later the patient was performing his routine activities without any complaints in his right leg.

3. Discussion

The diagnosis of acute compartment syndrome requires a high degree of clinical suspicion based on muscle and nerve ischaemia. Distal pulses are rarely obliterated yet perfusion may be compromised. Clinical and experimental evidences prove that irreversible tissue damages can occur in a patient with palpable pulses. Ashton et al. advocate that the diagnosis must be made essentially on clinical grounds and must be acted upon promptly if serious and potentially irreversible injury to relevant compartment is to be avoided. Intramuscular pressure recordings assume significance in patients with chronic exercise induced anterior compartment leg pain in whom history and clinical signs are considered insufficient to establish a diagnosis of chronic anterior...
In our patient the clinical diagnosis was confirmed on prompt decompressive fasciotomy, when dark brown uncontractile muscles bulged out from within a relatively bloodless compartment, but showed remarkable motor recovery within 12 h of fasciotomy.

A similar observation was made by Janbon et al.\textsuperscript{3} when a 40-year-old female was diagnosed with compartment syndrome when she presented with a sensation of cold and pain in both feet.

4. Conclusion

Acute non-traumatic compartment syndrome patients usually present with a history of exercise induced pain. However we saw an adult male with a history of unaccustomed exercise for 15 min, 12 h prior to developing complaints and excessive shivering. Passive stretch pain of the involved compartment muscles was positive and the compartment felt hard. Without wasting any time, we performed a fasciotomy. Our clinical judgment was vindicated by the intraoperative findings and by a complete recovery post operatively.

Exercise induced acute compartment syndrome presenting with a sensation of cold, excessive shivering, vomiting and loose stools was an unusual combination.

References