

NEGLECTED ACUTE POST EXERTIONAL ANTERIOR COMPARTMENT SYNDROME: A CASE REPORT

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SUMMARY

A case of Acute Post Exertional Anterior Compartment Syndrome of the leg, seen five days after the onset of symptoms is presented. Decompression with delayed closure was done. There was only sensory recovery. However functional recovery at one year was good. Acute Post Exertional Compartment Syndrome cases are diagnosed late due to the lack of awareness, the paucity of radiological features, and the presence of intact peripheral pulses. A review of the literature revealed no previous documentation from South-East Asia.

CASE REPORT

E.C. was a 26-year-old Indian male who, whilst playing a game of football, noticed a sudden onset of pain in the anterior aspect of his right leg. The pain came on about fifteen minutes after the onset of the game. On finishing the game with difficulty, he noticed weakness of dorsiflexion of the right foot and felt that the dorsum of his foot was numb. He attended the local hospital where the X-ray did not reveal

any fractures, and he was managed conservatively. There was increased swelling and pain in the right leg the following day and he was febrile from the third day. He presented at the University Hospital, Kuala Lumpur, on the fifth day

On admission, he was mildly febrile. The right lower limb was swollen, tense, shiny and erythematous over the anterior aspect of the leg. The erythema and swelling was maximal over the middle third of the leg. There was induration and tenderness over the entire length of the anterior compartment and the pain was aggravated by passive plantar flexion. He had no active dorsiflexion of the right foot. There was a wedge shaped area of anaesthesia localised to the first web space between the right big toe and second toe dorsally. A persistent Acute Anterior Compartment Syndrome was diagnosed and a decompression and exploration of the anterior compartment was done by a long, longitudinal incision without tourniquet.

The muscles of the anterior compartment were found to bulge under tension when the anterior crural fascia was released (Fig. 1). Macroscopically patchy white areas with pinkish white areas were seen. Though the consistency was firmer than normal, the colour improved after a few minutes. The wound was left open and dressed. The limb post-operatively was not elevated. The patient was started on a course of ampicillin and cloxacillin pre-operatively.

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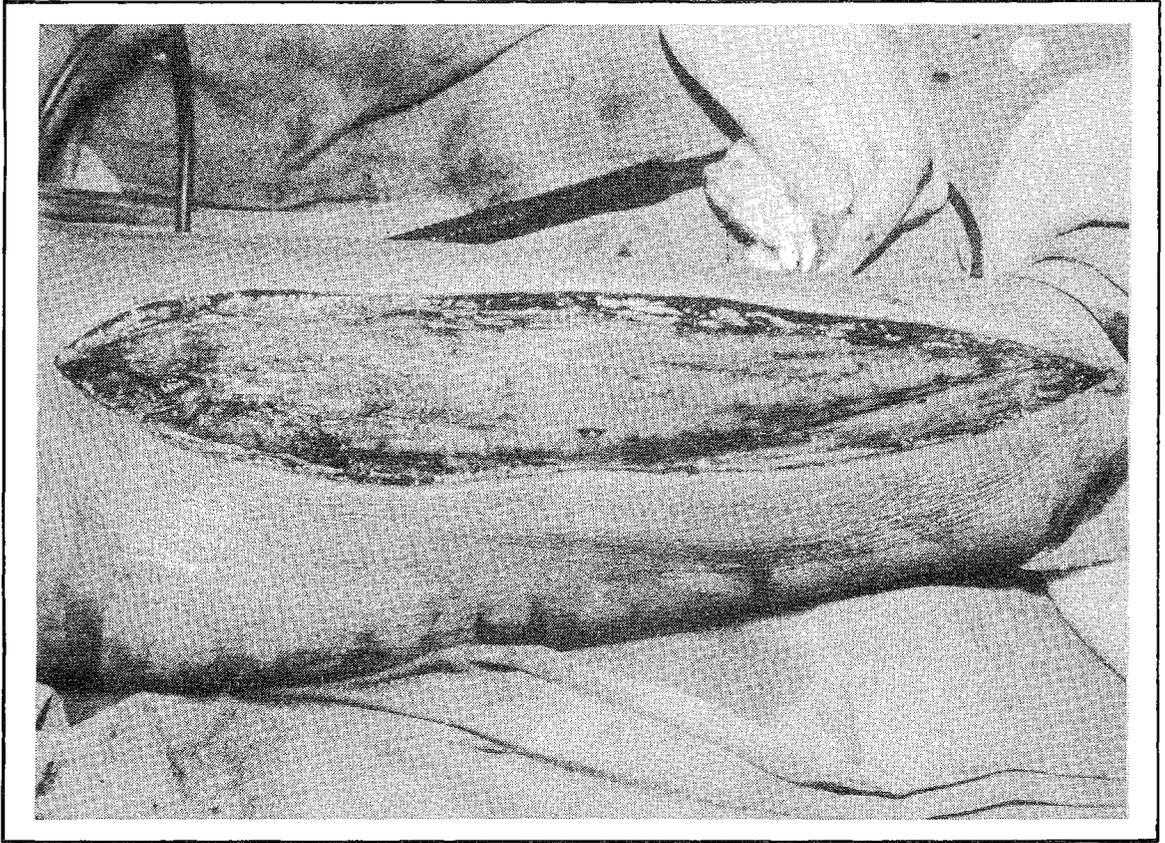


Fig. 1 Illustrates marked bulging of the muscles, in spite of delayed decompression, with patchy areas of necrosis.

The pain subsided, but the patient developed a wound infection on the seventh day after decompression, which required a re-exploration, wound toilet and excision of the entire Tibialis anterior, most of extensor hallucis longus and extensor digitorum longus, which were found to be necrosed, non contractile, firm and white.

Culture from the wound grew *Enterobacter* species and *E. coli* which were sensitive to tetracycline. Secondary wound closure was done at two weeks. Recovery of sensation was noted at this time. He was given a foot drop orthosis. Six months after, he was found to have minimal footdrop and at one year it was hardly perceptible, and there was no need for an orthosis.

DISCUSSION

Acute Post Exertional Compartment Syndromes are very rare. First documentation in the literature was Vogt¹ and Severin.² Exertion though a rare cause is nevertheless a very important cause since the diagnosis is often missed due to lack of awareness, compounded by the absence of injury to the limb, normal radiology and usually the presence of peripheral pulses. It could occur in any of the four compartments in isolation or in combination. Most patients with Acute Post Exertional Compartment Syndrome are otherwise healthy young adults, who develop pain during exertion or shortly thereafter. The pain and swelling is confined

to the compartment, and the pain is aggravated by passive stretching of the muscles involved. They also have swelling and erythema of the compartment which is often indurated and tense within hours of the onset of pain, and may simulate a cellulitis.

The neurological deficit occurs early (which is not seen in cellulitis) and the compartment involved may be deduced from the sensory nerve involved. In the pathogenesis of compartment syndrome, the final common pathway is an increase of compartmental pressure, which has its effect mainly but not exclusively on the arteriolar micro circulation. Though the diagnosis is essentially clinical, the objective measurement of the intra compartmental pressure is said to be of value in the following circumstances: when the diagnosis is in doubt, and acute compartment syndrome cannot be excluded; in an uncooperative patient, for example, associated head injury, or in children; in an unconscious patient with a swollen limb; to distinguish from a common peroneal palsy associated with swelling of the leg, secondary to a fracture.

The effect of the increased compartmental pressure depends both on the magnitude and duration of the pressure elevation, leading to muscle ischaemia. Though it is known that decompression done later than twelve hours after the onset of symptoms have a poor chance of recovery, late decompression may result in recovery in some cases.³ The clinical improve-

ment in this patient may be due to fibrosis, regeneration and/or compensatory hypertrophy of the remaining muscle fibres.

Acute Compartment Syndrome is an orthopaedic emergency. It should be an orthopaedic axiom that: "A healthy young adult complaining of pain in his leg following exertion, associated with a tense tender erythematous swelling of one of the compartments with neurological deficit, has an acute compartment syndrome until proved otherwise".

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