tumour is unlikely to cure the Cushing's syndrome as these cases often present late. Considering the limited value of the therapeutic interventions, the prognosis, especially in ectopic ACTH syndrome associated with malignant tumours, is very poor,⁴⁻⁹ with a mean survival of 3 to 5 months.

Final diagnosis

Ectopic ACTH syndrome secondary to lung cancer and secondary diabetes mellitus.

Keywords: Cushing's syndrome; diabetes mellitus; ectopic ACTH syndrome; epistaxis; lung cancer

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Chronic leg pain

Sebastian Chang, Timothy Brow, Saroj K Das

A 52-year-old man, on long-term steroids for asthma, presented to neurologists in mid-1993 with a 5-month history of bilateral shin pain. It increased throughout the day, especially on standing and eased at rest. They noted a patch of decreased sensation to pin-prick, temperature and light touch in the left L5 distribution, but electromyography and computed tomography of the lumbar spine showed no nerve impingement. He was investigated by a rheumatology team in October 1993, and because of a previous history of sarcoid lung disease, an isotope bone scan was arranged, which was normal. He was seen by an orthopaedic team in 1994 and magnetic resonance imaging showed "moderate sized L5/S1 disc protrusion, not clinically significant with no evidence of spinal stenosis". Concurrently, he was also investigated by a vascular team; Doppler studies of both limbs were normal, but unfortunately he did not attend a transfemoral angiogram to exclude aorto-iliac disease. He remained symptomatic and was seen by the vascular team again whilst in hospital for respiratory problems in January 1996. Examination revealed a tender anterior compartment and Duplex studies showed no popliteal entrapment. The compartment pressure readings are shown in the table. Ankle brachial index measurements were 0.9 (right side) and 0.89 (left side).

A diagnosis of chronic compartment syndrome was made. He underwent a bilateral extensor and peroneal compartments fasciotomy (closed technique) in April 1996. In September 1996 his right leg remained pain free but his left leg symptoms returned. Repeated compartment pressure readings were taken (table). A transfemoral angiogram showed adequate flow in both limbs and ankle brachial index readings were 1.1 bilaterally.

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Table Intracompartmental resting pressure readings (mmHg)

	Pre-fasciotomy (April 1996)		Post-fasciotomy (Sep 1996)	
	Right	Left	Right	Left
Extensor	33	30	15	15
Peroneal	15	24	12	18
Flexor	15	19	12	18

Questions

- 1 What is the differential diagnosis of chronic leg pain?
- 2 What are the clinical features of compartment syndrome?
- 3 How should this diagnosis be confirmed?
- 4 What would the next stage of management be?

Answers

QUESTION 1

The differential diagnosis of chronic leg pain is given in box 1.

QUESTION 2

Compartment syndrome can develop acutely or chronically when high pressure within a closed fascial space (muscle compartment) reduces capillary blood perfusion below a level necessary for tissue viability. Acute conditions usually result from trauma or follow ischaemia of the extremities and occur within 24 hours. Diagnosis of the chronic condition can be difficult; it is usually secondary to muscle hypertrophy and arises after exercise. The clinical features are given in box 2.¹

QUESTION 3

Pedowitz studied 131 cases of chronic leg pain, measuring intramuscular pressures before, during and after exercise, and considers the following criteria, with the appropriate clinical picture, to be an accurate means of reaching this diagnosis:

- resting compartment pressure ≥ 15 mmHg, and/or
- 1 minute post-exercise pressure ≥ 30 mmHg, and/or
- 5 minute post-exercise pressure ≥ 20 mmHg.²

QUESTION 4

Despite the fact that the pressure in the various compartments following fasciotomy improved, the recurrence of pain and the clinical signs were typical of chronic compartment syndrome and the patient underwent an extensive left lower leg fasciectomy of the extensor and peroneal compartments. A muscle biopsy showed no muscular disorder but features of myositis. He had no further recurrence at his 3-month follow-up. This case illustrates that the only effective treatment is to permanently reduce intracompartmental pressure by fasciectomy

The differential diagnosis of chronic leg pain

- musculoskeletal: stress fractures; stress reaction; peri-ostosis; bony lesions; arthritis; rhabdomyolysis; compartment syndrome
- vascular: claudication due to atherosclerotic disease; popliteal artery entrapment; cystic adventitial necrosis
- neurological: peripheral nerve entrapment; spinal cord lesions; multiple sclerosis

Box 1

Clinical features of chronic compartment syndrome

Symptoms

- pain
- extremity swelling
- a tense feeling in the involved compartment
- paraesthesia

Signs

- swollen, palpably tense compartment
- overlying skin sometimes shiny and warm
- pain with passive stretch of the muscles in the involved compartment
- sensory deficit to light touch, pin-prick, 2-point discrimination in the distal sensory distribution
- peripheral pulses are usually palpable

Box 2

which allows for complete decompression of the muscle compartment and reduces the chance of recurrence secondary to postoperative scarring if just a subcutaneous fasciotomy was carried out. This was also shown by Turnipseed *et al* on 209 patients surgically treated for chronic compartment syndrome.³

Final diagnosis

Chronic compartment syndrome.

Keywords: compartment syndrome; leg pain

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