BILATERAL ASEPTIC NECROSIS OF THE OUTER END OF THE CLAVICLE

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We describe a 46-year-old woman who presented at intervals of seven years with osteonecrosis of the outer end of both clavicles. The clinical, radiological features and the appearances of the bone scans are described. Although the condition may be confused with osteolysis there is a clear histological distinction between the two conditions. If the symptoms fail to respond to conservative treatment, excision of the outer end of the clavicle is recommended.

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Aseptic necrosis may affect an epiphysis or an apophysis. It may be localised to a single epiphysis or, occasionally, may involve two or more simultaneously or successively.1-3 The aetiology is unknown, but suggested causes include local avascular changes secondary to trauma, infection or congenital malformation. Aseptic necrosis affecting the clavicle is rare. It was first described by Friedrich4 in 1924, and subsequently a few cases affecting the medial end have been reported.1,5,6 We describe a patient with aseptic necrosis affecting the outer ends of both clavicles.

Case report
A 46-year-old woman presented with a ten-month history of pain and swelling of the right acromioclavicular joint. The symptoms had not responded to analgesics and anti-inflammatory medication. There was no history of trauma or fever or occupational activity with overhead lifting. There was a tender swelling of the outer end of the clavicle measuring 1 x 2 cm without instability. The pain increased on movements of the right shoulder. The ESR was 4 mm/hr and the level of C-reactive protein was less than 8 mg/l. The white cell count, haemoglobin and haematocrit were normal as were liver and renal function tests. Radiographs showed irregularity of the lateral clavicle (Fig. 1). A technetium bone scan showed increased uptake in this region (Fig. 2).

It was suspected that either a tumour or infection was present and exploration was undertaken with resection of the outer 1.5 cm of the clavicle. The articular surface appeared to be normal. The patient reported a full return to sports and employment six weeks after the operation.

Histological examination of the resected bone showed diffuse ischaemia and some fibrosis (Fig. 3). There was subchondral necrosis with ischaemic angiofibrosis of the bone marrow and necrotic trabeculae.

The patient remained well for seven years when she presented again with pain and tenderness, this time in the left acromioclavicular region, with limitation of elevation of the left shoulder to 130˚. The ESR was 6 mm/hr and the level of C-reactive protein was again less than 8 mg/l.

Radiographs and a technetium bone scan showed similar appearances as before with bony irregularity, formation of cysts and increased uptake (Figs 2 and 4).

Conservative treatment with analgesics and anti-inflammatory agents was continued for a longer period (15 months). The symptoms, however, did not respond and accordingly exploration and excision of the outer 1.5 cm of the left clavicle were undertaken. The articular surface was again normal, and histological examination showed a similar appearance with necrotic bone (Fig. 5). The patient made an uneventful recovery and remained asymptomatic at a follow-up of 26 months.

Discussion
Aseptic necrosis or osteochondrosis is of unknown aetiology and often has a chronic clinical course. Traditionally cited as predisposing factors are trauma, infection, congenital malformation or endocrine abnormalities. Aseptic necrosis of some epiphyses has
such characteristic features that these conditions are recognised as independent clinical disorders. Osteochondritis of the clavicle, which was first described by Friedrich,4 has previously been reported at the medial end.1,3,4 Our patient had similar clinical, radiological and bone-scan appearances, but they involved the outer end of the clavicle. A review of the literature did not yield any previously reported cases.

When the medial clavicle is affected the condition usually settles quickly with conservative treatment.1,3 For our patient, however, excision of the lateral end of the clavicle was required. Good results have been reported when this procedure is undertaken for other indications.7,8

Our concern was whether our patient had osteonecrosis or osteolysis of the lateral clavicle since they may have similar clinical and radiological courses. There was, however, no soft-tissue calcification which is characteristic of post-traumatic osteolysis,9 and the histological findings were those of necrosis, namely, the presence of fibrosis in the granulation tissue and dead trabeculae with absence of any osteoclastic activity. The characteristic findings in osteolysis are osteoclastic resorption with signs of osteogenesis.10 There is little doubt about the histological difference between these two entities.

A 99mTc radioisotope bone scan showing increased uptake in the distal right clavicle (a) and in the distal left clavicle (b) after an interval of seven years.

Histological examination showed diffuse ischaemia of the bone marrow with thin fibrous layers (Hemalun and eosin x 120).

Anteroposterior radiograph of the left clavicle, showing bony abnormalities of the lateral clavicle.

Histological examination revealed dead trabeculae with empty osteoplastic cavities related to necrosis (Hemalun and eosin x 120).
This new pattern is also different from condensing osteitis of the clavicle, which radiologically is characterised by sclerosis and enlargement of the medial clavicle and histologically by increased amounts of normal bone. The differential diagnosis includes osteoarthritis, osteomyelitis and osteoid osteoma, all of which may involve the lateral clavicle. Osteoarthritis of the acromioclavicular joint is characterised radiologically by osteophytes on the clavicular side and sclerosis on both sides of the joint. A history of infection would suggest osteomyelitis, although the initial radiographs may be normal. As the infection progresses, there is bony destruction and periosteal reaction. Osteoid osteoma presents as a central lucency surrounded by dense sclerotic bone on radiographs. CT may be needed to identify this classic pattern.

It may be that patients who develop aseptic necrosis of the lateral clavicle have some as yet undetermined predisposition, whether anatomical, physiological or both. Once the diagnosis is suspected, and after a trial of conservative measures for a reasonable period, we recommend excision of the lateral aspect of the clavicle as an effective treatment for this condition. The histological examination will confirm the diagnosis, thus allowing the patient to be counselled as to the risk of the development of contralateral necrosis.

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References


MALIGNANT NECROTISING STREPTOCOCCAL MYOSITIS: A RARE AND FATAL CONDITION

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We present a case of fatal ‘malignant’ necrotising streptococcal myositis in a previously healthy 39-year-old man. The infection was caused by Lancefield group-A haemolytic streptococcus (Streptococcus pyogenes). This case highlights the clinical features and the necessity of prompt aggressive treatment.

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We present a case of fatal malignant necrotising streptococcal myositis. This primary bacterial infection of skeletal muscle which is caused by Lancefield group-A haemolytic streptococcus (Streptococcus pyogenes) has an exceptionally high mortality and constitutes a surgical emergency. The paucity of discriminating clinical features in the early stages often leads to a misdiagnosis. This has prompted us to highlight the clinical patterns and the aggressive measures which may be required to avert a catastrophic outcome. If a patient presents with the prodromal symptoms of a fever and pain out of proportion to that expected and particularly if there are signs of a compartment syndrome, this diagnosis should be considered.

Case report

A previously healthy 39-year-old industrial chemist presented with a three-day history of an acutely painful and swollen left knee on which he was unable to bear weight. This had been preceded by a prodromal illness of generalised weakness, pyrexia, diarrhoea and vomiting which had lasted for five days. He had sustained no injury and had not travelled abroad. Examination revealed a fit man with a pyrexia of 38.5°C and in some discomfort. He had no skin rash and no clinical features of septicemia. A provisional clinical diagnosis of deep-vein thrombosis (DVT) was made on account of a tender and swollen left calf with a difference in girth of 2 cm compared with the unaffected side, and a positive Homan’s sign. A ruptured Baker’s cyst was also considered as a differential diagnosis. Although his knee movements were a little restricted, there were no clinical features suggestive of septic arthritis. Plain radiographs of the left knee and calf were normal, with no evidence of gas in the soft tissues. The white cell count (WCC) and ESR were normal, and treatment with antibiotics was not initiated.

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