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Two cases of Charcot's shoulder arthropathy

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Two cases of Charcot's arthropathy of the shoulder demonstrate that acute, as well as chronic, arthropathy may develop in patients with normal protective joint sensitivity. In one case the changes developed rapidly, and arthrodesis was performed with an excellent result. In the other, Charcot changes occurred in a patient with an untreated bilateral shoulder dislocation.

The development of Charcot's arthropathy is usually secondary to loss of joint sensitivity due to neuropathy (Johnson 1967, Katz et al. 1961, Meneghello and Bertoli 1984). The same arthropathy with the same radiographic appearance, which may be classified as resorptive, mixed resorptive and productive, or as productive (Brower and Allman 1981), can, however, be found in the presence of normal sensitivity.

I present two quite different cases of Charcot's arthropathy of the shoulder – both with normal sensitivity.

Patients

Case 1. A 43-year-old man was admitted from a local hospital because of destruction of his right shoulder. Moderate pain, swelling, and restriction of movements had been present for only 6 weeks. Two weeks after onset, radiographs of the shoulder showed calcification of the soft tissues. Radiographs performed 4 weeks later showed increased soft-tissue calcification and complete resorption of the humeral head (Figure 1). The patient had no congenital or acquired diseases and no history of trauma.

Hemoglobin, erythrocyte sedimentation rate, electrolytes, including serum Ca and P, alkaline phosphatase, and liver enzymes, were all within normal limits. Serologic tests for syphilis were negative. Neurologic examination, electromyography, and myelography were normal. Arteriography demonstrated tumorlike vessels, but synovial fluid aspiration from the shoulder did not show any tumor cells. Open biopsy from capsule and bone showed synovium with numerous blood vessels and areas of calcification, surrounded by fragments of cartilage and bone, collagenous fibers, fibroblastic tissue with giant cells and fibrosis, but no malignancy or inflammation.

Arthrodesis a.m. Charnley was performed, and it was united after 5 months. The patient resumed full-time work as a laborer. Fourteen years after the arthrodesis, he was still working and asymptomatic. Radiographs showed the arthrodesis to be solid (Figure 1).

Case 2. A 73-year-old man was seen after a minor trauma to his left shoulder, which was swollen, tender, and had considerably restricted motion. There was no history of congenital or acquired diseases and no episodes of falling, and there had never been any abuse of alcohol and no steroid therapy.

Radiographs of the left shoulder showed an anterior dislocation with considerable destruction of the humeral head, the greater tubercle, and the upper part of the neck, consistent will Charcot's arthropathy. A new glenoid fossa had been formed. Radiographs of the right shoulder showed anterior dislocation, but no destruction. At reexamination of a 2-year-old radiograph of the chest, dislocation of both shoulders with slight changes of the left humeral head was seen (Figure 2).

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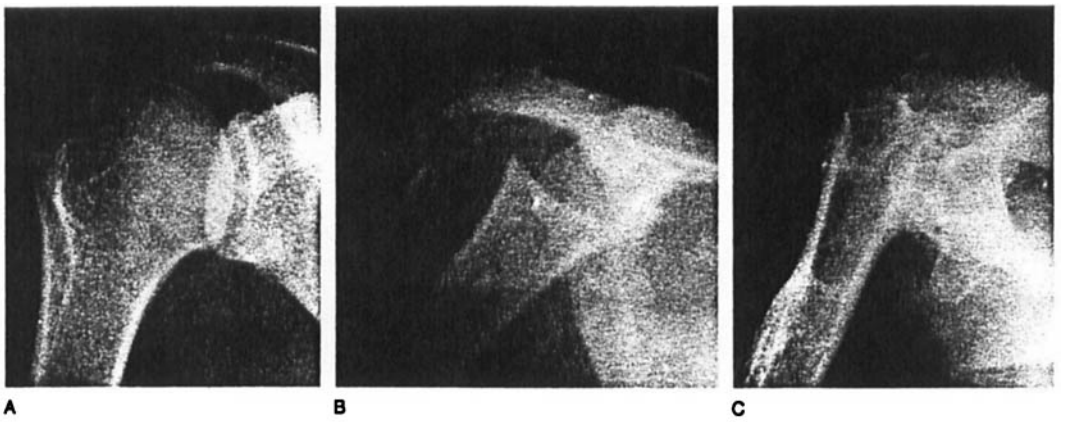

Figure 1. Case 1. Charcot's arthropathy of right shoulder.
A. 2 weeks after onset of symptoms. The joint is normal, but slight calcification of the soft tissues is present.
B. 6 weeks after onset of symptoms. Pronounced paraarticular calcification and complete resorption of the humeral head is seen.
C. 14 years postoperatively. Solid arthrodesis.

Figure 2. Case 2. Bilateral shoulder dislocation with Charcot's arthropathy on the left side.
A. On admission. Charcot changes of the disclocated left shoulder. Note the new cavity formed on the scapula.
B. A 2-year-old radiograph of the chest. Both shoulders are dislocated with incipient degenerative changes of the left humeral head.
C. The left shoulder 2 years later than Figure A shows marked hypertrophic changes.

Hemoglobin, erythrocyte sedimentation rate, electrolytes, blood glucose, and liver enzymes were normal. Neurologic examination was normal, and tests for syphilis were negative. A CT scan of the cervical and thoracic spine from C2 to T6 was normal. No biopsy was performed.

Physiotherapy was instituted, and 1 month later the patient was free from pain and able to move his left hand to the mouth, nape, and loin.

Two years later, he was still healthy and able to use the arm without pain. Radiographs showed increasing hypertrophic Charcot changes on the left side (Figure 2), but still no changes on the right side.

Discussion

Charcot's arthropathy is located in the shoulder in only 5 per cent of the cases, and 12 per cent of the patients have no definite systemic disease (Eichenholtz 1966). Neuroarthropathy may be seen before other signs of neurologic disease are present (Brower and Allman 1981, Norman et al. 1968).

As demonstrated by the first case, the development of the arthropathy may be acute, and it is remarkable that the patient was otherwise still healthy after 14 years. A correct initial diagnosis was not made in any of the 8 patients with acute

neuropathic arthropathy described by Norman et al. (1968). Therefore, it is important to be aware that soft-tissue swelling, joint effusion, and paraarticular bony detritus, which may dissect along muscle planes (Forrester and Magre 1978, Harrison 1977), are reliable early signs of acute arthropathy (Norman et al. 1968). Minimal subluxation, early arthrosis-like changes, and spontaneous fractures are other early radiographic findings (Katz et al. 1961).

In Case 2, the possibility of osteonecrosis of the humeral head should be considered. Fracture with dislocation of the shoulder, treatment with steroids, and high alcohol consumption are well-known etiologic factors for development of necrosis of the humeral head (Petersen 1986). None of these factors were found in my patient, and because the radiographic changes were hypertrophic and unilateral, it does not seem probable that the changes could be explained by necrosis. Septic arthritis can cause extensive destruction, but laboratory data and the clinical course did not support that diagnosis.

Fusion of a Charcot's joint is difficult to obtain; all Eichenholtz's (1966) 15 arthrodeses failed, which makes the favorable outcome of the operation in Case 1 remarkable. According to Eichenholz (1966), arthrodesis of a neuropathic joint has a greater probability of successful fusion if performed early in the stage of development or late in the stage of reconstruction.

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