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CASE REPORT

Osteoarticular tuberculosis with destructive wrist arthritis secondary to extrapulmonary tuberculosis☆

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KEYWORDS
Tuberculosis;
Wrist;
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Treatment

Abstract A case is presented of a 69-year-old male patient with a history of wrist fracture from over 50 years ago with pain refractory to analgesics and with joint destruction of the wrist in conventional radiology. We have conducted a review of extrapulmonary tuberculous osteoarthritis discussing the diagnosis and treatment of this unusual presentation of the disease.

PALABRAS CLAVE
Tuberculosis;
Muñeca;
Osteoartritis;
Tratamiento

Tuberculosis osteoarticular de muñeca. Artritis destructiva de muñeca secundaria a tuberculosis extrapulmonar

Resumen Paciente varón 69 años con antecedente de fractura de muñeca hace 50 años. Presenta dolor incapacitante refractario a analgésicos con destrucción articular de la muñeca en pruebas de imagen. Tras realizar artrodesis muñeca se confirma el diagnóstico de osteoartritis tuberculosa en examen histopatológico.

Efectuamos una revisión de la bibliografía de esta inusual presentación de tuberculosis extrapulmonar, discutiendo acerca de la epidemiología, tratamiento y evolución.

Introduction

Tuberculosis remains one of the most common infections worldwide, with an increasing number of cases in our country in recent years, particularly in certain risk groups such as the elderly, immigrants and immunocompromised patients. Nevertheless, osteoarticular involvement is rare, accounting for only 1–3% of extrapulmonary infections and with carpal involvement being exceptional.

We present a case of osteoarticular tuberculosis in the wrist of a patient with no history of immunosuppression and no pulmonary tuberculosis involvement.

Case report

The patient was a 69-year-old male with a history of right wrist fracture which was treated orthopaedically 50 years earlier and without any epidemiological history of interest.

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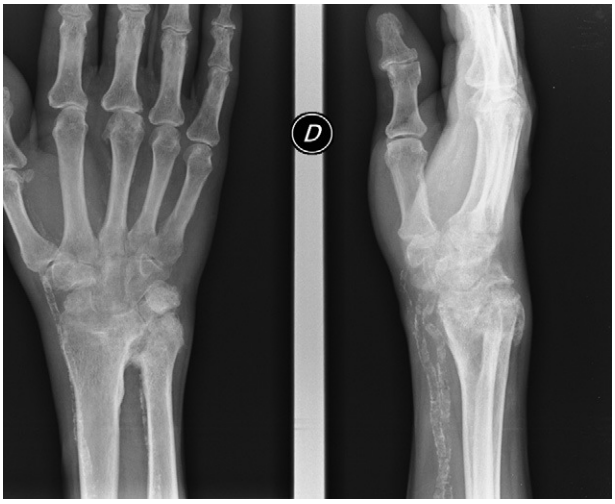

Figure 1 Anteroposterior and lateral radiographic images of the wrist.

He attended consultation due to pain in his right wrist, of about 3 months duration, which did not remit with the usual analgesic treatment, as well as local swelling and progressive decrease in mobility. The patient had no recent history of trauma or accidental punctures. Neither did he refer fever, asthenia or anorexia.

We performed an anteroposterior and lateral radiological examination of the wrist which revealed significant destruction of the radiocarpal and distal radioulnar joints, as well as clamping of the joint line, erosions and geodes affecting the distal radius and ulna and the first row of the carpus (Fig. 1).

With the suspected diagnosis of posttraumatic arthritis of the right wrist (a sequela of the old fracture), the patient underwent surgery through a dorsal wrist approach. We performed arthrodesis with a compression plate and autologous bone grafting of the distal radius (Fig. 2). During the surgical approach we observed generalised soft tissue oedema, severe osteoporosis and significant joint destruction in the first row of the carpus. We collected samples for a microbiological and pathological analysis.

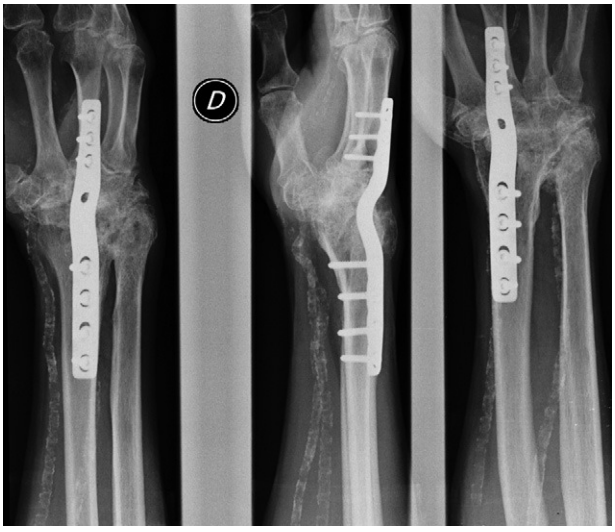

Figure 2 Postoperative radiograph at 1 year: instrumented wrist arthrodesis.

The patient was immobilised for 10 days with a forearm splint and was discharged from hospital within 48 h after surgery. He remained afebrile and without surgical wound problems.

The histological examination showed fragments of mature cartilage and bone spicules amidst which there was fibrous tissue with lymphoid infiltrate, histiocytes and multinucleated giant cells with necrotising granulomas. These findings were compatible with infection by tuberculous mycobacteria. However, the microbiological examination was negative for fungi, bacteria and mycobacteria.

With the anatomopathological diagnosis of tuberculous wrist osteoarthritis, the study was completed by an intradermal tuberculin reaction test, which was positive (15 mm). The analytical study showed elevated acute phase reactants (erythrocyte sedimentation rate: ESR = 98 and C-reactive protein: CRP = 79.6) and negative HIV serology. The extension studies with chest computed tomography (CT) and sputum smears were negative, thus ruling out infection at other levels.

We initiated oral treatment for tuberculosis, starting with a 2-month intensive phase including 3 drugs (isoniazid, rifampicin and pyrazinamide) and then continuing with isoniazid and rifampicin until completion of a 9-month treatment regime.

The evolution was satisfactory after surgical intervention and start of antibiotic treatment. There was significant reduction of wrist pain and inflammation and normalisation of the ESR and CRP parameters. At the last follow-up review, conducted 3 years later, the patient was asymptomatic and presented a score of 13.33 on the disabilities of the arm shoulder and hand (DASH) scale (the preoperative value was 98.33).

Discussion

Tuberculosis remains one of the most relevant infectious diseases in the world. Osteoarticular tuberculosis (OAT) accounts for only 1–3% of extrapulmonary forms, preferentially affecting the spine and dorsolumbar junction (50% cases). Involvement of the carpus and wrist is exceptional (2–4% of OAT cases), and it may appear in isolation or associated with visceral involvement (20–40%).[1]

The characteristic symptoms are pain, swelling, loss of joint balance and functional failure. Abscesses are present in 20–25% of cases[2] and may appear as fistulas with purulent exudate at a dorsal or palmar level. Epitrochlear or axillary lymphadenopathies are not uncommon.

The classic symptoms of disseminated tuberculosis (night sweats, asthenia and anorexia) are variable in 25–40% of cases.[1,2]

Regarding analytical tests, the most notable finding is usually an increase in acute phase reactants (ESR and CRP). Fluid cytology shows hypercellularity greater than 50,000, predominantly in 80% of cases of neutrophils.

The intradermal reaction test is positive in 80–85% of cases.[1,2]

As in our case, imaging tests show the classical Phemister triad, that is, juxtaarticular osteoporosis, peripheral bone

erosions and clamping of the joint line, although this may be preserved in 7–36% of cases.[2] Advanced cases present multigeodic osteolysis in all carpal bones.

Bone scintigraphy with Tc-99 is useful to rule out polyarticular involvement. Magnetic resonance imaging (MRI) and CT are useful to evaluate abscesses, intraarticular sequestering or to conduct guided punctures.[3]

The differential diagnosis should include chronic osteomyelitis, villonodular synovitis, sarcoidosis, hyperparathyroidism, Paget's disease and posttraumatic osteoarthritis.

The definitive diagnosis of the disease requires an anatomopathological study corresponding to epithelioid cell granuloma and Langhans giant cells associated to caseous necrosis,[1,4] as in the present case. Microbiological diagnosis is less reliable, with smear tests and cultures in Lowenstein–Jensen media often resulting negative. Polymerase chain reaction (PCR) can be useful, at centres where it is available.

Treatment of this type of localised tuberculosis mainly consists of the normal oral drug treatment for tuberculosis, in a regime of 6–12 months, associating isoniazid, rifampicin, pyrazinamide and ethambutol.[5,6]

Surgery has a limited role and is usually reserved for biopsies, fistulectomies, drainage of abscesses, tenosynovectomies and, in very advanced cases with considerable joint deterioration, to perform arthrodesis.[3,6]

Our case was diagnosed retrospectively, initially being classified as posttraumatic osteoarthritis. The marked pain symptoms, the destructive radiological aspect and the macroscopic appearance led to a biopsy being taken, which showed a typical histology and positive tuberculin test. Plate arthrodesis dramatically relieved intractable pain for the patient and did not represent a problem for the healing process. Due to the uncertainty of the initial aetiology, we decided to delay action on the distal radioulnar joint until a second procedure. Eventually we ruled it out, given the good clinical evolution.

Conclusions

When facing unexplained carpal destruction we should consider osteoarticular tuberculosis as part of the differential diagnosis. Histological examination is essential to obtain an accurate diagnosis, with anti-TB treatment being effective as a first choice in most cases. Surgery should be reserved for selected cases.

Level of evidence

Level of evidence IV.

Responsabilidades éticas

Protección de personas y animales. Los autores declaran que para esta investigación no se han realizado experimentos en seres humanos ni en animales.
Confidencialidad de los datos. Los autores declaran que en este artículo no aparecen datos de pacientes.
Derecho a la privacidad y consentimiento informado. Los autores declaran que en este artículo no aparecen datos de pacientes.

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