CASE REPORT

Concomitant acromioclavicular and miliary tuberculosis

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SUMMARY

A 48-year-old man was being treated unsuccessfully for miliary tuberculosis for 5 months until he presented with acromioclavicular joint swelling. Imaging of the shoulder revealed destruction of the acromioclavicular joint and the patient was brought to the operating theatre and underwent the excision of the distal end of the clavicle, synovectomy and drainage of the abscess. Surgery was followed by prompt clinical, functional and radiological improvement. Histopathology confirmed the diagnosis of acromioclavicular tuberculosis. Resistance to appropriate antituberculous treatment in patients with miliary tuberculosis can sometimes be a result of undiagnosed extrapulmonary site of infection.

BACKGROUND

Delayed diagnosis of tuberculous arthritis is a well-documented problem.[1 2] Joint swelling and range of motion limitation may be present, but such findings are usually subtle and as a result overlooked by the clinician and often by the patient as well. Systemic symptoms present as the disease progresses. In this case, the patient had been treated for miliary pulmonary tuberculosis for 5 months when he presented with left shoulder pain. Clinical examination revealed extensive swelling over the acromioclavicular joint (ACJ). The patient was brought to the operating theatre and underwent incision and drainage of the abscess. Within 3 weeks from surgery, significant clinical and radiological improvement of the pulmonary TB was also noticed. This case confirms once again the latin aphorism 'ubi pus ibi evacua' which means 'where [there is] pus, then evacuate [it]'

CASE PRESENTATION

A 48-year-old man presented to the A&E department with low-grade fever, night sweats, loss of weight and a miliary pattern on the chest radiograph (figure 1). He also reported a history of left chronic glenohumeral arthritis. The patient was born in the former USSR and moved to Greece at the age of 16. He was an ex-smoker and a social alcohol drinker. His father had a history of pulmonary TB. Initial chest radiograph showed a miliary pattern. Sputum smears and gastric fluids were negative for acid-fast bacilli, whereas sputum and gastric fluid PCR, as well as sputum cultures, for *Mycobacterium tuberculosis* were positive. All the above confirmed the diagnosis of pulmonary *Miliary tuberculosis* and a combination regimen with isoniazid (INH), rifampin (RIF), pyrazinamide (PZA) and ethambutol (EMB) was started. Two months later, streptomycin, levofloxacin and clarithromycin were added due to the poor initial response, but eventually susceptibility test which was available at 3 months did not document resistance and the patient continued with INH-RIF.

Figure 1 The characteristic miliary pattern shown in a chest X-ray of the patient.

At 5 months from the beginning of the treatment, test results from sputum cultures remained positive and erythrocyte sedimentation rate (ESR) was still elevated at 98 mm/h. At that point, the patient was reinstituted to be checked for compliance to therapy, as outpatient DOT is not prevailing in our country. Supervised drug administration begun, but interestingly the patient complained of left shoulder pain. Clinical evaluation revealed marked swelling over the ACJ (figure 2).

INVESTIGATIONS

CT (figure 3) and MRI of the area showed destruction of the ACJ, bone marrow oedema of the distal

Figure 2 Marked swelling over the left acromioclavicular joint.

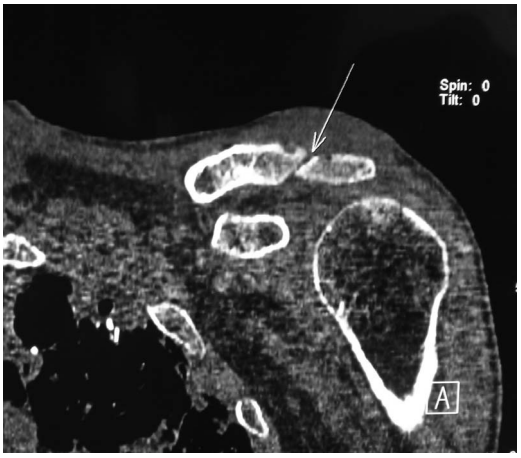

Figure 3 CT scan of the left acromioclavicular joint showing the marked joint space narrowing.

end of the clavicle and synovitis which in conjunction with the history of pulmonary TB suggested the diagnosis of tuberculous arthritis of the ACJ.

TREATMENT

The patient was brought to the operating theatre and under regional anaesthesia with intrascalene block he underwent incision and drainage of the ACJ, synovectomy and resection of the distal end of the clavicle with an oscillating saw. The culture of the purulent discharge was negative for common bacteria, but the Gen-Probe test was positive for *M tuberculosis*. Furthermore, histopathology of synovial membrane and acromioclavicular bone biopsy revealed the presence of epitheliod granulomas and necrosis and confirmed the diagnosis of osteoarticular TB.

OUTCOME AND FOLLOW-UP

Three weeks following surgery, the patient showed marked clinical improvement. He had no fever, ESR fell within normal range and had gained weight. Treatment with four drugs (INH, RIF, PZA and EMB) was reinstituted for three more months due to possible bacterial dissemination following the surgical procedure and extended lung disease and was then changed to INH and RIF for another 9 months. At final follow-up 18 months since the initial presentation sputum, cultures were negative, ESR was normal, chest radiography presented significant improvement and the patient had gained more weight. At long-term follow up at 2 and 3 years, the patient showed further radiological and functional improvement, without evidence of disease recurrence.

DISCUSSION

Miliary tuberculosis refers to the progressive, disseminated form of tuberculosis usually with the characteristic miliary pattern of diffusely micronodular appearance on chest radiograph which can occur either during primary dissemination or after years of untreated infection. The risk increases with immunosupression and may be accompanied by extrapulmonary manifestations. The sites of active infection commonly include the lymphatic system, pleura, osteoarticular areas and the gastrointestinal system.[3] However, any organ can be involved with some rare sites reported in the literature.[4–6] Extrapulmonary and miliary tuberculosis may be reactivated independently with advancing immunosuppression as in HIV infection, or as a result of decreased systemic immunocompetence in middle aged or elderly patients.[7] In patients with active bone or joint TB, miliary TB is usually caused by bacteraemia from the original site of infection. Furthermore, 50% of all patients with skeletal active infection have also active pulmonary infection that needs treatment.[8]

Osteoarticular TB represents 3–5% of TB cases and about 15% of extrapulmonary cases.[9] Most common sites of infection are the spine, hip and knee accounting for more than 95% of all cases.[10] Other less common sites are the foot,[9 11] the hand and wrist,[12] and the glenohumeral joint.[13] To our best knowledge, this is the third case of ACJ involvement with the first one reported more than 60 years ago.[14 15]

Owing to its subtle clinical appearance, the disease can remain undiagnosed until it has progressed.[1] In our case, the patient had a history of glenohumeral arthritis. It is possible that some early discomfort in the shoulder girdle may have been underestimated and attributed to arthritis, but this is a well-known problem and frequently pointed out.[1 13]

Early osteoarticular tuberculosis usually heals without residual problems. Nevertheless, strong clinical suspicion is required for an early diagnosis. Chemotherapy, combined with proper surgical intervention, is imperative when the disease progresses.[16] Appropriate duration of chemotherapy is an area where there is no consensus. According to WHO guidelines,[17] all cases should be treated for a minimum of 6–9 months; when the response is poor or inadequate, treatment may be prolonged on a case-by-case basis. In our case, therapy was extended to 18 months due to concomitant *Miliary tuberculosis* and slow initial response.

Non-adherence to treatment should always be considered and investigated especially when clinical response is poor and smears and cultures remain positive at 3 months; in such circumstances, DOT should be instituted immediately.[16]

In conclusion, it is essential to keep TB in mind when making the differential diagnosis of arthritis in order to make an early diagnosis which favours a good outcome.[18] Finally, cases of resistant miliary pulmonary TB should also undergo careful investigation for concomitant sites of infection.

Learning points

- Tuberculous arthritis can have subtle clinical presentation and can remain undiagnosed until the disease has progressed.
- Small joints like the acromioclavicular or the tarsometatarsal can be sites of tuberculous arthritis.
- Resistance of miliary tuberculosis to treatment can be caused from an undiagnosed or undrained abscess formed in a bone, muscle or joint.
- Ubi pus ibi evacua: 'an abscess should be drained' (in free translation).

Contributors FG designed, wrote and approved the final version of the manuscript. AB analysed data from the literature and revised the manuscript. EV revised the manuscript and DK had the initial concept, revised and approved the final manuscript.

Competing interests None.

Patient consent Obtained.

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