LESSON OF THE MONTH

A visible and palpable cause of backache

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Backache with its many causes continues to present a challenge to the examining physician. Careful history taking, inspection and palpation still have an essential role, as well as the most modern imaging techniques. Although extra-pulmonary tuberculosis (TB) has shown a disproportionate increase in recent years,¹ muscular TB is still uncommon. Necropsies of 2224 TB cases revealed only four with TB myositis.² Petter³ put the incidence of TB myositis at 0.015%. Here we present one of the rare manifestations of TB infection.

Case report

A 46 years old Indian woman was referred to the Department of Rheumatology with a four month history of pain around the right lower rib cage posteriorly. Use of the right upper limb was said to have aggravated the pain, but there were no pleuritic features. She denied sweating, cough, haemoptysis or loss of appetite. Otherwise the patient was in good health without any weight loss. Past history included two episodes of mechanical low back pain in 1970 and in 1995. Both mother in law and brother in law had TB, more than 30 years and eight years ago respectively. They all lived in separate houses. There was no history of recent TB contact or BCG inoculation with the exception of the patient having visited India three years previously. The patient had lived in England for 30 years. There were no known risk factors for HIV infection.

On examination the patient had a temperature of 37.1°C. No rash or lymphadenopathy were noted. Musculoskeletal examination revealed a firm, non-tender, non-fluctuant swelling 7 cm × 4 cm to the right of the lower dorsal spine (fig 1). The overlying skin looked normal and was not warm to touch. There was no spinal tenderness, but thoracic spine movements were rather restricted. Further examination of cardiovascular, respiratory and central nervous systems failed to delineate any abnormalities. On palpation of the abdomen, there was no organomegaly or other physical abnormality. At this point there was no working diagnosis and only analgesics were prescribed. After the outpatient consultation the patient was admitted for further evaluation. Erythrocyte sedimentation rate was raised 42 mm 1st h (1-12 mm 1st h). There was slight increase in C reactive protein 10 mg/dl (1-6 mg/dl). She had a normal full blood count, blood glucose and immunoglobulins. Radiographs of chest and dorsolumbar spine revealed no abnormality and in particular no evidence of pulmonary, pleural, mediastinal, rib or spinal TB.

Magnetic resonance imaging of the thoracic spine (fig 2) showed a 7 × 4 × 3.5 cm lesion in the right paraspinal and intercostal muscles. There was no evidence of communication with the spine. No rib involvement was identified. The lesion was predominantly located in the paraspinal muscles, but intercostal spread caused some early pleural reaction, but no pleural effusion. This was of increased signal on T2 and low signal (not illustrated) on T1 sequences suggesting fluid contents.

Two chest radiographs that were done during the course of the patient's illness showed no abnormality and in particular, no evidence of active or healed tuberculosis. The negative chest radiographs do not however exclude a previous primary complex, which might have healed with minimal residual scarring or calcification.

The lesion, which proved to be a large abscess, was aspirated by the orthopaedic surgeon obtaining 40 ml of pus. On Zhiel-Neelson film no acid fast bacilli were seen, but subsequently mycobacterium tuberculosis was grown on the culture of the aspirated pus. Further investigations including sputum, urine cultures and ultrasound scan of abdomen failed to delineate a primary focus. Heaf test was also negative.

Figure 1 Photograph of (R) paraspinal swelling.

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Figure 2 T2 axial magnetic resonance imaging shows high signal intensity lesion of right posterior chest wall involving trapezius, longissimus thoracis, spinalis thoracis and intercostal muscles but sparing the adjacent rib and thoracic spine.

On the day after the aspiration, the patient was started empirically on anti-TB treatment with Rifater (isoniazid 50 mg/pyrazinamide 300 mg/rifampicin 120 mg) five tablets daily, before a microbiological diagnosis was obtained. Four weeks later the abscess cavity filled up again, which on this occasion was treated by incision and drainage obtaining 50 ml of pus. She made satisfactory progress with her established anti-TB treatment (Rifater tablets) as supported by her erythrocyte sedimentation rate decreasing to 21 mm 1st h within one month together with resolution of the lump and the pain.

Discussion

Common causes of pyomyositis are streptococci and staphylococci. Muscular TB is very uncommon. Search of Medline and Embase found few documented cases of TB myositis.⁴⁻⁸ Reported associations of this type of abscess include systemic lupus erythematosus, dermatomyositis, leukaemia and renal transplant recipients.⁶⁻⁹ In approximately 15% of patients without HIV infections TB occurs at extrapulmonary sites, whereas this is seen in 40% of patients who are HIV positive.¹⁰ Tuberculosis has been shown to occur earlier in the course of HIV infection than other opportunistic infections, for example, *Pneumocystis carinii*. Indeed, TB may be the first manifestation of HIV infection.¹¹

History of TB infection or exposure to it, may or may not be present. Evidence of concurrent active intra-thoracic TB is present in less than 50% of cases.¹² Initial chest radiographs may be helpful in the diagnosis, but in many, further radiological investigations such as computed tomography^{13 14} or magnetic resonance imaging will be required as was necessary in our patient. Imaging can facilitate earlier diagnosis when disease is still muscular before bony involvement occurs. Despite all these investigations, microbiological confirmation of tuberculous bacillus is mandatory from the aspiration of the abscess. Treatment of this

type of infection in the United Kingdom at present is with Rifater (isoniazid/pyrazinamide/rifampicin) for two months then followed by either Rifinah or Rimactazid, which contain rifampicin/isoniazid, given by mouth for a further four months.

One should have a higher index of suspicion of TB even in uncommon sites like muscle, in patients from ethnic groups predisposed to this infection.¹⁵ In patients with no history of contact of TB, various conditions, for example, HIV, corticosteroid therapy, connective tissue disorders, diabetes and blood dyscrasias should be considered as a predisposing cause.

The Heaf test despite its diagnostic role in many patients, was unhelpful in this case. Negative Heaf test results, are usually attributable to faulty technique, overwhelming infection, sarcoidosis or immunosuppressive therapy. In the absence of the last three mentioned conditions, faulty technique was the most likely cause of the negative response in our patient. However, more significantly, mycobacterium tuberculosis was confirmed on the culture of the aspirated pus and thus the diagnosis of TB pyomyositis was reached.

The lessons

- Inspection and palpation may reveal vital clues in the diagnosis of the cause of backache.
- A high index of suspicion of TB, even in unusual sites, is required in patients from certain ethnic groups.
- Tuberculous pyomyositis, while rare, can be expected to be seen more frequently because of increasing incidence of TB world wide.

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- 1 Harrington JT. Mycobacterial and fungal infections. In: Kelley WN, Harris ED, Ruddy S, Sledge JB. *Textbook of rheumatology*. 5th ed. Vol 2. WB Saunders, 1997:1450.
- 2 Culotta A. La tubercolosi muscolare. *Riv Patol Clin Tuberc* 1929;3:1-26.
- 3 Petter CK. Some thoughts on tuberculosis of fascia and muscle. *Lancet* 1937;57:156-9.
- 4 Camus JP, Koeger AC, Nahoul K, Alcaix D, Gutmann L. Isolated muscular tuberculosis in dermatomyositis treated with corticosteroids. Developing outbreak of dermatomyositis under rifampicin treatment. *Ann Med Int* 1987;138:524-6.
- 5 Kulkarni AG, Kulkarni SA. Primary intramuscular cold abscess in the left deltoid region: a case report. *East Afr Med J* 1990;67:922-3.
- 6 Belzenegui J, Plazola I, UriarteE, Pego JM. Primary tuberculous muscle abscess in a patient with systemic lupus erythematosus. *Br J Rheumatol* 1995;34:1177-8.
- 7 del Giglio A, Pinczowski H, Portugal G, Feher O. Tuberculous skeletal muscle involvement in acute leukaemia. *Tumori* 1997;83:618-20.
- 8 Kim JH, Wallerstein S, Thoe M, Wolfe A, Rask D. Myopathy in tuberculosis: two presumptive cases and a review of the literature. *Mil Med* 1997;162:221-4.
- 9 Induhara R, Singh SK, Minz M, Yadav RV, Chugh KS. Tuberculous pyomyositis in a renal transplant patient. *Tuber Lung Dis* 1992;73:239-41.
- 10 Goldsmith MF. Forgotten (almost) but not gone, tuberculosis suddenly looms large on domestic scene. *JAMA* 1990;264:165-6.
- 11 Goodman PC. Pulmonary tuberculosis in patients with acquired immunodeficiency syndrome. *J Thorac Imag* 1990;5:38-45.
- 12 Newton P, Sharp J, Barnes KL. Bone and joint tuberculosis in Greater Manchester. *Ann Rheum Dis* 1982;41:1-6.
- 13 Coppola J, Muller NL, Connell DG. Computed tomography of musculoskeletal tuberculosis. *Can Assoc Radiol J* 1987;38:199-203.
- 14 FitzGerald R, Hutchinson CE. Case reports. Tuberculosis of the ribs: computed tomographic findings. *Br J Radiol* 1992;65:822-4.
- 15 Halsey JP, Reeback JS, Barnes CG. A decade of skeletal tuberculosis. *Ann Rheum Dis* 1982;41:7-10.