VERTEBRAL SPONDYLITIS DUE TO BRUCELLA SPECIES

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ABSTRACT :

In this study, we have described 16 patients with proven brucellar spondylitis. These patients were admitted to our clinic due to low back pain. Brucellar spondylitis was diagnosed according to their clinical and radiological findings and brucella agglutination tests. All the patients showed good response to the medical treatment and one of these patients had to be operated because of paravertebral abscess. In this report, brucellar spondylitis was discussed under the view of literature.

Key Words: *spondylitis, brucellosis, low back pain*

INTRODUCTION

Brucellosis constitudes a major health problem in many parts of the world, including the Middle East (11). Four species of the Brucella genus, each one with a different animal reservoir, are recognised as capable of causing human disease: B. melitensis (goats), B. abortus (cows), B. suis (hogs), and B. canis (dogs) (8). Brucella melitensis is the most common, the most virulent, and the most invasive (13). The frequency of osteoarticular involvement of chronic brucellosis is high and it varies between 10% and 85% in the published series. The spondylitis, mainly located at the lumbar spine was reported to be the most prevalent (1, 11, 13, 18).

MATERIALS AND METHODS

Brucella agglutination (Rose- Bengal and Wright), antistreptolysin O (ASO), C- reactive protein (CRP) and rheumatoid factor (RF) test were performed for the patients who had attended Dokuz Eylül University, School of Medicine, Department of Neurosurgery with spinal complaints and special clinical radiological findigs. Blocking antibodies were searched in the patients having negative agglutination tests.

Plain vertebra graphy were taken to all the cases and computed tomography (CT) was performed for the first four patiets having agglutination titers equal to or above 1/160. However; because magnetic resonance imaging (MRI) could determine the early findigs and show the changes especial in paravertebral tissues. MRI was prefered for the rest twelve cases having 1/160 or above agglutination titers.

All the patients were treated medically except one who had advaced neurodeficites and this patient was operated. The antibiotic combinations used for the medical treatment of the patients were streptomycin 1 gr/day IM+ doxycycline 200mg/day for six weeks for the first 6 patients and rifampim 900 mg/day + doxycycline 200 mg / day for the other 10 patients for 6 weeks. The second antibiotic combination was preferred because of the peroral use of rifampin.

The patients were followed up clinically, serologically, and radiologically.

RESULTS

Sixteen of the patients had titers 1/160 or greater in agglutination tests. The ASO titers were below 200 IU/ml and the CRP and RF were both negative for these patients.

Among the 16 patients, 10 (62.5 %) were male and their average age was 46.8±2.35. The average brucella agglutination titers of the patients with spondylitis was 1/320, with a range of 1/160 to 1/1280. CT was performed for first four and MRI was performed for the rest 12 patients. After treatment, MRI was done for only 11 (68.75%) of the cases, unfortunately this examination could not be done for 5 patients because of personal reasons. After the radiological examination of the patients it had been detected that 36 vertebrae and 20 disc space had been involved.L4 (81.25%) and L5 (75.0%) were the commonly infected vertebrae

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and in parallel to this L4-5 disc space (68.75%) was the most predominant disc space showing discitis. Cervical spinal involvement was seen in one patient (6.25%).

One patient had to be operated before getting the laboratory results because of neurodeficits. The histopathological examination of the specimen obtained during the operation was in concordant with granulomatosis disease. Decompressive laminectomy was performed for this patient and he was treated with doxycycline 200 mg/day, for 6 week, postoperatively and clinical and serological improvement was detected. 8 (50.0 %) of the patients improved completely according to the clinical and laboratory findings (Wright agglutination titers decreased to <1/160). However 3 (18.75 %) patients required a second period of six weeks of therapy. Recurrence was observed in 4 (25.0 %) of the patients after 2 and 11 months and therapy was started again. In one of these patients, clinical resistance against the antibiotic combination (rifampin + doxycycline) was observed and the therapy was changed to doxycycline + streptomycin after 12 weeks of therapy.

The average follow up period was 21 months (2-46 months) and unfortunately 4 cases couldn't be followed after the first control. One of the patients with recurrence and the one who showed resistance to the first antibiotherapy are still beign treated. The other 10 (62.5 %) patients improved clinically and serologically completely.

DISCUSSION

Osteoarticular involvement is the most common complication of active brucellosis (12). The male/female ratio was reported to be 2-3/1 and most cases consisted of adults (15). All of the patients in our study were adults and the ratio of male/female was 1.7/1.0. Generalized aches, backaches, and joint pains are common clinical manifestations of osteoarticular brucellosis (1, 13). The diagnosis of brucella spondylitis was established by the following criteria: a minimum brucella antibody titre of 1/160; radiographic evidence of spinal involvement; and a clinical response to treatment. In addition to these criteria, positive blood and/or abscess cultures and histopathological examination of a non-caseating granuloma without evidence of acid fast bacilli were reported to be diagnostic (11, 12). The brucella antibody titres were detected as >1/160 in all of our patients and the histopathological examinations revealed granuloma in one patient who had surgery.

The early radiological signs of brucellar spondylitis are non-specific and may appear as late as three months or more after the onset of symptoms (16). In the early form; straightening of the spine, bone destruction in the superior vertebral endplate and the new bone formations called "parrot's beak" osteophytes are detected (4, 12, 13, 18). Disc space collapse, vacuum phenomenon, and endplate defects (Schmorl nodes) were seen in CT scans (1, 11, 12, 13, 18). Vertebral body signal changes without morphologic changes, marked signal increase in the intervertebral disc on T2 W and contrast enhancement sequence, soft tissue involvement without abscess formation and facet joint involvement, can be accepted as distinguishing MRI features of brucellar spondylitis (10).

Treatment is usually conservative and surgery is performed in patients with large paravertebral abscesses, medullar compression, or destructive spondylitis resulting in severe and persistent pain (16, 17). The dainage of paravertebral abscesses, decompressive laminectomy, and anterior or posterior fusion after removing the involved vertebral parts are the choice of surgery (3, 12, 16). Performing an open biopsy of the vertebral body or extradural tissue may be indicated when the differential diagnosis of vertebral osteomyelitis cannot be made by conventional diagnostic methods (18). Surgical debridement of the infected vertebral body may be considered for patients who don't respond to antimicrobial therapy (7, 17). We operated one patient for his neurological status by decompressive laminectomy. The conservative treatment of brucellar spondylitis includes bed rest, analgesics and antimicrobial therapy. Many chemotherapy regimens were used in the medical treatment of spinal brucellosis. A minimum of six week course of double or triple antibiotic combinations are recommended in brucellar spondylitis (2, 5, 6, 12, 16). In 1986 the World Health Organization recommended the use of a six week cource of doxycycline (200 mg/day) plus rifampin (600-900 mg/day) administered orally for at least 6 weeks (9). Some authors suggest that the minimum duration of chemotherapy should be 12 to 24 weeks (12, 14). Tekkök et al suggested ofloxacin/rifampin, doxcycline/rifampin combinations and ofloxacin monotherapy for 8-12 weeks (18). We used

the double antibiotic combination for a minimum of 6 weeks.

The recurrence rate of brucellosis was reported to be 20% for one year (12). The ratio was found to be 25% among our patients. Because of this high rate of recurrence, the patients with brucellosis should be followed carefully for at least one year even if clinical and laboratory improvement is detected.

As a result; it can be concluded that brucellar spondylitis which can be diagnosed easily and treated successfully with wright antibiotherapy, should be thought in the differential diagnosis of the patients attending to the clinics with atypical spinal signs with or without radiological findings.

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