CASE REPORT

Tuberculous Abscess in the Parasternal Region

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INTRODUCTION

Tuberculosis is an infectious disease that can involve any organ or tissue in the body. Extrapulmonary tuberculosis is defined as disease outside the lungs and is observed in 15-20% of all tuberculosis patients in the world [1]. While bone and soft tissue tuberculosis accounts for 1 to 2% of all tuberculosis cases, 1-5% of them develop at the chest wall [2]. Tuberculosis may affect any bone in the body, however, mostly affects the spinal column (50%), and less often the ribs (7%) [3]. Extrapulmonary tuberculosis, may either be direct spread of pulmonary disease or the primary site of infection. Tuberculous abscess of the chest wall may either be direct spread of pulmonary disease or the primary site of infection. Tuberculous abscess formation is presented along with the review of the literature.

CASE PRESENTATION

A 40-years old female patient was admitted to our clinic with complaints of increasing chest pain and swelling for four months. The patient stated that her complaints worsened in the last weeks. Her medical history revealed that she had no chronic disease or a condition requiring regular drug use. Her physical examination revealed a hard, painful, fluctuating mass lesion, 4x3 cm in size, in the parasternal region (Figure 1). Examination of the other systems was unremarkable. On auscultation, breath sounds were normal with no added sounds. Complete blood count results were as follows, leukocyte count 8500/µL, platelet count 426000/µL, neutrophils 73.2%, lymphocytes 12.4% and sedimentation rate 40 mm/hour. Biochemical tests were within normal limits. The size of induration in tuberculin skin test was 16 mm. The lung parenchyma was normal and there was no hilar lesion or widening in the posteroanterior chest X ray of the patient (Figure 2). Superficial ultrasound (US) revealed a homogenous hypoechoic solid mass lesion with regular contours, and 56x27 mm in size, 7 mm under the skin in the right parasternal region. A hypodense ovoid lesion 42x27 mm in size, having local high density [high Hounsfield units (HU)] areas located at the upper medial aspect of the right breast, posterior to the pectoralis muscle was detected in the computed tomography (CT) of the thorax, lung parenchyma was normal (Figure 3). The patient underwent fine-needle aspiration biopsy (FNAB) and cytology. Pathological examination was negative for malignancy, and consistent with caseating granulomatous inflammation. Aspiration fluid was positive for acid fast bacilli (AFB). Subsequent three sputum examinations for AFB were negative. Surgery decision was made. After preoperative preparations, the patient was taken to the surgical room and was placed in supine position. Under general anesthesia, a 3 cm incision was made over the mass. The lesion was exposed by blunt dissections. On surgical exploration, a hard mass with regular contours was detected. As there was a purulent discharge from the lesion, the mass was total excised. Specimens were taken from the mass lesion and its contents, and the samples were sent for frozen section. The result of the frozen section examination was caseating granuloma. The rib below the lesion and the sternal margin was intact. After the surgery, the patient was started on isoniazid (INH) 300 mg/day, rifampicin (RIF) 600 mg/day, ethambutol (EMB) 15-25 mg/kg/day, and pyrazinamide (PZA) 15-30 mg/kg/day treatment for two months. At the end of two months, as there was a positive clinical response to treatment, the treatment was continued with INH and RIF to nine months.
The patient who showed complete clinical and radiological recovery after treatment is still asymptomatic after a year follow-up.

**DISCUSSION**

While there is a decline in the incidence of tuberculosis in developed countries, the incidence of extrapulmonary tuberculosis increases [5]. Tuberculous abscess of the chest wall is a rare condition. It can involve the sternum, costochondral and costovertebral joints, ribs and vertebra, more commonly the sternum and the ribs, and less commonly the parasternal region, costovertebral joints and vertebra. Mycobacteria directly spread with blood and lymphatic canals from the pulmonary parenchyma or pleura to the chest wall [6]. The first symptoms of tuberculous tenosynovitis are the gradually increasing swelling followed by pain and limited joint mobility. Except the chest wall, no other foci were determined in our patient. The lesion at the chest wall was swollen and painful. Although the peak age of incidence varies, it is generally below 35 years. It is most commonly seen in females and female/male ratio is 1.2/1 [5]. The case presented herein was a 40 years old female patient.

In diagnosis, detailed anamnesis and physical examination followed by radiological examinations (Direct graphs, US, CT, MRI) and FNAB is recommended. However, it is not possible to diagnose every case with FNAB. In a study, only 4 of 18 patients with tuberculous abscess of the chest wall could be diagnosed with FNAB, and another study reported the rate of diagnosis with FNAB as 36% [3]. In a serial study on FNAB samples; diagnosis was made by AFB smear in 35% and by culture positivity in 60% of the cases [7]. In our patient, diagnosis was made by histopathological and microbiological examination of the FNAB samples, and also during surgery performed for removing the affected tissues, samples were sent to frozen section examination.

In diagnosis, although the demonstration of caseating granuloma in the histopathological examination of the cerebrospinal fluid, abscess, sterile body fluids and tissue samples suggests tuberculosis, AFB positivity by Ehrlich-Ziehl-Neelsen staining and isolation of Mycobacterium tuberculosis in Löwenstein–Jensen medium is sufficient for definite diagnosis. In pathological examination, there is granulomatous inflammation characterized with epithelioid giant cells and caseation necrosis. Histopathological examination of the granulation tissue is the most reliable diagnostic method [5]. In our case, both AFB smear and culture results of the specimen were positive and granulomatous inflammation with caseation necrosis was seen in the tissue samples obtained from the surgical area.

The basis of the management of tuberculosis of the musculoskeletal system is long-term anti-tuberculosis treatment along with wide surgical debridement, in order for both increasing the surgical success and prevention of recurrence [8]. At the beginning of the medical treatment, as the number of bacilli is high, quadruple antituberculosis therapy should be started considering that there could be resistant strains. In Turkey, where the rate of INH resistant strains are higher than 4%, the starting treatment should include four, and the maintenance treatment should include at least two anti-tuberculosis drugs [9]. Although the treatment duration is at least 6-9 months, some authors emphasize that treatment should be prolonged to 12 months. In the case presented herein, in order to prevent recurrence, INH 300 mg/day, RIF 600 mg/day, EMB 15-25 mg/kg/day and PZA 15-30 mg/kg/day treat.
ment was given to the patient for two months along with wide surgical debridement. At the end of the second month, as there was a positive clinical response to treatment, the treatment was completed to nine months with INH and RIF. We attributed the absence of recurrence in the 12 month control period to the use of combined treatment.

Tuberculosis is the second leading cause of rib destruction after malignancy. Rib destruction is not present in most cases with tuberculous abscess of the chest wall [1]. During surgical debridement, no destruction was noted at the sternal margin and in the rib below the lesion in our case.

In conclusion, an increasing swelling with pain in the chest wall, should suggest tuberculous cold abscess besides chest wall tumours. Early diagnosis and treatment is important in preventing serious bone and joint destruction. As recurrent infections may develop with anti-tuberculosis treatment alone, primarily, the mass should be totally excised by surgery.

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REFERENCES