Case Report
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Breast tuberculosis in a postmenopausal woman with an insidious manner: a case report

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Abstract

Mammary tissue, skeletal muscle, and spleen are less frequently affected by mycobacterium tuberculosis (TB). The most common age for breast TB is between 50 and 70. On this article, we are reporting a 72-year-old woman who presented with chronic cough, lobar consolidation in right middle lobe (RML) on the CXR, and a mass in her right breast revealed on the physical examination. Biopsy from the breast lesion showed granulomatous changes and acid fast bacilli were detected by bronchoalveolar lavage. Treatment for TB was begun and the patient showed significant improvement.

Based on the patient's age, breast carcinoma was suspected first. Sinus formation was found on her breast ultrasound. This is a common finding and not diagnostic for TB. Our report is a reminder that although breast masses in older women tend to be more malignant, tuberculosis should be considered in differential diagnosis, especially in postmenopausal women. Moreover, breast TB can present with insidious growth without any symptoms.

Keywords: Breast, lung, mycobacterium tuberculosis.

Introduction

Many organs could be affected by Mycobacterium tuberculosis (TB). However, mammary tissue, skeletal muscles, and spleen are not usually affected because of their exclusive protective process [1]. Due to the importance of breast masses, breast carcinomas or pyogenic abscesses should be considered as the differential diagnosis [2,3]. The incidence of mammary tuberculosis is less than 0.1% worldwide. Mammary tuberculosis has been responsible for 3% of treatable breast lesions [4-7]. However, due to the rise in the number of immunodeficient patients and inclining rate of migration from endemic countries with TB, there has been an increase in the incidence of mammary tuberculosis [8,9].

Despite some reports of breast TB in men, there is a sex predominance of this disease in women [4,6,7]. Constitutional symptoms such as fever, night sweats, and weight loss are reported in the majority of patients with

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Fig1. Air space lesion in RML.

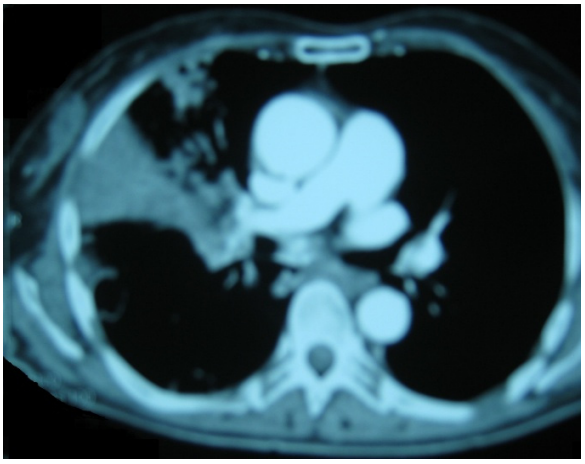

Fig. 2. Lung and breast involvement.

mammary tuberculosis [4,6,7].

Sinus formation and retraction of the nipple could be seen in these patients. Moreover, lymphadenopathy has been reported in 15% of patients with mammary tuberculosis, which can also be seen in breast malignancies [10-13]. While the average age of patients diagnosed for the first time with breast TB has been between 50 and 70 [14], here we report a 72-year-old, post menopausal woman who presented with cough associated with pulmonary and breast involvement with tuberculosis.

Case report

A 72-year-old woman presented with chronic non productive cough during the past 6 months. Her cough did not cease with usual antibiotics and corticosteroid therapy. She did not complain from nocturnal sweating, fever, or shivering, but had significant weakness and experienced about 15 kg of weight loss during the course of past six months.

Her past medical history included diabetes mellitus for 30 years, hypertension, and coronary artery disease. She had no history of using contraceptives, cigarette smoking or significant trauma. She also had no physical contact with an individual with known TB.

On the physical examinations, a mobile 3 X 4 cm non tender mass in supralateral region of her right breast was noted. Her right nipple was a bit retracted. Based on patient's confession, this retraction appeared about 45 years ago. No significant lymphadenopathy in the ipsilateral axillary region or the rest of her body was detected.

Patient had a coronary angiography one month earlier and considered to be a candidate for coronary artery bypass graft surgery (CABG). A chest X-ray (CXR) was obtained

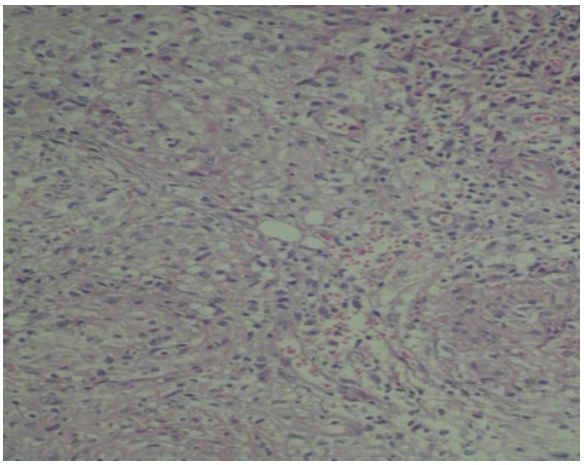

Fig. 3. Granulomatosis lesion in breast.

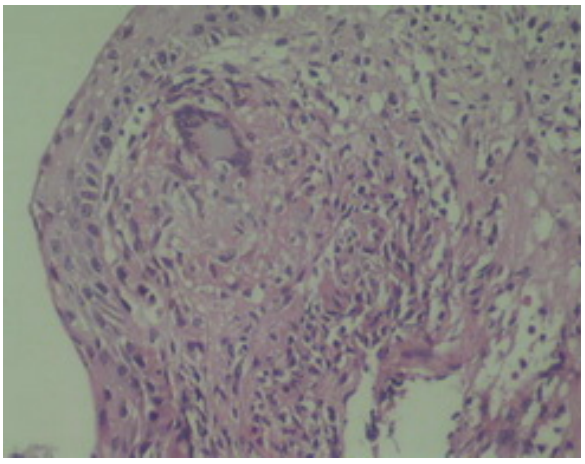

Fig. 4. Granulomatosis lesion in lung.

as a part of pre-operative work up and revealed an airspace disease on the right middle lobe and ill defined infiltrates at both apices of the lungs (Fig. 1). Lung involvements were confirmed by computed tomography (CT). The complete blood count (CBC), liver function testing (LFT), ESR, and CRP were all within normal range.

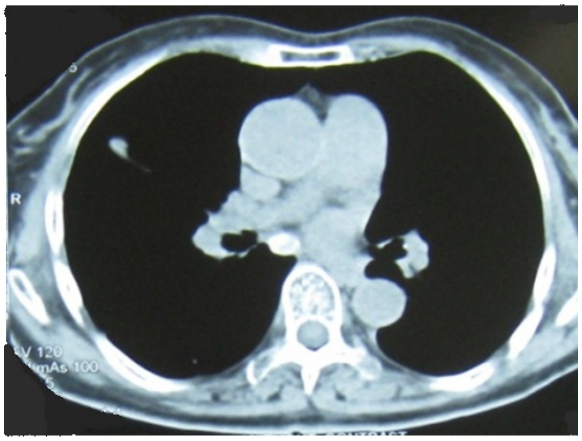

Fig. 5. Lung and breast after treatment.

The CT findings revealed a large alveolar consolidation with air boronchogram and a thick wall cavity measured 18mm was detected in right middle lobe (Fig. 2). Diffused reticulonodular pattern with centrilobular nodules and tree-in-bud appearance were detected in the right lung. Several similar patchy lesions were also seen in left lower lobe.

A needle guided biopsy was done from the right breast mass which showed a necrotizing granulomatous process (Fig. 3). A similar granulomatous inflammatory pattern was reported from the endobronchial biopsy of the right middle lobe lesion of the lung. (Fig. 4) Additionally, acid fast bacilli were found from the bronchoalveolar lavage (BAL).

Treatment for tuberculosis was initiated with standard four-drug regimen. The chest CT scan after 6 months of treatment showed remarkable improvement (Fig. 5).

Nonetheless the result of bronchoalveolar lavage culture for Acid fast bacilli was negative 2 month after treatment.

Discussion

Breast involvement is not common due to mammary tissues presumed resistance to Mycobacterium tuberculosis [8,15]. Dilatation of lobular ducts during pregnancy and lactation can increase the risk of breast TB in women [4,16,17]. Pre-menopausal women are more prone to breast tuberculosis. However, appearance of a breast mass in older and post-menopausal women may imitate malignancy. Due to the increase of immunodeficiency associated conditions, the mean reported age of breast TB has decreased to 33 [11- 13,15].

Although our patient had history of previous pregnancy, but the age of discovering the breast TB was on her eighth decade of life. Furthermore, she had no specific symptoms and her disease was revealed incidentally during a preoperative work up on the chest X-ray.

Breast involvement with TB is usually followed by involvement of other organs with the disease as a part of secondary tuberculosis. However, a form of primary breast tuberculosis that involves breast tissue isolated from other organs has also been reported. Primary breast tuberculosis could be caused by an infected foreign body during the lactation period. Secondary mammary TB regularly involves breast through hematogenous route, axillary lymph nodes, or mediastinal organs especially the lungs [1,8,18-20].

The most common symptom of breast tuberculosis is a painful mass in the supralateral part of the breast. The pain is caused by cohesion of the mass to the chest wall muscles or skin and the resultant inflammation. Skin involvement sometimes leads to nipple retraction and sinus formation [11,12,21]. However, skin involvement is not common in breast tuberculosis [22,23].

Other symptoms and clues consist of previously drained abscess, mastalgia (mastodynia), and multiple discharging sinuses.

Although there were coughs, weight loss and CXR findings but no other organs involvement signs in the presented patient. A nipple retraction was detected that was ignored by patient because it had no change in shape or size since 45 years ago.

Based on our patient's age, pulmonary infiltrates, and weight loss, a metastatic breast

carcinoma was initially considered as the most likely diagnosis. The mammography, computed tomography and imaging magnetic resonance (MRI) findings usually cannot differentiate a granulomatous lesion, so for definite diagnosis needle aspiration or surgical biopsy should be done. Clinical clues that may suggest TB, as opposed to a malignancy, included recurring abscesses despite adequate drainage and antibiotic therapies. Additionally, sinus formation could be accounted for TB although it is not diagnostic. Serological tests, cultures, staining and histological findings following the biopsy are the best suggested methods for confirming TB or other benign conditions. The specimen culture could be negative for Mycobacterium tuberculosis [13,23-27]. In our patient, tuberculin skin test with purified protein derived (PPD) was negative.

None of the previous reported cases recognized before fine needle aspiration (FNA). Therefore, increase awareness to this condition and its rare presentation may improve management of the disease and expedite the proper treatment. In our patient, granulomatous process was detected through biopsy.

In mammography, three patterns can be seen: 1) Nodular form is the simplest one seen in the youngs. 2) Sinus form due to adjoining of nodular form to each other. 3) Sclerosing form that is seen in older people and is not accompanied by nipple retraction [6,8,19,28].

In ultrasonography, sinus formation is regularly seen as a heterogeneous, hypoechoic, and irregular bordered lumps which is not diagnostic for TB [18,20].

In this case, mammography was not performed, but sinus formation detected by sonography.

The chest CT findings in the presented patient, revealed a large alveolar consolidation with air boronchogram and a thick wall cavity measured 18mm in right middle lobe. Diffused reticulonodular pattern with centrilobular nodules and tree-in-bud appearance were detected in the right lung. Several similar patchy lesions were also seen in left lower lobe.

Treatment for breast tuberculosis includes anti TB therapy and on occasions surgical interventions. [27]

Conclusion

Although all cases reported previously were in women within the productive age period, our patient did not follow this trend. Moreover, breast TB may present with insidious behavior or without any symptoms, or in the case of associated lung involvement possibly such as the reported patient, could be with none productive cough. Breast masses in older women are more likely to be malignant. However, tuberculosis of the breast should also be considered in women who are in post-menopausal period as one of the uncommon, but yet important differential diagnosis.

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