

About 10 Diagnosis of Primary Breast Tuberculosis: Case Series

Benali Saad^{1*}, Babahabib Abdellah², El Hassani Moulay El Mehdi² and Kouach Jaouad³

¹Obstetrics Gynecology Department, Mohamed V Rabat Military Training Hospital, Morocco

²Obstetrics Gynecology Department, Mohamed V Rabat Military Training Hospital, Faculty of Medicine and Pharmacy of Fez, Sidi Mohamed Ben Abdellah University, Morocco

³Obstetrics Gynecology Department, Mohamed V Rabat Military Training Hospital, Faculty of Medicine and Pharmacy of Rabat, Mohamed V University, Morocco

***Corresponding Author:** Benali Saad, Obstetrics Gynecology Department, Mohamed V Rabat Military Training Hospital, Morocco.

Received: April 30, 2021; **Published:** May 08, 2021

Abstract

Breast tuberculosis is an extremely rare pathology, it comes at the last rank in the list of organs that can be affected by tuberculosis. Its incidence is considerable especially since recrudescence of HIV infection. We report in the present work a retrospective study relating to 10 cases of women with breast tuberculosis collected in department of gynecology and obstetrics in Military Hospital of Instruction Mohamed V of Rabat-Morocco..

Keywords: Breast Tuberculosis; Diagnosis; Antitubercular; Case Series

Introduction

Breast tuberculosis comes at the last rank in the list of organs that can be affected by tuberculosis. It represents 0,06%. It affects young women in their genitally active period [1]. However, there is a major issue of the differential diagnosis with other mammary pathologies, either benign or malignant, including breast cancer due to clinical and radiological similarities [2]. Treatment is actually based on antitubercular chemotherapy, occasionally associated to surgery.

Case Series

We report 10 cases of primary breast tuberculosis, brought together in our service. Through the analysis of our results and literature data we focus on clinical, radiological and therapeutic characteristics of breast tuberculosis. We insist on the difficulties of differential diagnosis with other breast diseases especially breast cancer.

Materials and Methods

It's a retrospective study spread over a duration of 7 years between January 1st 2010 and December 31st 2016, including 10 patients with breast tuberculosis and taken care in our training (Military Hospital of Instruction Mohamed V, Rabat, Morocco).

Outcomes

Epidemiological data

The average age of our patients was about 42,8 years old with extremes from 21 to 60 years. The age group most was between 40 and 50 years old with a frequency of 40 and 80% of our patients in their genitally active period.

4 patients were multiparous, followed by nulliparous 30% then pauciparous 20% and lastly primiparous 10%.

The notion of tuberculosis contagium was noted just with two patients.

Clinical data

The average deadline of consultation in our series was about 4 months and half ranging from 2 to 8 months. Clinical symptoms reported from our patients were about breast node in 50% of cases, breast abscess in 50% of cases (Figure 1), fistula in 40% of cases, axillary nodes in 30% of cases, mastalgia in 20% of cases and nipple discharge in one case.



Figure 1: Clinical image showing bilateral breast abscess.

Breast tuberculosis was unilateral in 90% of cases with right predominance (70%). Whereas one patient has bilateral disease. Lesions were localized on external quadrant in 50% of cases, 20% in the internal one and localization in all the breast at 40% of cases.

Paraclinical data

Mammography was done in 60% of cases. several images were observed but no specific radiological sign was evocative of tuberculosis. Principal mammography aspects were: additional opacities in 30% of cases, thickening of the skin in 30% of cases and badly limited stellar opacity in 10% of cases (Figure 2).

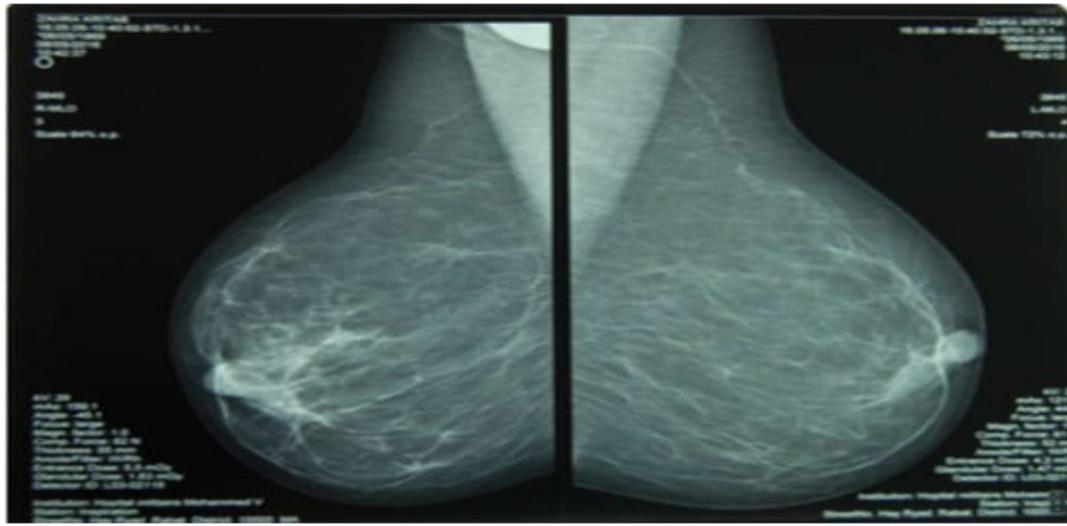


Figure 2: Mammographic image showing stellar opacity in the right breast.

Breast ultrasound was done at eight patients and different aspects were about hypoechoogenic and heterogenous images in 60% of cases, thickening of the skin in 40% of cases, breast node in 20% of cases and liquid formation in 20% of cases.

Breast MRI was done in two cases and showed in the upper-inner quadrant of the right breast, a lesion with heterogenous signal and disseminated lesion in the inferior-inner quadrant of right breast, taking the contrast. (BIRADS V) (Figure 3) whereas, at the second patient, the MRI showed heterogenous matricial enhancement with dilatation of galactophoric canals (BIRADS III).

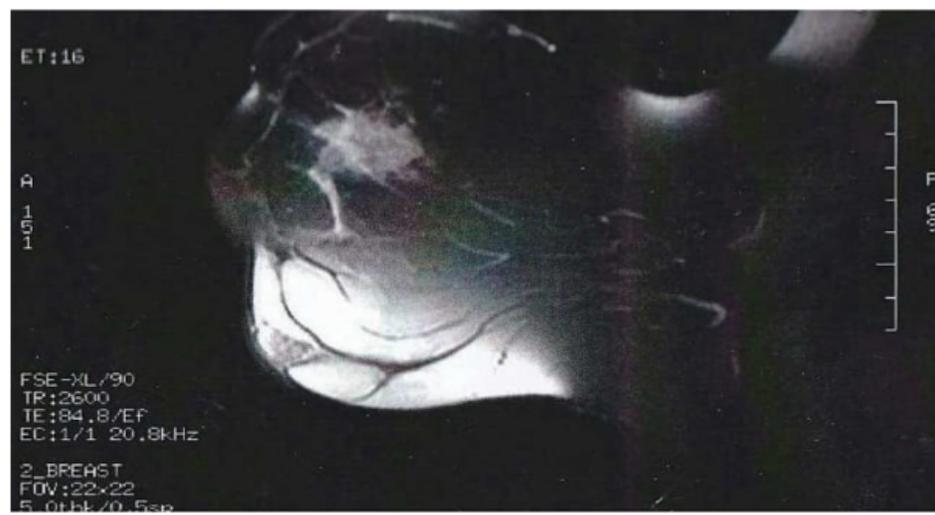


Figure 3: Breast MRI image showing heterogenous lesion classified BIRADS V.

Chest X-ray was normal in all cases.

Histological examination showed in all cases granulomatous epithelial-giganto-cellular mastitis with caseous necrosis in 80% of cases and without caseous necrosis in 20% of cases.

The Quantiferon-TB came up positive at two patients.

The bacteriological analysis of pus showed an important cellular reaction along with positive culture in one case.

Therapy

The therapeutic management of our patients consists of two components:

- Medical treatment with anti-tuberculosis antibiotics following the protocol of Moroccan national tuberculosis program.
- Surgical treatment including: Draining abscesses (30%), exeresis of a residual node (10%), mastectomy of cleanliness (10%).

Evolution

Evolution was favorable in all cases with a decline of 10 to 60 months.

Discussion

Epidemiology

Mammary tuberculosis is an extremely rare pathology. It represents between 0,025 to 4,5% of breast pathologies. Its low frequency could be explained by the nature of the mammary tissue, not propitious enough for the proliferation of the tubercular bacilli [1,3].

Breast tuberculosis is mostly encountered in tuberculosis-endemic countries. For KHAIZ in a study about 215 cases, Asia has the largest percentage with 45,2% of reported cases, followed by 27,5% in Black Africa, 17,2% in North Africa, 16,2% in Europe and 4% in America [4,5].

Breast tuberculosis affects young women in their genitally active period from 20 to 40 years old [6].

In our study: the middle age was 42,8 years old, 7 patients from 10 had a middle age between 30 - 50 years old and 2 patients from 10 had more than 50 years old.

Breast tuberculosis is influenced by physiological activity of the breast, so that explains its high frequency among women in their genitally active period and its rarity before puberty and after menopause [7].

Multiparity appears to be important for determinism of the disease, indeed, breast tuberculosis is more frequent at multiparous women [8].

Pregnancy and breastfeeding are also risk factors, indeed, the vascular wealth of gland in these moments of life explains its big susceptibility to tuberculosis [9].

In our study: 8 patients were in genital period activity, and 4 of them were multiparous and 3 nulliparous, 2 patients were menopausal.

Transmission routes

Breast Tuberculosis is considered primary in the absence of any other localizations, which is the most frequent case. It is considered secondary if the infection has started in another localization (lymph nodes, intra-thoracic, osteoarticular, urogenital).

There are five ways of extension:

- Lymphatic system: It's the most frequent one, it spreads by antegrade or retrograde extensions through the lymphatic vessels from intra-thoracic, cervical, supraclavicular or axillary lymph nodes [11].
- Hematogenous system: It's rarely reported, indeed, the location of the hurts is not determined by the position of vessels but by the lobular or duct structure of the breast gland [12].
- Extension by contiguity: Done by adjacent foci, as pleural, costal, or sternal lesions. Sometimes it can be direct extension from the lung [13].
- Penetration from nipple through galactophorous ducts: Especially during pregnancy and breast-feeding when dilated ducts are susceptible to infection [14-16].

In our study, all the patients had primary breast tuberculosis because no one of them had a personal history of lung tuberculosis or other localization.

Clinical diagnosis

The diagnosis is always difficult because of similarities with several affections especially with old women where breast cancer is the essential preoccupation and also because of the lack of specificity of clinical and radiological signs. Only histopathological examination gives certain diagnosis.

However, some clinical criterias are useful to let us think about tuberculosis such as [19]: Pathological history of lung tuberculosis is often reported in literature, it can be sometimes extra-respiratory tuberculous localization [20]; notion of tuberculous contagion is very rare [21].

In our study, there is no pathological history of lung tuberculosis but tuberculous contagion was reported in two cases.

The delay of consultation is frequently found, indeed, patients consult after a variable deadline ranging from one week to five years [5], which testifies of the chronicity of affection. In our study, the middle deadline of consulting is about 4 months.

Breast examination shows an increase in volume. However, in sclerous forms, mammary gland can decrease in size. The breast achieves in its entirety is bigger than the other one and presents sometimes collateral flow, eczematous lesion or crusted lesion [20].

The lesions are often at the level of the upper outer quadrant, maybe because of the proximity from axillary areas. Other quadrants can also be affected [22,12]. Breast tuberculosis is often unilateral, bilaterality has only been observed in 3% of cases [22,23]. In our study, the lesions were unilateral especially in the right breast (7 cases) and more pronounced in the outer quadrants (5 cases).

Tumor mass is often unique, multiple nodes are less frequent [24]. Indeed, KHAIZ [5] described a case of breast tuberculosis with two nodes in the same breast. In our study, 7 patients had unifocal lesion and 2 patients had multifocal lesions.

Paraclinic

Mammography

We don't have specific mammographic signs of breast tuberculosis. Mammography shows suspicious images that might indicate malignant lesion. Taking into account this lack of specificity, mammography represents an element of diagnostic orientation.

Breast tuberculosis has 4 aspects on mammography [2]:

- A dense mass of variable size and shape, with well-defined margins shape and without skin thickening.
- An oval area with undefined contours with skin retraction suggestive of malignancy.
- Stellar dense opacity with skin retraction and thickening.
- Thick, irregular margins with an abnormal architecture and a micronodular lesions of the breast. It often associated with significant Skin thickening and the aspect of miliary breast tuberculosis.

Breast ultrasound

Shows heterogenicity evocating mastitis. The most common aspect is: less limited heterogeneous hypoechoic mass with discrete posterior reinforcement [25].

As with any collection, ultrasound can be instrumental to guide punctures and biopsies. It allows us also to follow evolution under medical treatment for judging its efficacy.

The association of mammography and breast ultrasound increases the sensibility and the specificity of this two exams.

Breast MRI

MRI aspects are: grip of intense and early contrast, irregular peripheric enhancement and focused nodes. These aspects aren't specific and can be found with carcinoma and other abscesses. However, MRI helps in staging especially extension to chest wall.

Chest X-ray

Systematic in breast tuberculosis because of frequently association of pneumonic location [26]. In our study, chest X-ray results were without abnormalities.

Examinations of certainty

Most often, it is the histological examination of the biopsy specimens that determines the diagnosis by revealing the presence of epithelioid follicles and Langhans giant cells, with caseous necrosis.

The presence of tuberculoid lesion with incomplete or outlined follicle can correspond to other granulomatous affections such as leprosy or breast sarcoidosis [28].

Determination of granulomatous lesion with epithelioid follicles and Langhans giant cells and also with caseous necrosis is not pathognomonic of tuberculosis. Indeed, some granulomatous mastitis with caseous necrosis aren't tuberculosis such as: cryptococcosis, plasmocytosis, tularemia, blastomycosis, histoplasmosis and cellular response with giant cells. In these cases, bacteriological study is necessary.

Bacteriological study is formal argument for diagnosis. It allows the identification by direct examination and BAAR culture from aspiration cytology or biopsy or in secretions of mammary fistula [29].

New methods of identification:

- QuantiFERON gamma test: Positive results show indirectly presence of tuberculosis infection active or dormant. Because of their higher specificity, they are less positive than tuberculinic tests [30].
- Early detection of growth: It's the respirometer radiometric or "bactec system" based on measuring of marked carbon dioxide (C14) which is released by mycobacterium [31].
- Clinical diagnosis by genetical PCR amplification: Results are obtained in 24 to 48 hours and specificity is excellent about 100% [31].
- Serologic test of tuberculosis: It's a real serodiagnosis of extra-pulmonary tuberculosis by detection of monoclonal antibody anti antigens of mycobacterium tuberculosis [32,33].

Differential diagnosis

- Breast cancer: Which should be the first concern of all physicians because of its high frequency and also its important clinical and radiological similarities especially in the beginning of evolution [34,35]. It has been suspected in two cases in our study.
- Breast abscess: Principal differential diagnostic at young women. Difficulties of diagnostic access are variable depending on evolution of mastitis [36].
- Benign mastopathy: Difficulties of differential diagnostic especially at young women [37].
- Paget's disease: Appears classically in the form of splotchy blotchies eczematiform in the areolar region, mostly unilateral [20].

Treatment

It is identical to that of the other extra-pulmonary tuberculosis sites according to the national tuberculosis control program. It consists of an intensive phase combining Isoniazid, Rifampicin and Pyrazinamide for 2 months, followed by a consolidation phase involving Isoniazid and Rifampicin for 4 months: 2RHZ/4RH. Anti-tuberculous chemotherapy is controlled and administered primarily as an outpatient treatment [38-40].

All patients in our study received their chemotherapy in collaboration with pneumologist according to the national tuberculosis control program.

The indication of surgery is limited. It remains necessary for diagnosis (through biopsy) however as a therapeutic mean, it is recommended especially in second intention if there was a bad response to medical treatment. Surgery would involve the lump excision or the drainage of abscess, by resecting as much as possible the necrotic and infected tissues, or by a segmentectomy (quadrantectomy) or total mastectomy, if the breast is completely ravaged and riddled with fistulas.

In our study, 30% of patients have benefited of put in dish of pus collections with surgical biopsies and one patient had mastectomy of cleanliness.

Prognosis

Locally, non-treated breast tuberculosis has bad prognosis, because it will invade all the breast; the disease may extend to the posterior wall of the gland collapsing chest wall and pleural cavity [41].

When treatment is early started and well done, breast tuberculosis has good prognosis in most cases.

In our study, we had favourable trend for all patients.

The life is not threat for the patient when mammary tuberculosis is isolated. Meaning, the vital prognosis depends on the other tuberculous localizations which must be systematically investigated with the utmost attention. These extra-mammary localizations might be progressive or quiescent [19].

Conclusion

Breast tuberculosis is rare even in endemic countries. However, it deserves to be studied due to its extreme resemblances to breast cancer. It affects mainly young women during their genitally active periods. It is promoted by: multiparity, pregnancy, lactation and immunosuppression, especially HIV infection.

Radiological and clinical exam don't reveal any specific signs, hence the need for a bacteriological study and histologic examination to ensure and confirm the diagnosis.

The treatment is mainly medical. However, surgical treatment is useful in case of doubt or after the failure of medical treatment. The outcome under treatment is generally favorable.

Improving the prognosis of mammary tuberculosis involves an early diagnosis and physician insight.

We shall stress on the importance and the crucial need to promote the preventive means prevention in order to eradicate this disease.

Consent

Patients did verbal consent.

Conflicts of Interest

All authors have no conflict of interest.

Bibliography

1. Agoda-Koussela LK., *et al.* "Tuberculose mammaire: A propos d'un cas". *J Afr Imag Méd* 6.3 (2014): 73-77.
2. Zekri H., *et al.* "Oen collaboration La tuberculose mammaire à propos de dix cas". *Journal Marocain des Sciences Médicales* 17.2 (2010): 19-22.
3. Zouhal A., *et al.* "MT Les tumeurs pseudonéoplasiques du sein: Tuberculose Mammaire à propos de 2 cas". *Médecine du Maghreb* 82 (2000): 11.
4. Zandrino F., *et al.* "Primary tuberculosis of the breast. A case report". *Acta Radiologica* 41.1 (2000): 61-63.
5. Khaiz D., *et al.* "Tuberculose mammaire. À propos de deux cas". *La Semaine des Hôpitaux* 69 (1993): 454-458.

6. Pricop F, *et al.* "La tuberculose mammaire: à propos de deux cas". *Revue Française de Gynécologie et d'obstétrique* 91 (1996): 381-382.
7. Hale JA, *et al.* "Tuberculosis of the breast: rare but still existent review of the literature and report of an additional case". *American Journal of Surgery* 150.5 (1985): 620-624.
8. Khaiz D, *et al.* "Tuberculose mammaire. À propos de deux cas". *La Semaine des Hôpitaux* 69 (1993): 454-458.
9. Kakkar S, *et al.* "Tuberculosis of the breast. A cytomorphologic study". *Acta Cytologica* 44.3 (2000): 292-296.
10. Elmrabet F, *et al.* "Tuberculose mammaire". *Medicina Tropical* 62 (2002): 77-80.
11. Leleu O, *et al.* "Tuberculose mammaire". *La Revue des Maladies Respiratoires* 14 (1997): 401-403.
12. Ei Mansouri A, *et al.* "Tuberculose mammaire: à propos de trois cas". *La Semaine des Hôpitaux* 69 (1993): 1277-1279.
13. Pieron R, *et al.* "Un cas de tuberculose mammaire chez une africaine". *La Semaine des Hôpitaux* 61 (1985): 2373-2376.
14. KK OH, *et al.* "Imagining of tuberculous disease involving breast". *European Radiology* 8 (1998): 1475-1480.
15. Hamit HF and Ragsdale TH. "Mammery Tuberculosis". *Journal of the Royal Society of Medicine* 75 (1988): 764-765.
16. Ei Hanchi Z, *et al.* "Tuberculose mammaire: à propos de huit cas". *Revue Française de Gynécologie et D'obstétrique* 93 (1998): 331-334.
17. Veyssiere C, *et al.* "Difficultés diagnostiques de la tuberculose mammaire". *Lille Chirurgical* 22 (1967): 104-109.
18. Goldman KR. "Tuberculosis of the breast". *Tubercle* 59.1 (1978): 41-45.
19. Ben Hassouna, *et al.* "Mammary tuberculosis: a retrospective study of 65 cases". *Gynécologie Obstétrique et Fertilité* 33 (2005): 870-876.
20. Salem A, *et al.* "Double localisation tuberculeuse mammaire et rachidienne: à propos d'un cas". *Journal de Gynecologie, Obstetrique et Biologie de la Reproduction* 33.2 (2004): 148-150.
21. Ducroz B, *et al.* "Tuberculose mammaire bilatérale: un cas". *Journal de Gynecologie, Obstetrique et Biologie de la Reproduction* 21 (1992): 484-488.
22. Wilson JP and Chapman SW. "Tuberculous mastitis". *Chest* 98.6 (1990): 1505-1509.
23. Shinde SR, *et al.* "Tuberculosis of the breast masquerading as carcinoma: a study of 100 patients". *World Journal of Surgery* 19.3 (1995): 379-381.
24. Al Marri MR, *et al.* "Primary tuberculosis of the breast in Qatar: ten years experience and review of the literature". *European Journal of Surgery* 166.9 (2000): 687-690.
25. Ainab I, *et al.* "Les aspects radiologiques de la tuberculose mammaire".
26. Goyal M, *et al.* "Chest wall Tuberculosis simulating breast carcinoma: Image appearance". *Australasian Radiology* 42.1 (1998): 86-87.
27. Mendes W, *et al.* "Breast tuberculosis: case report and literature". *Revista do Hospital das Clinicas da Faculdade de Medicina da Universidade de Sao Paulo* 51.4 (1996): 136-137.
28. Collins CH and Grange JM. "The bovine tubercle bacilli". *Journal of Applied Bacteriology* 55 (1983): 13-29.
29. Mahjoub H. "La tuberculose mammaire". Thèse de Doctorat en Médecine Tunis (1992): 111.

30. El Baraka Yassine. "Etude rétrospective de la prise en charge des malades atteints de la tuberculose: à propos de 1725 cas". Thèse de médecine N° 167. Faculté de médecine et de pharmacie fès: 31 (2015).
31. Herrman JL and Lagrange P. "Bactériologie de la tuberculose et des infections à mycobactéries atypiques". EMC, Pneumologie (1999): 6-019-A-34.
32. Guillet-Caruba C., *et al.* "Les nouveaux outils de diagnostic microbiologique de la tuberculose maladie". *La Revue de Medecine Interne* 35.12 (2014): 794-800.
33. Sharma N. "Diagnostic Value of PCR in Genitourinary Tuberculosis". *Journal of Clinical Biochemistry* 28.3 (2013): 305-308.
34. Soto C., *et al.* "Tuberculosis of the breast: imaging findings in two patients". *Radiology* 50.6 (2008): 518-521.
35. D'Souza MM., *et al.* "Tuberculosis mimicking malignancy". *Hellenic Journal of Nuclear Medicine* 12.1 (2009): 69-70.
36. Chandhuri M., *et al.* "Breast lumps: a study of 10 years". *Journal of Indian Medical Association* 93.12 (1995): 455-457.
37. Ben Hassouna J., *et al.* "La tuberculose mammaire: étude rétrospective de 65 cas". *Gynécologie Obstétrique & Fertilité* 33.11 (2005): 870-876.
38. Guide De La Lutte Antituberculeuse. Ministère de la santé publique. Maroc (2001).
39. "OMS: Le traitement de la tuberculose: principes à l'intention des programmes nationaux". WHO/CDS/TB 2003.313.
40. Maher D., *et al.* "Traitement de la tuberculose: principes à l'intention des programmes nationaux". WHO/TB/97.220.
41. Salem A., *et al.* "Imagerie des mastites granulomateuses". *Image Femme* 18 (2008): 46-54.

Volume 10 Issue 6 June 2021

©All rights reserved by Benali Saad., *et al.*