

# Breast tuberculosis. Description of 31 cases with etiological confirmation of infection with *Mycobacterium tuberculosis complex*.

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## Introduction

Breast tuberculosis (BT) is a rare manifestation of extrapulmonary tuberculosis. It is responsible for 0.025 -1.21% of breast disorders and generally affects young women, most often in countries where tuberculosis is endemic<sup>(1,2)</sup>. The diagnosis of this condition is usually challenging, as it is a paucibacillary infection, which leads to delayed diagnosis (ranging from 3.7 to 9 months) and high morbidity<sup>(3)</sup>. However, immediate initiation of treatment reduces the risk of complications.

When the etiologic agent (fungal or bacterial) of mastitis is not identified by anatomopathological or laboratory examination, like microbiological or molecular biology methods, it is called idiopathic granulomatous mastitis (IGM)<sup>(4-6)</sup>.

Although IGM is considered a benign inflammatory disease, its treatment is still uncertain and includes antibiotics, immunosuppressors and even surgery, leading in some cases to deformity of the breast and prolonged morbidity.

The differential diagnosis between BT and IGM depends on the identification of the etiologic agent. Automated liquid culture systems have considerably improved the treatment of breast tuberculosis due to the earlier recovery of mycobacterium<sup>(7,8)</sup>.

## Methods

From February to September 2019, 34 women who sought the outpatient clinic with mastitis for longer than 1 month and that did not respond to antibiotics treatment were submitted to the following diagnostic protocol:

- 1) breast core needle biopsy and/or
- 2) microbiological investigation of secretions obtained by fine needle abscess aspiration, papillary discharge or breast fistula, using direct examination (mycobacterium and fungus). If positive, even the MGIT or Myco/F lytic system (BD®), the content was submitted to a MPT64 protein by immunochromatography test and/or (Figure 1)
- 3) Real time DNA polymerase chain reaction for Mycobacterium tuberculosis complex (RT PCR-MTB) by Abbott®

Table 1. Demographic and clinical characteristics of 34 patients with granulomatous mastitis at admission, Sao Paulo, Brazil.

Variables	Total, N=34 N(%)
Age*	38 (32-42)
Skin color (white)	22 (65)
Schooling years*	12 (10-12)
Obstetrical characteristics	
• Gestation number	2 (1-3)
Number of children who were breastfed.	2 (1-3)
Time between breast feeding and diagnosis (month)*	30 (12-41)
Epidemiology for tuberculosis	
• Previous contact	7 (20,6)
• Previous treatment	3(9)
Clinical presentation	
Time between onset and diagnosis (month)*	8 (5-18)
Breast lump area (cm <sup>2</sup> )*	42 (16-80)
Axillary ganglia	5 (15)
Bilateral presentation	11(32)
Fistulized breast abscess	30(88,2)
Papillary discharge	181 (38)

\*Numeric variables are presented as medians and interquartile ranges

## Results

Figure 1. Breast tuberculosis patient before and after treatment with RIPE (rifampicin, isoniazid, pyrazinamide and ethambutol)

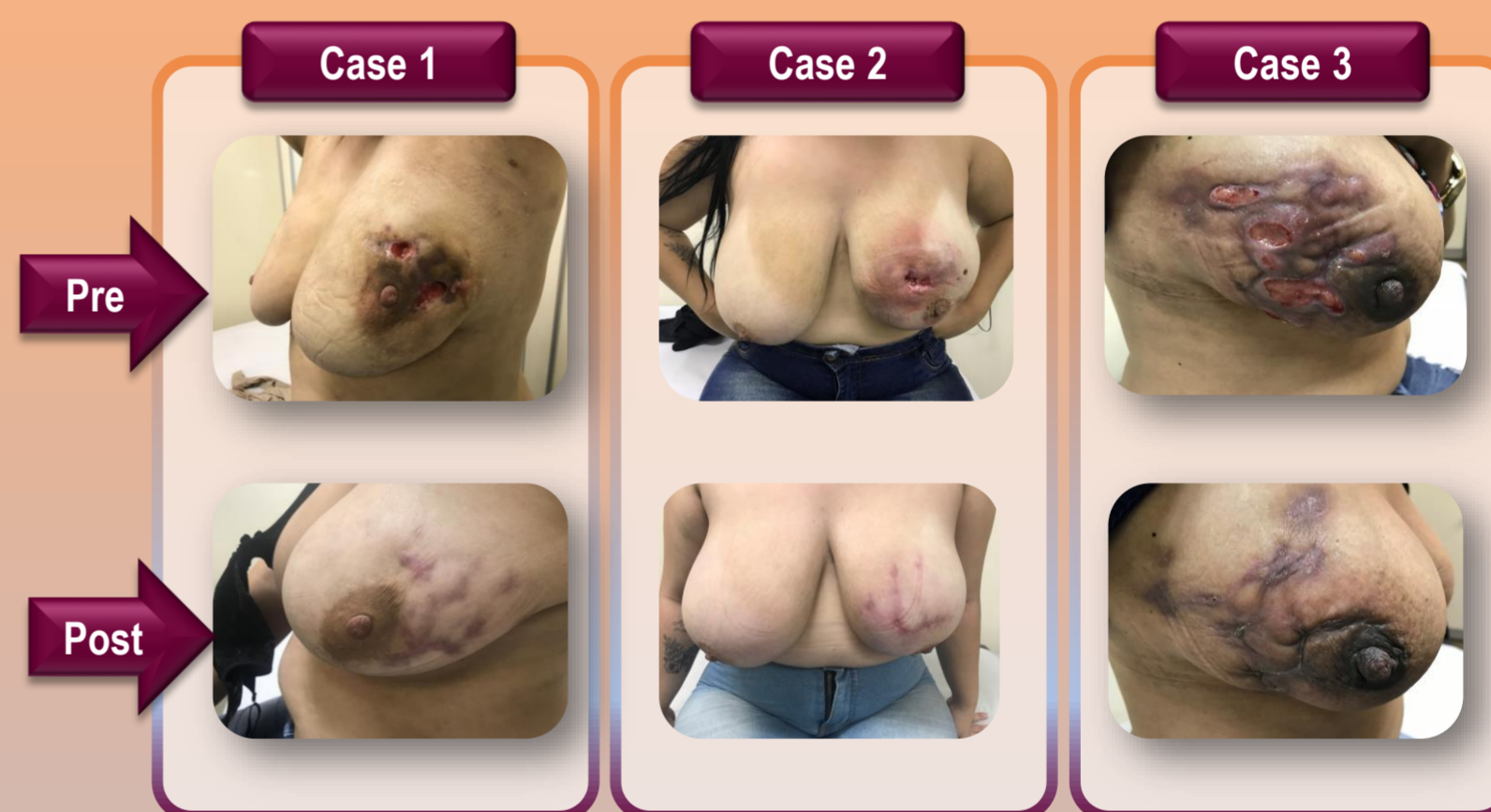


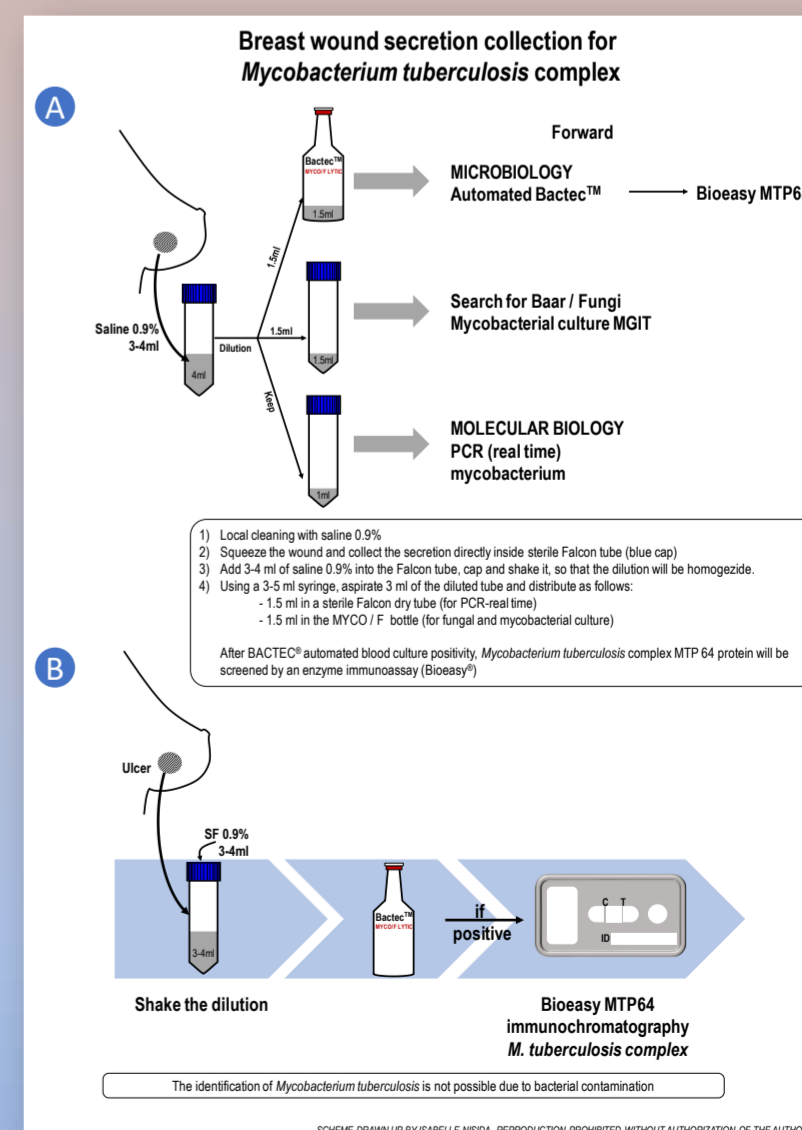
Table 2. Laboratorial characteristics of 34 patients with granulomatous mastitis at admission, Sao Paulo, Brazil

Variables	Total, N=34 N(%)
Hemoglobin*	12,9 (12,3-13,4)
Leucocytes*	8300 (5965-9560)
Protein C reactive*	9,10 (1,9-26,7)
ANCA#	2 (6,7)
Negative Tuberculin skin test <sup>1</sup>	25 (68)
Histopathological exam <sup>2</sup>	20 (67)
• Granuloma without necrosis	12 (60)
• histiocytic/plasmocytic cells <sup>2</sup>	8 (40)
Microbiology	
Fistulized/papillary breast secretion	
• Acid fast bacilli test <sup>3</sup>	4(13)
• Direct fungus test <sup>3</sup>	0
• Myco/F Mycobacterium <sup>4</sup>	31(91)
• Myco/F fungus <sup>5</sup>	2(6)
• MGIT <sup>6</sup>	1(3%)
• RT PCR-MTB <sup>7</sup>	0

<sup>1</sup>Tuberculin skin test - 4 patients missed; <sup>2</sup>Histopathological. - 5 patients missed; <sup>3</sup>Acid fast bacilli test - 7 patients missed; <sup>4</sup>Myco/F lytic system (BD®) (Mycobacterium and fungus) if positive was submit to MPT64 protein by immunochromatography and/or 3); <sup>5</sup> *Candida parapsilosis* isolated <sup>6</sup> MGIT - 9 patients missed

<sup>7</sup>Real time DNA polymerase chain reaction for *Mycobacterium tuberculosis complex* (RT PCR-MTB) by Abbott® - 7 patients missed

Note - breast biopsy specimens have been submitted to acid fast bacilli/fungus search, MGIT and RT PCR-MTB and all resulted negative.



## Conclusion

Collection of breast secretion and inoculation in the Myco/F lytic culture system are helpful diagnostic tools for breast tuberculosis and provide timely diagnosis within 15 days.