



## Gas Gangrene of the Breast

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### Abstract

Gas gangrene of the breast is a rare infection with a high mortality. We report a case of a gas gangrene of the breast in young non lactating woman. Non-of reported in the literature causes of gangrene were observed in our patient. Never the less, diagnosis was proved by microbiological and histological data. A prompt diagnosis and appropriate source controlled to recovery of severely ill patient.

### Introduction

Gangrene as well as necrotizing fasciitis of the breast is often misdiagnosed as an abscess or cellulitis leading to treatment delays. On the later stages of the disease, the process becomes aggressive and takes the character of gangrene.

### Case Presentation

Mrs. K, 23 years, transferred to the ICU from the district hospital on the 7<sup>th</sup> day of the disease. On admission, the patient presented an inflammatory syndrome and shock: Hyperthermia 37.8°C, blood pressure 70/50 mmHg, heart rate 122 bpm, respiration rate 26 bpm to 28 bpm, WBC 8.73 with significant shift to the left, procalcitonin >100 ng/ml. Her left breast totally necrotized, significantly enlarged, bluish-black, edematous with hyperemia on the edges with a transition to the chest, fetid odor (Figure 1). Her past medical history included active nicotinism. The severity of the condition was assessed according to various scales: qSOFA-3, world society of emergency surgery sepsis severity score (WISS score)-11. Fluid resuscitation and antibiotic therapy with meropenem and metronidazole were initiated immediately. After stabilization of physiologic status, the patient was operated on. She underwent a necrectomy, which, due to the prevalence of the necrosis, turned out to be the same volume as a mastectomy (Figure 2). A bacteriological study revealed a massive growth of the anaerobic microflora *Peptostreptococcus* spp. histologically revealed a necrotic process (Figure 3) with purulent fusion (Figure 4) on the background of lobular fibroadenomatosis. Postoperative period was uneventful with the fast recovery. The hyperbaric oxygen treatment was not carried out given the fast improvement of symptomatology. The patient was discharged on the 28<sup>th</sup> day, refusing to have a breast reconstruction surgery.

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### Discussion

Inflammatory lesions of the breast are well known. Among them, the abscesses of the breast in lactating women are most frequent. The microorganisms responsible for breast infections originate



Figure 1: General view of the breast.



Figure 2: Specimen.



Figure 3: Mastectomy performed.

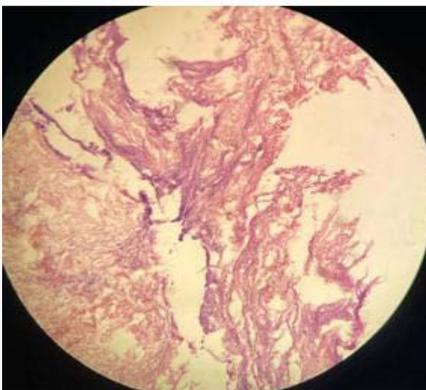


Figure 4: Histologically - tissue necrosis.

from the baby's nasopharynx or the mother's skin. In non-lactating women, other microorganisms, particularly anaerobic, are isolated [1]. Various causes of gangrene of the breast reported in the literature include thrombophlebitis, pregnancy and lactation, puerperal sepsis,

$\beta$ -hemolytic streptococcal infection, diabetes mellitus, plastic surgical procedures, mitral stenosis and carbon monoxide poisoning [1]. None of them were observed in our case. Patients often present in septic shock with multi-organ failure. Typical clinical examination findings include erythema, swelling, pain disproportionate to examination, necrosis, blisters or bullae formation, and crepitus [2]. Prompt assessment and treatment are pivotal for successful patient outcomes. The management of breast gangrene involves fluid resuscitation, broad-spectrum antibiotics, and surgical intervention [3-5]. The analysis of microbiology cultures reveals that 40.0% of infections are caused by polymicrobial flora and 20.0% - secondary to *Streptococcus pyogenes* [6]. Other infectious agents included *Streptococcus milleri*, *Serratia marcescens*, *Streptococcus sanguis*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Corynebacterium striatum* and *Clostridium septicum*. In our case, it was *Peptostreptococcus* spp. The presence of necrosis of lobules, adipose tissue, absence of fascial necrosis on the histology and identified pathogen are characteristic for gangrene, but not for necrotizing fasciitis.

## Conclusion

A diagnosis of gas gangrene of the breast was made on the basis of clinical and intraoperative findings. Microbiological and histological data confirmed the diagnosis. The case is of interest because breast gangrene developed in a young woman without known predisposing factors. In addition, the pathogen is also rarely detected. Nevertheless, a timely diagnosis and appropriate tactics led to a good outcome.

## Author Contribution

Khokha V: Study concept, corresponding author writing the paper. Pisch V, Borisenko V: writing the paper. Rogolevich N: Histopathology.

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