

## CASE REPORT

### STAPHYLOCOCCUS HOMINIS SUBSP. HOMINIS CAUSING NON-LACTATIONAL BREAST ABSCESS: A RARE PATHOGEN REPORTED

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**ABSTRACT:** Staphylococcus hominis subsp. hominis has been reported as an infrequent isolate of infectious process. Mostly it is considered as a contaminant or colonizer of skin. Here, we describe a 22-years-old female patient presenting with non-lactational breast abscess with purulent nipple discharge. Besides showing pus cells and Gram positive cocci in Gram stain, the abscess aspirate and the nipple discharge yielded pure growth of *S. hominis* subsp. hominis in culture. The phenotypic confirmation and antibiotic sensitivity of isolated organism were performed using VITEK2 Compact Advanced Expert System. The patient was prescribed antibiotic based upon the antibiogram of the isolated organism following percutaneous aspiration of the abscess cavity and she responded well to this treatment.

**KEYWORDS:** Staphylococcus hominis subsp. hominis, non-lactational breast abscess, nipple discharge.

**INTRODUCTION:** Staphylococcus hominis belongs to the family Staphylococcaceae. This organism is found on the skin of humans and has occasionally been isolated from infections as a low grade pathogen.<sup>[1]</sup> This is one of only two species of Staphylococcus to display sensitivity to desferrioxamine, the other being Staphylococcus epidermidis. In 1998 the species was divided into two subspecies: *S. hominis* subsp. hominis and *S. hominis* subsp. novobiosepticus.<sup>[2]</sup> Although *S. hominis* subsp. novobiosepticus is recovered more frequently as human pathogen, *S. hominis* subsp. hominis is an infrequent isolate of infectious process and this subspecies also tends to be less resistant to antimicrobial agents than subsp. novobiosepticus.

We present a case of non-lactational breast abscess caused by *S. hominis* subsp. hominis in an apparently immunocompetent young female.

**CASE REPORT:** A 22 years old apparently immune-competent unmarried female patient attended surgery OPD with complaint of redness and a painful swelling involving subareolar region of left breast along with purulent nipple discharge. There was no history of breast trauma, fever or skin infection. She was diagnosed of having mastitis and was treated empirically with oral Cephalexin. But the symptom did not improve during the course of treatment and so, she sought medical care for the second time with added complaints of fever and increased intensity of pain. This time, physical examination revealed a warm, tender, palpable, fluctuant mass of about 2.5 cm in diameter with erythema of the overlying skin involving subareolar region of left breast.

There was associated visible purulent nipple discharge. A full blood count showed a high leukocyte count (13,500 cells/ $\mu$ l) with neutrophil predominance. An ultrasound scan detected a poorly circumscribed mass compatible with breast abscess. Subsequently percutaneous aspiration of

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the abscess cavity was done and the purulent material was sent for microbiological examination. Purulent nipple discharge was also sent for the same purpose.

Gram stain was performed from the abscess aspirate as well as from nipple discharge. The samples were inoculated on 5% sheep blood agar and MacConkey's agar and incubated overnight aerobically at 37°C. The phenotypic confirmation and antibiotic sensitivity of isolated organism were performed using VITEK2 Compact Advanced Expert System (AES). The sensitivity report was interpreted as per CLSI guidelines, 2014.<sup>[3]</sup>

Gram stain of both samples revealed plenty of pus cells with Gram positive cocci. After aerobic incubation of aspirate, pure growth of circular, convex, smooth, shiny, opaque and non haemolytic colonies were observed on blood agar whereas small pin point pink colonies appeared on MacConkey's agar. On Gram stain, the isolate was found to be Gram positive cocci arranged in clusters. They were catalase positive and gave slide and tube coagulase test negative. The phenotypic confirmation of the isolated organism was performed using VITEK2 Compact Advanced Expert System (AES) and was found to be *Staphylococcus hominis* subsp. *hominis*.

The same organism was isolated from nipple discharge also. Antibiotic sensitivity report revealed that the organism was susceptible to Ciprofloxacin, Doxycycline, Gentamicin, Clindamycin, Vancomycin and Linezolid and was resistant to Penicillin, Trimethoprim / sulfamethoxazole and Erythromycin. The organism was found to be Methicillin resistant. Based upon the report the patient was prescribed oral Clindamycin following aspiration and there was gradual improvement of symptoms.

**DISCUSSION:** Non-lactational breast abscess is an uncommon condition. This is well linked to mastitis. Mastitis if untreated (e.g. due to wrong selection or improper dosage of antibiotic) may lead to breast abscess. Women who are not breastfeeding can develop mastitis if bacteria enter the milk ducts through a sore or cracked nipple, though such a condition is very rare. The abscess is often associated with an underlying condition such as diabetes mellitus, rheumatoid arthritis, steroid treatment, granulomatous lobular mastitis and trauma. Cultures of breast abscess specimens usually grow *Staphylococcus aureus* and anaerobes in the majority of cases, while, coagulase negative *Staphylococci* are rarely implicated, especially as a sole pathogen.<sup>[4,5,6]</sup>

Generally, coagulase-negative *Staphylococci* are considered as contaminant or colonizer and are interpreted to be the causative agent of the infection, only if they are the predominant, or, are the only isolate from purulent drainage.<sup>[7]</sup> In this case, *Staphylococcus hominis* subsp. *hominis* is the only pathogen isolated from abscess aspirate and has been considered as the causative agent of this non-lactational breast abscess.

In summary, we would like to emphasize that, generally *Staphylococcus hominis* subsp. *hominis* is considered as nonpathogen. However, this organism can give rise to severe infection like breast abscess, which has been rarely documented in medical literature and we are the witness of such a rare condition.

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