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CASE REPORT

Emerging infections: shewanella in lactational breast abscess

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ABSTRACT

Shewanella spp. is saprophyte bacteria that are part of the marine microflora in warm climates and they are rarely pathogenic. In recent times, the incidence of Shewanella infections is in the rising trend. In humans, it is mostly isolated from cellulitis, abscesses, bacteremia and wound infections and with no literature suggesting its isolation from lactational breast abscess. The case was managed by incision and drainage with proper antibiotic coverage. This case study suggests that Shewanella infection is more widespread and not just limited to coastal areas, with exposure to sea water and marine product ingestion. In addition, the unexpectedly multi –drug resistant isolate raises concern.

Keywords*: Rare pathogen; emerging bacteria; Vibrionaceae; Shewanella putrifecans; imipenem resistant; breast infection.*

INTRODUCTION

Lactational breast abscess is defined as a localized collection of pus within the breast during the period of lactation. It is most often a complication of lactational mastitis which is an inflammation of breast tissue secondary to stasis of milk and bacterial colonization, mostly staphylococcus.[1] Shewanella spp. is unusual cause of abscess in humans with no report of its isolation from breast abscess. It is a saprophytic, gram negative rod, belonging to the family Vibrionacea. It is oxidase and catalase positive, non fermenter that produces hydrogen sulphide.[2] This ubiquitous organism has been isolated from many foods, sewage and both fresh and salt water. There are several reports describing this organism causing human infections, such as cellulitis, abscesses, bacteremia and wound infections.[3]

Here, we report a rare case of isolation of Shewanella putrefaciens from a sample of lactational breast abscess in a patient without recent contact with aquatic environment and/or consumption of products of marine origin, suggesting a more widespread distribution of pathogenic Shewanella spp. in warm tropical areas.

CASE STUDY

A 20 year lactating mother reported to the emergency with left sided engorgement of breast, with redness and swelling,

Figure 1 Abscess after incision and drainage and debridement

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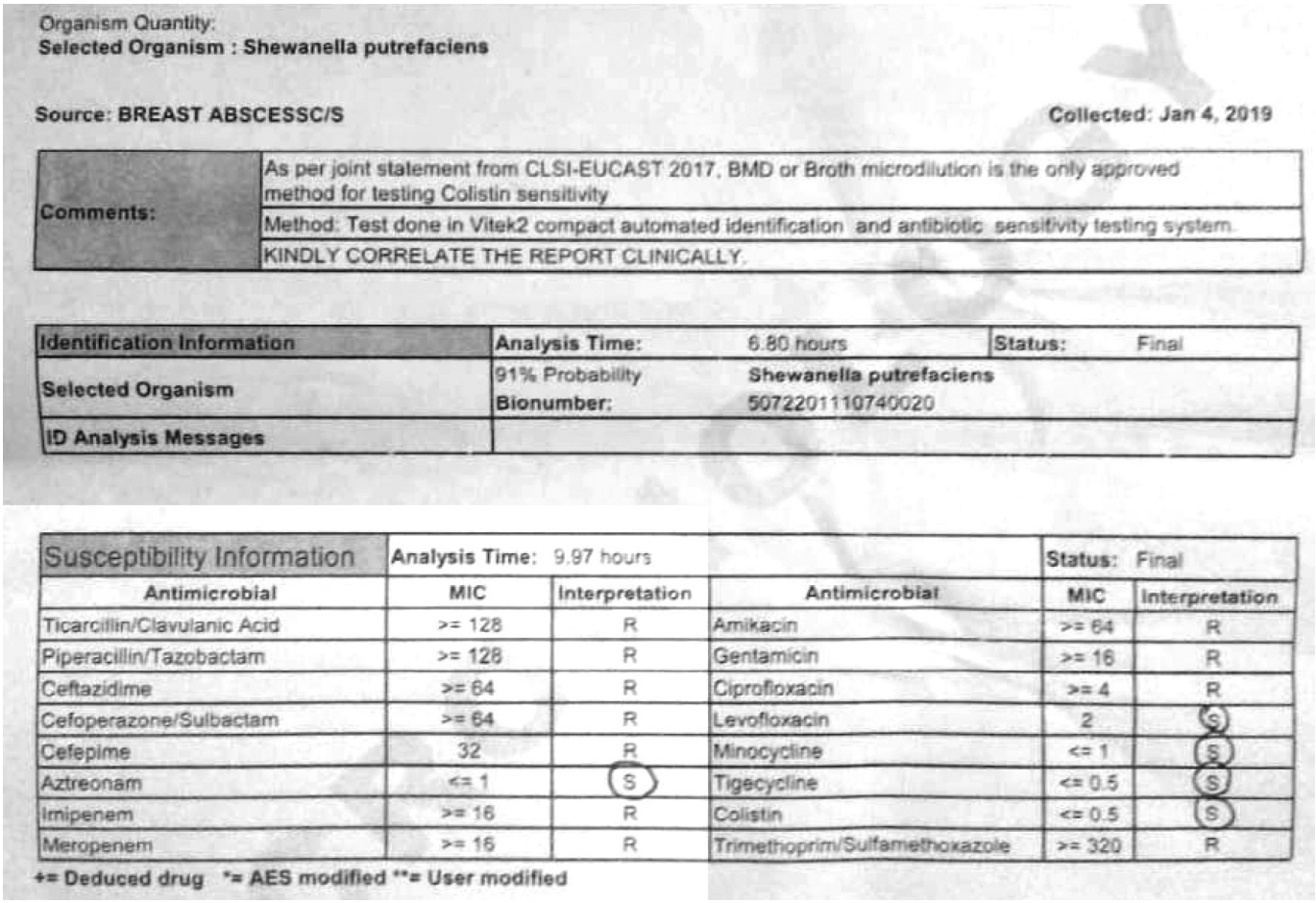
with associated fever and chills. Ultrasound showed multiloculated collections in right upper inner quadrant with abscess measuring 6 X 7 cms in dimension. It was managed with incision and drainage and pus was sent for culture (**Figure 1**). The culture report came positive for (91%) Shewanella putrefaciens (done in VITEK 2 automated identification and antibiotic testing system). It was imipenem resistant with sensitivity shown to Aztreonam, Minocycline, Tigecycline, Colistin (**Figure 2**). She was started on Colistin, supported by breast emptying and regular dressing with a placental extract gel. She recovered well, defect was closed using Ethilon 2-0 c and the patient is on followup.



Organism Quantity:
Selected Organism : Shewanella putrefaciens

Source: BREAST ABSCESSC/S **Collected: Jan 4, 2019**

Comments:	As per joint statement from CLSI-EUCAST 2017, BMD or Broth microdilution is the only approved method for testing Colistin sensitivity
	Method: Test done in Vitek2 compact automated identification and antibiotic sensitivity testing system.
	KINDLY CORRELATE THE REPORT CLINICALLY.

Identification Information	**Analysis Time:**	6.80 hours	**Status:**	Final
Selected Organism	91% Probability **Bionumber:**	**Shewanella putrefaciens** 5072201110740020		
ID Analysis Messages				

Susceptibility Information	Analysis Time: 9.97 hours			Status: Final	
Antimicrobial	**MIC**	**Interpretation**	**Antimicrobial**	**MIC**	**Interpretation**
Ticarcillin/Clavulanic Acid	>= 128	R	Amikacin	>= 64	R
Piperacillin/Tazobactam	>= 128	R	Gentamicin	>= 16	R
Ceftazidime	>= 64	R	Ciprofloxacin	>= 4	R
Cefoperazone/Sulbactam	>= 64	R	Levofloxacin	2	S
Cefepime	32	R	Minocycline	<= 1	S
Aztreonam	<= 1	S	Tigecycline	<= 0.5	S
Imipenem	>= 16	R	Colistin	<= 0.5	S
Meropenem	>= 16	R	Trimethoprim/Sulfamethoxazole	>= 320	R

+= Deduced drug *= AES modified **= User modified

Figure 2 The culture sensitivity report of the case

DISCUSSION

Shewanella spp. have been associated with several kinds of infections like biliary tract infections, empyema, skin and STIs such as fulminant periorbital facial cellulitis, dacrocystitis, perianal abscess, finger abscess, traumatic lesions or burns of lower limbs, bacteremia and rheumatic heart diseases. It has also been reported in premature babies with pneumonia.[4] This, according to us, is the first case of Shewanella isolation from lactational breast abscess. It is mostly reported from ear infections, followed by cellulitis, diabetic foot ulcers, necrotizing fasciitis, myonecrosis. This case adds to an emerging infection from Indian Subcontinent which has relatively less reported cases in comparison to the European Countries. The isolate came sensitive to Aztreonam (≤1), Minocycline (<1), Tigecycline (≤ 0.5) and Colistin (d"0.5). Shewanella can show resistance to imipenem by secreting oxacillinase.[5] At presentation, as the abscess was >5cms in dimensions, with necrosis of overlying skin, we did incision and drainage in accordance with the recommendations for surgical management, Christian Medical College and Hospital, Vellore,[6] along with antibiotic coverage with colistin and breast emptying and regular dressing with Placentrex Gel.

CONCLUSION

Even though Shewanella infection in humans is scarce, the number of reports has significantly increased over the last decade, suggesting that it indeed has a pathogenic potential. Though literature review suggests organism to be susceptible to beta lactamase antibiotics, the emergence of imipenem and beta lactamase resistant isolates is a concerning factor. As such, there is a need to look for such rare organisms and not to dispose all oxidase positive organisms as pseudomonas. It may not affect the overall outcome of the patient but will definitely help in better understanding of the epidemiology, pathogenesis and preventive aspects of such organisms.

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