

Enterococcus avium bed-sore infection: A rara avis

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ABSTRACT

Enterococci are Gram-positive cocci that are normal inhabitants of the urogenital and intestinal tracts of human beings and animals. Of the pathogenic species of *Enterococci*, *Enterococcus avium* is an infrequent cause of human infections. This report is an atypical case of bed-sore infection caused by *E. avium* in an elderly male with multiple comorbidities. Although the patient was given antibiotics along with surgical debridement, he passed away. This case calls attention to the pathogenic prospect of *E. avium* in clinical settings.

Key words: *Enterococcus avium*, Bed-sore, Wound

Although *Enterococci* are known to be normal flora of the human urogenital and alimentary tract, some species are known pathogens. *Enterococcus faecium* and *Enterococcus faecalis* are responsible for the majority of infections [1]. *Enterococcus avium* is a Gram-positive, catalase-negative coccus which was formerly known as “group Q Streptococcus.” *E. avium* is mostly found in birds [1,2]. Infections caused by it are sparse as it is of low pathogenic potential and generally cause diseases in immunocompromised patients [1,2]. Cases of *E. avium*-induced human infections reported in the literature include abscesses of the pancreas, spleen and gallbladder, bacteremia, endocarditis, osteomyelitis, meningoencephalitis, and infection of a breast prosthesis [3].

However, this case stands apart as *E. avium* was isolated from the bed-sore of this patient who was bedridden and had a history of long-standing diabetes mellitus along with other illnesses. In spite of starting antibiotics, he succumbed due to his other ailments. The core message of this case is the reason for reporting this rare bug and not considering it as a contaminant more so because it was isolated from an exceptional site.

CASE REPORT

A 76-year-old male presented with fever for 6 days and a wound on the left buttock for 2 months. There was no history of contact with birds. He is a known case of Parkinson’s disease, hypertension, scar epilepsy, and left-sided hemiparesis for 24 years and is on

treatment for these ailments. He is also a known case of diabetes mellitus for 22 years and is taking insulin. He has also been suffering from stricture urethra for the past 7 years and has a history of repeated episodes of urinary tract infection (UTI). He was advised self-dilation as a part of its management. For the past 8 months, he has been bedridden.

On examination, the wound was present on the medial upper side of the left buttock. It was irregular in shape, approximately 4 cm by 4 cm in size, with raised margins and redness at the base. There was no foul smell.

His blood investigations were normal. Debridement of the wound was done and two wound swabs along with debrided tissue were sent for aerobic culture. There was no request for anaerobic culture. The material was red and no granules were seen. One swab and part of the tissue were plated on 5% Sheep Blood agar and MacConkey agar each and incubated at 37°C overnight in a carbon dioxide incubator. Gram staining from other swab and tissue showed plenty of pus cells along with Gram-positive cocci in chains and pairs (Fig. 1a). The colonies were small, grey, beta-hemolytic on both blood agar plates which increased in size on further incubation of 24 h (Fig. 1b). Both MacConkey agar plates did not show growth. Gram stain from the growth of both samples showed Gram-positive cocci in pairs and chains. Growths were identified as *Enterococcus avium* by Vitek 2/Compact system. It was sensitive to linezolid, teicoplanin, vancomycin, and resistant to penicillin, gentamicin, ciprofloxacin, cefotaxime, ceftriaxone, erythromycin, clindamycin, and trimethoprim-sulfamethoxazole. It showed

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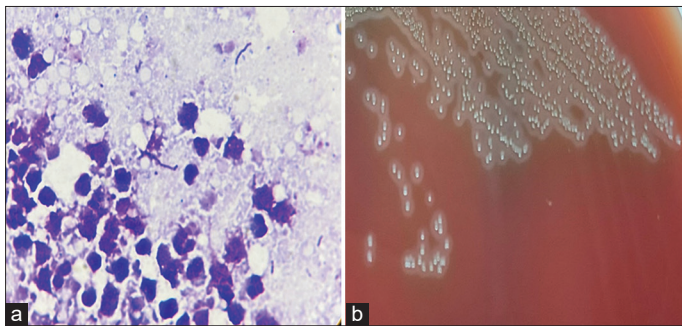


Figure 1: (a) Gram stain from samples showing pus cells and Gram-positive cocci in pairs and chains and (b) growth on 5% sheep blood agar

intermediate susceptibility to levofloxacin and was positive for high-level gentamicin resistance.

He was given tablet linezolid 600 mg twice a day for 7 days. At the end of 15 days, the redness of the wound improved and it appeared to be healing as informed telephonically by his relative. However, another 15 days later, the patient expired.

DISCUSSION

Several cases of pathogenicity by *E. avium* such as infection of diabetic foot [4], abscess of the brain, pancreas, gallbladder, and spleen [5,6], bacteremia in a tertiary care hospital [7], and colitis [1] are reported in the literature. Other infections are endocarditis, Urinary Tract Infections, prostatitis, intra-abdominal infection, cellulitis, and wound infection [2,8]. Okada *et al.* have found *E. avium* from blood and pus cultures of the same patient [9]. However, no case of bed-sore infection has been reported.

An important risk factor for *E. avium* is contact with animals especially birds as it has been commonly isolated from chicken feces [2,9]. However, our patient did not have a history of eating raw chickens or contact with chickens or domestic animals. The most common reported site of entry is the biliary tract and abdomen [9]. The site of entry in the present case did not appear to be the biliary tract or the intestines, as there was no elevation of transaminases or bilirubin nor abdominal symptoms, or relevant findings were noted.

Enterococci are also a common cause of nosocomial infections and the commonest species involved are *E. faecalis* and *E. faecium* [2]. Hence, nosocomial infection was ruled out. *E. avium* is not known to be a part of normal human skin flora. However, cases involving the skin and/or soft tissue, intravenous catheters, and urinary tract have been reported [9]. Hence, keeping in mind his long-standing history of multiple comorbidities, it can be assumed that there is the possibility of some other unexplained source. This patient was bedridden for a long time and developed bed-sore that got infected due to his comorbidities, especially diabetes. However, this organism did not appear to be due to fecal soiling and was a true infection as cases of *E. avium* isolated from stool have not been reported [1]. Plenty of pus cells and a single type of organism were observed on the Gram stain. In case, it was due to fecal soiling, polymicrobial flora especially Gram-negative

bacilli were expected on Gram stain but was absent. Second, only a single type of organism from both samples was isolated. If it was contamination from the stool sample, more than one type of organism, especially Gram-negative growth would also have been isolated additionally. Furthermore, pure growth was seen in two of his samples. Not only the wound swab but also the tissue grew *E. avium*. Contamination from fomites was also ruled out as *E. avium* is not normally present in the environment or surrounding fomites.

Previously, a rare human pathogen, *E. avium* infections are on the rise [2]. In a study by Shin *et al.*, it was found that this organism being of low virulence, most of the patients with bacteremia caused by it had serious underlying diseases [1]. In this case also, the patient was immunocompromised and had multiple comorbidities. In this bedridden patient, contamination from stool or other sources was ruled out. Gram-stain and culture results were indicative of true infection and this organism is not known to be normal flora of stool. Hence, this organism was reported.

E. avium has been found to be resistant to penicillin G and ampicillin. Aminoglycoside or vancomycin should be considered as a treatment option [1,9]. So was the susceptibility pattern in this case. However, the patient passed away after a month so thorough follow-up was not possible. His multiple comorbidities mainly diabetes mellitus and recurrent UTI due to long-standing stricture urethra possibly leading to urosepsis may have primarily contributed to his demise.

CONCLUSION

The highlight of this case is the organism, as well as, the site of infection. Although rare, the possibility of *E. avium* being a pathogen should not be overlooked especially when it is isolated from multiple samples of the patient and his clinical condition and microscopic picture of the sample, all being pointers of it being a pathogen. Furthermore, it is important to be cognizant of the fact that at times, not only the organism but also the site from where it is isolated can also be unusual.

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