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Staphylococcus cohnii: Not so innocuous

Sunil Garg

NMC Hospital Dubai Investment park-1, Dubai-United Arab Emirates

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ABSTRACT

Staphylococcus cohnii is not known to causes meningitis. We present a case of meningitis due to this organism. We are highlighting this case not only for its rarity but rapidity of worsening also. This report indicates that *Staphylococcus cohnii* are not as innocuous as once thought to be and these organisms should not be disregarded as possible skin contaminants. Before labelling them as contaminants their possible association with disease should be ruled out.

1. Introduction

Coagulase-negative staphylococci (CoNS) are usual and most frequent commensals of the human skin flora. These are considered to be contaminant and non virulent organisms, however they are being increasingly attributed as microbes of clinically relevant nosocomial infections^[1]. *Staphylococcus cohnii* (*S. cohnii*) is a CoNS which may be responsible for serious infections in humans, specifically in immunosuppressive and hospital settings^[2].

2. Case report

A 26 year old male presented in unconscious state with three hours history of multiple episodes of seizures. He had fever, headache and vomiting for last 4 days. While he was drowsy in emergency department, his sensorium deteriorated and he became unconscious when he arrived in intensive care unit two hours later. He was given injection ceftriaxone in emergency for suspected meningitis along with antiepileptic medication and dexamethasone. His pupils were

bilaterally semidilated and fixed on arrival to ICU. Based on clinical examination and cerebrospinal fluid findings, initial working diagnosis of bacterial meningitis with multiple episodes of seizures was made. His CSF values include protein 4 220 mg/L, glucose 0.63 mmol/L, total WBC count 933 cells/ μ L, and Neutrophils 99%. His CT shows complete opacification of right mastoid air cells and right middle ear cavity along with diffuse cerebral oedema. Pus discharge from right ear was sent for culture. He was started on Inj ceftriaxone, vancomycin, dexamethasone and levetiracetam. Both Blood cultures taken from different venipuncture site grew *Staphyococcus cohnii*. It was initially suspected to be possible skin contaminant by microbiologist so antibiotic sensitivity was not determined, but later same organism was recovered from CSF culture too and it was sensitive to gentamicin, ciprofloxacin, sulfamethoxazole/ trimethoprim, oxacillin, clindamycin, vancomycin and linezolid.

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First and corresponding author: Sunil Garg, NMC Hospital Dubai Investment park-1, Dubai-United Arab Emirates.
E-mail: sucare12@yahoo.co.in

Pus culture did not grow any organism, in part may be contributed by collection of specimen after starting antibiotics. Patient's examination was conspicuous for the presence of unconsciousness with GCS 3, fixed and dilated pupil, absent respiratory efforts, hypothermia and right ear foul smelling pus discharge. We continued with medical management including antibiotics, steroids and cerebral protection strategy to reduce intracranial pressure. ENT specialist advised to continue with conservative medical management in form of topical antibiotic drops. Patient didn't show even slightest of improvement and died after three weeks.

4. Discussion

CoNS are common and most frequent commensals of the human skin. These organism was considered to be non pathogenic and probably contaminant microbes, however these organisms being increasingly labelled as agents of clinically relevant nosocomial infections. They have become increasingly relevant causes of infection in predisposed hosts, such as patients who are receiving immunosuppressive or broad-spectrum antimicrobial drugs, patients with prosthetic devices, or those who are in hospital or intensive care unit for a long time[3]. They are frequently cultured from blood but often labelled as contaminants in hospital settings. Recently, specifically in immune compromised patients and nosocomial settings, CoNS are increasingly acquiring significance as the agents of bloodstream infections (BSI)[4]. Therefore, it is important to obtain multiple blood cultures from different sites and to use well defined criteria for diagnosing true bacteremia[5].

S. cohnii is a microbe belong to the CoNS group. It consists of two main subspecies that are separated on the basis of their characteristics: *S. cohnii* subsp. *cohnii* and *S. cohnii* subsp. *urealyticus*. It is occasionally a skin colonizer, thus, *S. cohnii* infection in humans is an unusual event[6]. Few cases of *S. cohnii*-related infection have been described in the literature. It may be responsible for bacteremia relating to catheters, surgical prostheses like spinal fixation, acute cholecystitis, brain abscess, endocarditis, pneumonia, urinary tract infection and septic arthritis, generally presenting with a multi drug resistance in human infections, with almost 90% of them are resistant to methicillin[7]. The subspecies also vary on the basis of their colonization environments: *S. cohnii* subsp. *cohnii* isolates have more frequently been isolated in hospital, whereas *Urealyticus* isolates occur more commonly at homes, and only rarely in hospitalized patients[7]. The case of human *S. cohnii* infection is extremely unusual. It may cause meningitis either by hamatogenous spread or extension from localized source near to

central nervous system such as sinusitis, mastoiditis or otitis[8]. Our patient was having evidence of right side mastoiditis on CT scan with pus discharge from right ear. He had total history of four days only and he deteriorated too rapidly that on arrival to ICU his brain functions were absent.

Okudera H *et al* reported a case of *S. cohnii* meningitis in a 63 year old male, who was admitted with headache of three days after common cold. On admission patient was awake but patient finally died one month after admission[8].

Conflict of interest statement

The authors report no conflict of interest.

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