DOI:10.21276/sjpm.2016.1.3.4

Saudi Journal of Pathology and Microbiology
Scholars Middle East Publishers
Dubai, United Arab Emirates
Website: http://scholarsmepub.com/

ISSN 2518-3362 (Print)
ISSN 2518-3370 (Online)

Case Report

Moraxella osloensis: Septic Arthritis

Dr Pratibha S[1]*, Dr Lakshmi K S[2], Dr Gomathy R[3], Praveen Kumar R[4], Vanishree Y M[5]

[1]Assistant Professor, Department of Microbiology, Sanjay Gandhi Institute of Trauma and Orthopedics, Bengaluru, Karnataka, India

[2]Assistant Professor, Department of Pathology, Sanjay Gandhi Institute of Trauma and Orthopedics, Bengaluru, Karnataka, India

[3]Professor, Department of Biochemistry, Sanjay Gandhi Institute of Trauma and Orthopedics, Bengaluru, Karnataka, India

[4]Lecturer, Department of Microbiology, Sanjay Gandhi Institute of Trauma and Orthopedics, Bengaluru, Karnataka, India

[5]Senior Technician, Department of Microbiology, Sanjay Gandhi Institute of Trauma and Orthopedics, Bengaluru, Karnataka, India

***Corresponding Author:**
Dr Pratibha S
Email: pratibha.giridhar@gmail.com

Abstract: *Moraxella osloensis* is a rare causative agent of infection in humans with most cases reported in immunocompromised patients. We report a case of 40years old chronic alcoholic patient who presented with septic arthritis of left knee joint. Culture of pus aspirate was found to be positive for gram negative coccobacilli that were aerobic, oxidase positive and catalase positive. *M.osloensis* was identified by Biochemical tests and Vitek 2 Compact. Prompt control of infection was achieved by treatment with Meropenem for 7 days along with debridement of left knee joint**.**

Keywords: *Moraxella osloensis*, coccobacilli, arthritis, immunocompetent, carbapenems.

INTRODUCTION

Moraxella osloensis is an aerobic gram negative coccobacilli infrequently isolated from clinical specimens. Because of its rare occurance the clinical significance and antimicrobial therapy for patients with infection due to *Moraxella osloensis* is not well understood. We report a unique case of *Moraxella osloensis* septic arthritis in alcoholic patient with alleged history of fall following attack by a domestic animal.

CASE REPORT

A 40year old man presented to orthopedic outpatient department with history of fall from a vehicle, with multiple injuries 1 month back after a drinking episode. He complained of fever since 10days associated with pain and swelling of left knee joint. He had undergone surgery for fracture of left clavicle by plate and screwed. Clinical examination revealed swelling, tenderness and restriction of movements of left knee joint.

LABORATORY STUDIES REVEALED

Hb - 12.1 gm%, PCV - 36%, WBC - 13.300(N-84, L-11, E-03, M-02), ESR - 20mm/hr, CRP - 4.4 mg/dl(positive in 1:2 dilution). Platelet count - 3.35 x 10^5/ cu mm. His Blood sugar, Serum creatinine, Serum Uric acid, Na^+, K^+ & Ca^{2+} levels were within normal range. His liver function tests were within normal range.

Pus aspirate obtained from left knee joint grew Moraxella osloensis – sensitive to Imipenem, Meropenem, Netilmicin and Cefaperazone+Sulbactam. The organism was resistant to Penicillins, Cephalosporins other Aminoglycosides (Gentamicin, Amikacin), Cotrimaxazole, Piperacillin and Piparacillin+Tazobactam.

The patient remained symptomatic with pain in the left knee joint, swelling and tenderness despite therapy with IV Cefaperazone + Sulbactam 1.5 gm BD and IV Amikacin 500 mg BD for 7 days.

Repeat sample from the same site was requested and culture and sensitivity test was performed. Repeat culture also grew the same *Moraxella osloensis* organism with the same sensitivity pattern.

Table 1: Characters of the organism isolated from patients knee joint aspirate

Tests	Results
Gram's staining	Gram negative coccobacilli in pairs, tetrads
Aerobic culture	Growth present
Culture on:	
Blood agar	Mucoid grey non lytic colonies
Macconkey agar	No growth
Chocolate agar	Mucoid colonies
Biochemical tests:	
Oxidase test	Positive
Catalase test	Positive
Indole test	Negative
Mannitol Motility medium	Mannitol not fermented non motile
Triple sugar iron medium	Alkaline slant/alkaline butt
Citrate test	Citrate not utilized
Urease test	Urease not produced
Vitek 2 - compact *	Moraxella group 99% confidence
Anaerobic culture	No growth

* Vitek 2 – compact (Biomerieux) is an automated system for bacterial identification and antibiotic susceptibility testing

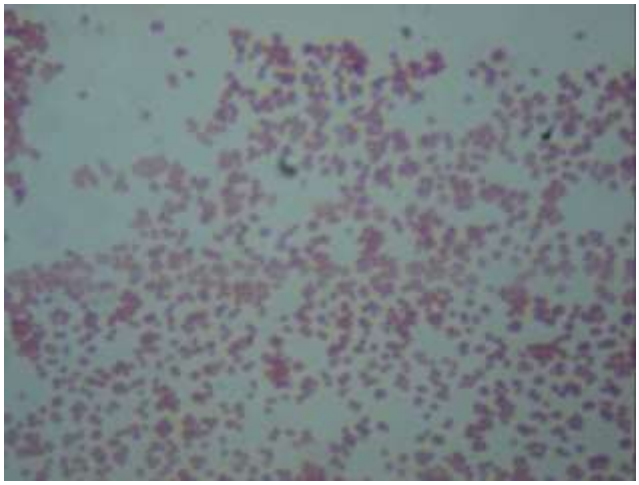

Fig-1: Grams stain of pus aspirate showing gram negative coccobacilli

Fig-2: Blood agar showing grey non lytic mucoid colonies. There is no pitting seen

Fig-3. Chocolate agar showing mucoid colonies

Fig-4: Biochemical tests a) Mannitol non fermented nonmotile, b) Triple sugar iron agar-alkaline slant / alkaline butt, c) Indole - negative, d) Citrate - not utilised, e)Urease - not produced

DISCUSSION

The genus *Moraxella* consists of pleomorphic gram negative bacteria that are aerobic, oxidase positive, indole negative and assaccharolytic. *Moraxella* species are inhabitants of the environment as well as part of the normal flora of skin and mucosal surfaces. *M. osloensis, M. nonliquefaciens, M. catarrhalis and M. lincolnii* are part of the normal flora of the human respiratory tract [1]. *M. catarrhalis* is the most common species isolated from human sources and is responsible for infections such as otitis media, sinusitis and pneumonia [2]. Other species of *Moraxella* including *M.lacunata, M.atlantae, M.lincolnii, M.nonliquefaciens, M.oslensis* have been isolated from clinical sources [1].

M. osleonsis is a rare causative agent of infections in humans with most cases reported in immunocompromised hosts [1]. Originally grouped with *M. nonliquefaciens* but was reclassified into its non-distinct species in 1967 [3]. *M. osloensis* is widely distributed in nature where it has been recovered from hospital environment [1]. *Moraxella osloensis* is an aerobic, oxidase positive, catalase positive gram negative coccobacilli found in infections associated with genito urinary tract, blood, spinal fluid, chest fluid and nose but seems to be rare in respiratory tract [4]. The characters that differenciates *Moraxella osleonsis* from other species of *Moraxella* are that pitting on the agar is rare and colonies have a soft or coherent consistency and are unpigmented. This feature was characteristically seen in pus samples (aspirate) obtained from left knee joint of our patient.

Bacteria cause septic arthritis most often by haematogenus spread. Our patient had signs and symptoms resembling bacteremia i.e. fever, pain, tenderness, and swelling which showed prompt response following athrotomy, debridement and treatment with Carbapenem group of antibiotics. The patient continued to improve with eventual resolution of signs and symptoms. The prognosis for patients with *Moraxella osloensis* infections is generally good. Although it appears that infections due to *Moraxella osloensis* causes varying degrees of illness, there have been no reported fatalities attributable to infection with this organism.

Definitive identification of the isolate as *M. osloensis* by 16S rRNA gene sequencing has been reported as a useful method for correct identification. This method improves clinical and microbiological identification of poorly described organisms like *M.*

osloensis. With respect to treatment, Penicillin, Cephalosporin and Aminoglycosides are usually effective against *M. osloensis* [5]. In our case, the patient was initially treated with combination of injection Cefperazone – Sulbactam and injection Amikacin both BD for 7 days duration. Due to unfavorable response, Arthrotomy and debridement of the left knee joint was done after one week. Later repeat cultures from the same site yielded the same isolate with similar character and also the same sensitivity pattern. The patient was later treated with Meropenem 1gm BD for 7 days and patient showed good clinical reponse.

In conclusion, we report a case of monoarticular septic arthritis due to *Moraxella osloensis* in an chronic alcoholic patient. *Moraxella* septic arthritis is unusual and most frequently occurs in patients with underlying medical conditions such as arthritis or immunocompromised diseases [6].

We suggest that *M.osloensis* should be considered as a rare potential pathogen in immunocompetent individuals who present with clinical picture of monoarthritis, as this organism has been isolated have been isolated from non immunocompromised patients and children with osteoarticular infection [7]. In view of a rapid and favourable clinical response shown by our patient, we advocate conservative management as the initial modality of treatment.

In summary, *M. osloensis* is a gram negative coccobacilli with potential to cause systemic diseases. Further studies are required to determine the epidemiology, risk factors, and appropriate treatment of infections due to *M.osloensis*

REFERENCES

1. Schreckenberger, P. C., Daneshvar, M. I., & Hollis, D. (2007). *Acinetobacter, Achromobacter, Chryseobacterium, Moraxella* and other nonfermentative Gram negative rods. In: *Manual of Clinical Microbiology*, Washington, DC: American Society for Microbiology; 9th edn, 749-779.
2. Verghese, A., & Berk, S. L. (1991). *Moraxella (Branhamella) catarrhalis*. *Infect Dis Clin North Am, 5*, 523-538.
3. Bovre, K., & Henriksen, S. D. (1967). A new *Moraxella species*, *Moraxella osloensis*, and a revised description of *Moraxella non-liquefaciens*. *Int J Syst Bacteriol 17*, 127-135.
4. Identification of *Moraxella* species and Morphologically Similar Organisms – Bacteriology Identification ID 11, UK. (2015). Standards for Microbiology Investigations, Issued by the Standards Unit, Public Health England, 3, 10-28.
5. Hadano, Y., Ito, K., Suzuki, J., Kawamura, I., Kurai, H., & Ohkusu, K. (2012). *Moraxella osloensis*: an unusual cause of central venous catheter infection in a cancer patient. *International Journal of General Medicine 5*, 875–877.
6. Kuo, S. H., Rodriguez-Barradas, M., & Lu, L. (2008). Symmetric Polyarticular Septic Arthritis caused by *Moraxella lacunata*, A Case Report and a Review of Moraxella Septic Arthritis. *Infect Dis Clin Pract, 16*, 249-25.
7. Shah, S. S., Ruth, A., & Coffin, S. E. (2000). Infection Due to *Moraxella osloensis*: Case Report and Review of the Literature. *Clin Infect Dis, 30*, 179–81.