

"*Moraxella lacunata*" endocarditis treated with penicillin

Fatima Noman¹, Safdar G Khan², Moazzam Khurshed³, Syed Asim Noor⁴, Jawed Abubaker⁵

Department of Pathology¹, Department of Medicine^{2,3,4,5}, Liaquat National Hospital, Karachi.

Abstract

The case report of a young male with Endocarditis caused by *Moraxella lacunata* is presented. Although a well recognized cause of keratitis, conjunctivitis, and sinusitis; very few cases of endocarditis by this rare pathogen are reported in literature. Patient showed a prompt response when empirical therapy was de-escalated to penicillin, after receiving culture and sensitivity report from Microbiology department.

Introduction

Moraxella species belong to genus *Moraxella*, subgenus *Moraxella*, which belongs to non- fermentative gram negative rods. They are normal flora on mucosal surfaces and are considered to have a low pathogenic potential. They occur most frequently in the respiratory tract and less commonly in the genital tract. While *Moraxella lacunata* is a well recognized cause of conjunctivitis, it has also been reported to cause keratitis, chronic sinusitis and occasionally systemic infections including endocarditis. We describe a case of *Moraxella lacunata* endocarditis successfully treated with penicillin.

Case History

A 42 years old male presented to emergency room at Liaquat National Hospital with a four day history of high grade fever rising up to 104°F followed by gradually increasing drowsiness and aggressive behaviour. On physical examination, he was drowsy, not following commands and not moving the right side of his body. He was febrile, with a temperature of 103°F, hypotensive and

tachycardic. General examination revealed pallor, splinter haemorrhages, conjunctival haemorrhages and digital gangrene. On cardiovascular examination, he had a tapping apex, loud S1 and mid diastolic murmur with a presystolic accentuation, features consistent with mitral stenosis. There was no lymphadenopathy or hepatosplenomegaly. Rest of the exam was unremarkable. Due to his poor mentation, he was intubated for airway protection. A working diagnosis of infective endocarditis was made and after sending three sets of blood cultures he was started empirically on ceftriaxone, vancomycin, metronidazole and gentamycin. An echocardiogram was performed which showed severe mitral stenosis with mild mitral regurgitation as well as vegetations on the anterior mitral leaflet. CT scan head revealed multiple abscesses in the left frontal, parietal and occipital regions of the brain. Preliminary blood cultures were reported to have gram negative rods; his fever was not responding, therefore, the current antibiotics were changed to Meropenem empirically. Gram stains of all 3 sets of blood culture showed gram negative cocci to short rods. The broth was subcultured on MacConkey, Blood agar and Chocolate agar. Direct sensitivity was done from the turbid broth on Mueller- Hinton Agar.

There was growth of mucoid, non-pigmented non-lactose fermenter on all three media. These were catalase and oxidase positive. API 20NE (Bio Merieux-France) was inoculated and next day it was identified as *Moraxella lacunata* (API 20NE:1010044)

The organism was sensitive to all antibiotics including penicillin, by disk diffusion method. Beta lactamase production was checked with acidometric method

using positive and negative control and it was found to be negative.

Despite 3 days of broad spectrum empirical therapy, the fever continued to spike. As the organism had been identified, the antibiotic was de-escalated to penicillin, (drug of choice for *Moraxella* species), Gentamycin and Metronidazole (the latter for empiric anaerobic coverage for the brain abscess).

The patient defervcesed, and improved after 48 hours of the change. Repeat cultures were negative. On day 11, a tracheostomy was done and he was weaned off the ventilator on day 15. He completed 6 weeks of penicillin, and during the course improved remarkably, and was discharged in stable and alert state.

Discussion

Among *Moraxella* species *Moraxella catarrhalis* is frequently reported causing upper and lower respiratory tract infection as well as endocarditis. *M. catarrhalis* endocarditis has been described in patients with previous history of valvular conditions or prosthesis as well as in patients who were previously healthy.¹ Other species are rare causes.

Endocarditis with *Moraxella* species in a normal valve is rare. In the review² by Hannah Maayan four cases of *Moraxella lacunata* endocarditis were reported and 12 previously published cases of *Moraxella* endocarditis, were described including one case with *M. lacunata*, five with *M. catarrhalis*, two with *M. phenylperuvica* and the remainder consisting of one case each of *M. liquefaciens*, *M. osloensis*, *M. nonliquefaciens* and one non-specified. Rare cases of other species like *Moraxella phenylpyruvica* have been reported in literature.³

Moraxella lacunata is medically important and is a recognized cause of conjunctivitis. It has been reported to cause keratitis, chronic sinusitis and endocarditis.^{1,4}

Most *Moraxella* strains are susceptible to penicillin, cephalosporin, tetracycline, quinolones and aminoglycosides. Production of β lactamase has been reported rarely in *Moraxella* species other than *M. catarrhalis*.^{3,5}

Because of fastidious nature and predictability of

antibiotic profile; antibiotic susceptibility testing, except for β lactamase testing, is not performed on clinical isolates. In most of the cases of non- β - lactamase producers patients were treated with a β lactam antibiotic and an aminoglycoside. A case of *Moraxella nonliquefaciens* prosthetic endocarditis treatment failure was reported by W Chen and PK Lee⁶ in which due to suspected penicillin sensitivity, antibiotics other than penicillin had been used; prompt response occurred when penicillin was given. Penicillin remains by far the most effective antibiotic for the treatment of endocarditis caused by organisms sensitive to penicillin, especially when infecting prosthetic valves. Correct laboratory identification is of therapeutic importance as *Moraxella* is often highly sensitive to penicillin. In the case report of endocarditis caused by β -lactamase producing *Moraxella lacunata*³, the patient did not respond to ampicillin and blood culture remained positive for 10 to 15 days.

In our case *Moraxella lacunata* was non β -lactamase producer and there was an immediate effect of penicillin therapy. This underscores the importance of correct identification of *Moraxella* species as well as testing for β lactamase production since penicillin remains the most effective antibiotic for treatment of endocarditis. The low cost of penicillin offers added advantage.

Reference

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