American Journal of Infectious Diseases and Microbiology, 2016, Vol. 4, No. 4, 72-73
Available online at http://pubs.sciepub.com/ajidm/4/4/1

DOI:10.12691/ajidm-4-4-1

SEPTIC ARTHRITIS: A Case of Haemophilus – Aggregatibacter Aphrophilus

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Abstract We report a case of a 45-year old male with history of recent history knee surgery after a motor vehicular accident who presented with progressive right hip pain, swelling and redness. X-ray showed destruction of the right femoral head with severe degenerative changes. Patient remained septic despite broad-spectrum antibiotics and multiple debridements. After two weeks, on anaerobic cultures from the aspirate, the organism was finally identified to be Haemophilus (Aggregatibacter aphrophilus) aphrophilus. Antibiotic was narrowed to ceftriaxone and continued for six weeks. After completion of his antibiotic treatment, the patient underwent right total hip arthroplasty with bone grafting. Eventually, he was able to walk with assistance and remained in good health.

Keywords: *Septic Arthritis, avascular necrosis, Haeomophilus aggregatibacter aphrophilus, biochemical testing, antibiotic treatment*

Cite This Article: Muhammad Azharuddin, Lubna Bashir Munshi, Sukrut Dwivedi, and Mark Anthony A. Diaz, "SEPTIC ARTHRITIS: A Case of Haemophilus – Aggregatibacter Aphrophilus." *American Journal of Infectious Diseases and Microbiology*, vol. 4, no.4 (2016): 72-73. doi: 10.12691/ajidm-4-4-1.

1. Introduction

Septic arthritis is usually caused by different species of bacteria. Infection frequently occurs after surgery or trauma. Then, it spreads mainly through the blood stream. Artificial joints are usually affected followed by the knees and hip. In adults, the causative organisms are mostly staphylococcus aureus and streptococci. In some cases however, infection may be more complicated by a common commensal yet fastidious organisms that may be very difficult to identify and isolate similar to our case.

2. Case Presentation

A 45 year-old male with a past medical history of motor vehicle accident (MVA) a year ago presented to the Emergency Department (ED) with severe right hip and leg pain. The pain was progressive, sharp and radiated from the right hip to the leg. Immediately after the accident, he was advised hip and knee surgery but he opted only to have the Right knee operated. This time in the ED on presentation he was febrile, toxic-looking with swelling of the right hip and the surrounding soft tissues. His range of motion (ROM) was limited & painful. His laboratory work showed elevated white count with bandemia, ESR-130 & CRP was 218.5. X-ray of the right hip revealed destruction of the right femoral head with severe degenerative changes. He was initially started on Vancomycin & Cefepime. Ultrasoundguided aspiration of the right hip joint showed pus. The following day, the patient appeared septic and was taken to the Operating Room (OR) emergently. Arthrotomy with debridement & irrigation was done which showed the infection spreading to the adjacent soft tissues with subluxed right hip & avascular necrosis of the femoral head. After the first debridement he patient failed to show improvement and was taken to the OR for the second and third time for revision and debridement. After three weeks, cultures from the aspirate revealed Haemophilus – Aggregatibacter aphrophilus sensitivie to Ceftriaxone, Ampicillin, Ciprofloxacin, Cefotaxime, Tetracycline & TMP-SMX. Antibiotic was narrowed to ceftriaxone. After a few days, the patient was mobilized with a walker and discharged to rehabilitation facility. The IV antibiotics were continued for a total of forty two (42) days. After a month, he underwent total right hip arthroplasty with synovectomy and autologous bone grafting. He underwent physical therapy and recovered well.

3. Discussion

Aggregatibacter aprophilus is a rare organism to cause bone or joint infections. Osteoarticular infections caused by A aphrophilus are rare and only about fifty (50) cases have been recorded prior to 2011 [1]. In the study of Huang et al. (2005) that reviewed 28 cases of infection between 1990 and 2003, nine had musculoskeletal as sites of infection [2]. In their analysis, mean age of infection was 47.4 years and more commonly (75%) in males. The majority had bone and joint infection that included osteomyelitis, discitis, epidural abscess, spondylodiscitis, septic arthritis and prevertebral infection. All of the 28 patients except one survived.

Aggregatibacter aprophilus belongs to the family of Pasteurellaceae [3]. They are facultative anaerobic, non-motile, non-spore-forming, coccoid to small gram negative

rods (mean size 0.1 – 1.0 um) [4]. They have a Morsecode appearance and irregular staining [5]. The genus Aggregatibacter was created to accommodate species that had previously been classified in the genera Actinobacillus (Actinobacillus actinomycetemcomitans) and Haemophilus (Haemophilus aphrophilus, Haemophilus paraphrophilus, and Haemophilus segnis). Infection can be confirmed by bacterial isolation on enriched growth media such as blood agar with appropriate supplements then by morphological assessment and biochemical testing (i.e. PCR for surface polysaccharides, immunofluorescence).

Despite being an oral flora commensal, clinical infection is rare. Within the laboratory, isolation and identification of A. aphrophilus from clinical specimens is very challenging [6].

Optimal treatment and duration for bone and joint infection are not yet well established. Penicillin used to be the first line antibiotic due to its sensitivity. However, a third generation cephalosporin is currently suggested for the treatment of serious infections to cover possible β-lactamase production [3]. Other proposed treatments may also be a combination of that include penicillin, ampicillin, third generation cephalosporin and flouroquinolone. Mean duration of treatment of bone infection can vary from 6 to 10 weeks [7,8,9].

4. Conclusion

In conclusion, we presented an unusual case of septic arthritis from Haemophilus – Aggregatibacter aphrophilus. It is a common oral commensal yet a fastidious organism that can make culture and sensitivity very challenging. It should be considered in cases of septic arthritis with culture negative results. Management recommendation includes the use of a third generation cephalosporin for at least 6 weeks coverage.

Acknowledgement

We would like to acknowledge the Department of Internal Medicine for their support and encouragement in this process.

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