



Revelation of a Case of Septic Arthritis

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Abstract

Septic arthritis is inflammation of joints caused by *Staphylococcus aureus*, Streptococcal species (Group A, B, C&G) and other pyogenic organisms. Some of the risk factors are rheumatoid arthritis, intra-articular injections, trauma, diabetes mellitus, immune-suppression, intra-venous drug use etc1.

The organisms enter the joint through haematogenous seeding of pathogenic microorganisms or through trauma. Patients present with fever (60 -80%) and single joint involvement. Knee is the most commonly affected joint followed by hip. Other common presentations are pain, swelling and reduced mobility of the joint. Although radiological and histopathological examination gives a clue for diagnosis, aetiological identification by culture or molecular assays, guide in initiation of organism specific antimicrobial therapy for optimum patient management.

Keywords: Septic arthritis, Nocardia, antibiotics, specific antibiotic

INTRODUCTION

Case Report:

We present a case of septic arthritis that was unravelled with team work.

A middle-aged diabetic male patient presented to OPD with history of pain and swelling of the left Knee joint for 6 months. The pain was dull aching, insidious in onset and no radiation. He complained of discharging sinus on the swelling for 6 days.

On examination, patient was well built and nourished. General physical examination and systemic examination did not reveal any abnormality. On local examination a diffuse lump was palpated around the left knee with a discharging sinus at the pre-patellar region. The discharge was sero-

sanguinous. The lump was firm to hard with mild local rise of temperature, diffuse around the patella, measuring 7×8 centimetres and non-reducible. Distal neuro-vascular status was normal. There was free movement of the joint from 10 degrees to 110 degrees and the last 10-degree flexion was painful. His gait was antalgic and left medial malleolus was at a higher level.

After admission, his routine laboratory parameters were insignificant except CRP which was high (260mg/dl) and ESR elevated to 90mm. HbA1c was 9.9 indicating very poor Diabetes control. Ultrasonographic surface scan showed multi-septated hetero-echoic collection measuring 7.4×9.1×6.1cm

with multiple air foci. Synovial thickening was noted. Lower 3rd rectus femoris was bulky with few hypoechoic areas. Final report was? Septic arthritis.

Past History: Patient had presented to hospital earlier for same complaints 3 months back, and aspiration yielded no material. So no investigations were done

and the patient was treated with Cefuroxime on outpatient basis. The aspiration site developed into a sinus.

The patient's blood sugar was controlled and taken for exploratory surgery. During the surgery, tumour like lesion was observed and debridement was done.

Figure 1: Per-operative picture of the lesion



Biopsy from the lesion was sent for histo-pathology and culture. Gram's stain of the sample showed inflammatory cells and no organisms. After 48 hours of aerobic incubation of culture, there was growth of chalky white colonies (Fig-2) from which smears were made. It showed Gram positive branching filamentous bacteria. Modified Ziehl-Neelsen stained smear showed acid fast branching, filamentous bacteria, identified as Nocardia. When informed to the consultant, it was disregarded as ? secondary infection of the tumour.

Figure-2. Growth on blood agar after 48 hours of incubation



Histo-pathology report showed it to be Acute on chronic inflammation with Actinomycosis.



Figure 3. Methanamine Silver stain showing black colonies of Actinomycetes.

Clinically and radiologically the lesion was like septic arthritis, a tumour per-operatively and Actinomycosis histopathologically. With this report, it was difficult to decide on the antibiotic for treatment. Actinomycosis can be infection with Actinomyces or Nocardia for which, the treatment of choice is penicillin and Co-trimoxazole respectively. The culture report was extrapolated with the histopathology report and the lesion was confirmed to be Actinomycosis with Nocardia as etiology because it had grown aerobically and also acid fast (1% H₂SO₄).

Accumulated clinical evidence suggests cotrimoxazole to be considered the therapy of choice in Nocardiosis². Alternatives include Amikacin, Minocycline, and Imipenem³. Other drugs useful are linezolid, fluoroquinolones (Moxifloxacin) tetracyclines, and macrolides^{4,5}.

Recent susceptibility data from a large number of Nocardia strains suggest resistance to cotrimoxazole is less (2–3%) (except among *N. pseudobrasiliensis* [31%] and *N. transvalensis* [19%]) and effective for osteomyelitis⁶.

Discussion

Nocardia are ubiquitous and infections are found worldwide. Over 30 species of Nocardia are known,

among which *N. asteroides* and *N. braziliensis* are common and of clinical significance⁷.

Nocardia can spread hematogenously throughout the body from pulmonary infection. Disseminated infection can result in lesions in brain and skin and occur in 30% of patients. Disseminated nocardiosis has a poor prognosis⁸. Most common sites for dissemination are central nervous system, skin, subcutaneous tissues, and less frequently kidneys, bones, heart, eyes, and joints^{7,9}. To know the source of infection in this case, chest X-ray was performed that showed no evidence of infection.

Hélène Chaussade, et al in their article on articular Nocardiosis have reviewed 31 cases and reported 3 more cases of the same. Out of 34 patients, 4 had undergone heart transplantation and one kidney transplantation. Four patients had hematological disorders (12%). Three patients were diabetic (9%), 2 had solid cerebral neoplasia (6%) and one had HIV infection.

Autoimmune disorder was noticed in 6 patients (18%). No co-morbidities were found in 13 cases (38%)⁶. In the present case, uncontrolled diabetes could be the predisposing factor.

Of the 34 cases, 21 (62%) were due to hematogenous dissemination from lung, 9 (26%) were due to direct bacterial inoculation and in 4, mode of infection was

unknown similar to this case. Four of 34 were immunocompetent and 2 were elderly (78 and 82 years). Four out of these occurred on prosthetic joints. Among the native joints, Knee joint was the commonest joint involved (21 of 34- 61.7%) followed by hip (4) and elbow(3) joints. One each of joints of shoulder, wrist, inter-phalangeal and ankle was reported and multi-articular localisations were noticed in 3 patients. Two each of hip and knee joints had prosthesis. One knee had internal nail fixation⁶.

In the present case following surgical debridement and culture confirmation, patient was started on Trimethoprim (800 mg)+ Sulfamethoxazole (160 mg) 2 tablets twice daily for 12 weeks followed by one tablet twice daily for 14 weeks. However prosthetic joint infections should be treated for 26 weeks¹⁰.

The patient was followed up through telephonic consultation due to Covid 19 pandemic. Patient expressed that joint movements had improved and wound had healed completely and his diabetes was under control.

Time taken for diagnosis was over 6 months in this case. Hence Nocardia also should be considered with other etiology for diagnosis of chronic arthritis. Along with radiology and histopathology investigations, culture confirmation is essential for organism directed antimicrobial therapy.

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