



BACTERIOLOGICAL PATTERN OF CHRONIC OSTEOMYELITIS

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ABSTRACT

Chronic osteomyelitis can be defined as an infective inflammation of bone. In a developing country like ours it's a common problem. Open fractures, surgical interferences, nearby sepsis, penetrating injuries and haematogenous spread are some of the common causes. This is quiet common in younger children and in majority of time it is due to haematogenous spread of bacteria. Bone involvement is common because of rich blood supply of growing skeleton in children. The aim of this study is to evaluate epidemiology, pattern of bacteriological agent and site of bone involvement in cases of chronic osteomyelitis.

KEYWORDS : Chronic Osteomyelitis, Gram Stain, Culture and Sensitivity, Antibiotic.

INTRODUCTION:

There are various reasons like open fractures, surgical interferences, nearby sepsis, penetrating injuries and haematogenous spread is the most common cause of infection. Haematogenous spread of sepsis from primary focus somewhere in body to bone is common because of rich blood supply of growing skeleton in children. Chronic osteomyelitis commonly involves long bones like femur and tibia (Abid AS et al 2008).⁵Metaphysis of long bones are common site of infection because of hairpin arrangement of capillaries in metaphysis and decreased phagocytic action there. Multiplication of microorganism in metaphysis causes congestion, oedema, exudates, leucocytosis, necrosis and abscess (Reza M et al 2008).⁶ It is characterised by lowgrade inflammation, presence of dead bone sequestrum, new bone apposition and fistulous tract (Zuluaga AF, et al 2006).⁷ The bacteria most commonly causing chronic osteomyelitis are *S. aureus*, coagulase-negative staphylococcus, *Pseudomonas* spp., *E. coli*, *Proteus* spp., *Klebsiella* spp., *Enterococcus* spp., *Enterobacter* spp. and anaerobes like *Peptostreptococcus* spp., *Bacteroides* spp., *Clostridium* spp. and rarely *Salmonella* spp. and actinomycetes (Mandell GL et al 2010).⁸ The mixed infection is obviously determined by gram-negative bacteria with their marked resistance to antibiotics (Augsburg J 1981).⁹ The beta-lactamases including Extended-Spectrum Beta Lactamase (ESBL), AmpC beta-lactamase and Metallo-BetaLactamase (MBL) have emerged worldwide as a cause of antimicrobial resistance in gram-negative bacteria (Varun Goel et al 2013). Multidrug resistance with beta lactamases is difficult to detect and treat and there is increased mortality (Umadevi S et al 2011, Sheehy SH et al 2010).^{10,11} Chronic osteomyelitis can be defined as an infective inflammation of bone. In a developing country like ours it's a common problem. Open fractures, surgical interferences, nearby sepsis, penetrating injuries and haematogenous spread are some of the common causes. This is quiet common in younger children and in majority of time it is due to haematogenous spread of bacteria. Bone involvement is common because of rich blood supply of growing skeleton in children. The aim of this study is to evaluate epidemiology, pattern of bacteriological agent and site of bone involvement in cases of chronic osteomyelitis.

MATERIALS AND METHODS

This study was done in the Department of Orthopedics, KVG Medical College and Hospital, Sullia.

The study was done from June 2016 to May 2018 on 30 patients.

INCLUSION CRITERIA:

The present study was done using a sample subjects that included 18 patients.

This study was conducted in the Department of Orthopedics, KVG Medical College and Hospital, Sullia.

INCLUSION CRITERIA

- 1. Age of the patient 20 - 50 years..

EXCLUSION CRITERIA

- 1. Age of the patient less than 20 years and more than 50 years.
- 2. Diabetes Mellitus, Hypertension
- 3. Patients on steroids and immunosuppressant therapy.

RESULTS:

Table 1: Mean age of the population:

	Mean	Range	Std. Deviation
age	36.26	20-50 years	16.88

Graph 1: Age Distribution of the Population:

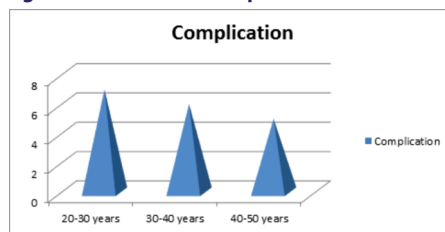
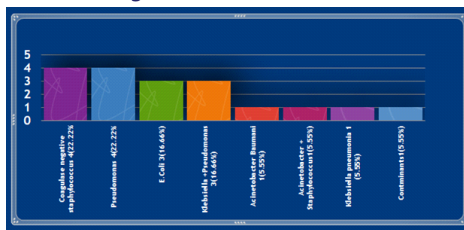


Table 2: Sex Distribution

Sex	Distribution
Male	11
Female	07

Graph 2: Microbiological Profile



Sensitivity:

- Most of the bacterial isolates from stone were sensitive to Aminoglycosides and Third generation Cephalosporins.
- Those resistant strains showed sensitivity to Piperacillin or Carbapenems.

DISCUSSION

Chronic osteomyelitis is notoriously resistant to treatment and requires aggressive surgical debridement with proper antibiotic coverage. Chronic osteomyelitis may require antimicrobial therapy for months to years after accurate identification of the pathogens. Chronic osteomyelitis were maximum seen in age group of 3-15 years (Waldvogel et al, 1970; Okoroma et al, 1984),^{12,4} which is in contrast to Espersen. According to him, there is fall in incidence of infection in paediatric age group due to early administration of

antibiotics (Espersen et al, 1991).¹³ Chronic osteomyelitis is most commonly a sequel of trauma. Isolation of causative agent and performance of antibiotic sensitivity are more important factor. Resistant causative organisms are isolated. Surgical debridement followed by careful antibiotic selection after culture and sensitivity is an effective treatment modality. Chronic osteomyelitis is an inflammation of bone caused by an infecting organism. The infection is generally due to a single organism, but polymicrobial infections can occur, especially in the diabetic foot (Canale St et al 2008).¹ Chronic osteomyelitis; infective inflammation of bone is a common problem in a developing country like India. According to another author, chronic osteomyelitis is one of the commonest orthopaedic disease in the tropics among children and adolescents under age of twenty years (Ofiaeli 1993, Dich 1975, Okorom 1984).^{2,3,4}

CONCLUSION

Isolation of causative agent and performance of antibiotic sensitivity are more important factor. Resistant causative organisms are isolated. Surgical debridement followed by careful antibiotic selection after culture and sensitivity is an effective treatment modality

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