Research article

Epidemiologic and clinical aspects of osteomyelitis in the rheumatology ward at Point G's University Hospital Center

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Abstract

Background: Osteomyelitis is a bone infection that results from haematogenous spread, and that affects both genders. It is found in children and adolescents and is mainly found in Africans with sickle- cell disease. Management of osteomyelitis in Mali faces difficulties because of the possible passage to chronicity.

Objective: To specify the epidemiologic and clinical characteristics of osteomyelitis and to evaluate the disease prognosis with treatment.

Patients and methods: This was a retrospective study covering a 7 year period (1st January 2006 to 31st December 2012), which included hospitalization files of patients diagnosed with osteomyelitis, whether referred or not.

Results: Thirty seven patient files were studied. All patients admitted in the ward were later followed either as outpatient or transferred to the orthopaedic surgery ward according to the evolution. Osteomyelitis is frequent, representing 5.8% of hospitalizations, with a mean age of 23.5 years. Trauma and sickle-cell disease were the main predisposing factors, each with a frequency of 18.9%. Consultation at advanced stages led to complications: neighbouring arthritis, skin fistula, multiple localizations. Probabilistic antibiotherapy, although sometimes excessive, was used. *Staphylococcus aureus* was mostly incriminated (45.9%). One case of tuberculosis was retained. Of the 12 patients voluntarily tested for HIV 1 and 2, one patient was positive for HIV 1. Long bones were preferably infected but damage to the iliac bone was not rare. Medical treatment as well as local care were not sufficient to prevent pathologic fractures in 18.9% of patients.

Conclusion: Acute osteomyelitis appears at all ages but is more predominant in young teenagers. Sickle cell disease is the most frequent co-morbidity. HIV immunodepression can be associated. Tuberculosis although endemic is not really incriminated.

Key words: Osteomyelitis, Sickle cell disease, Rheumatology, Mali

Introduction

Osteomyelitis is a bone infection that results from haematogenous spread, and that affects both genders[1]. It is mainly observed in children and teenagers, especially in Africans with sickle cell disease[2]. The portal of entry is often unknown, otherwise it may be a cutaneous, pulmonary or digestive infection. Frequently ear, nose and throat and/or urogenital areas are incriminated. The germ isolation inside the bone biopsy fragments is necessary to confirm diagnosis. Clinical presumptive elements such as standard radiography, ultrasonography of soft tissue, and positive haemocultures also permit to anticipate the therapeutic decision. The disease prognosis depends on early management. Septicemias, septic arthritis, the passage to chronicity and pathological fractures are the main complications. Management of osteomyelitis in Mali is difficult because of the possible passage to chronicity. The aim of the study was to specify epidemiologic and clinical aspects of osteomyelitis and to evaluate the disease prognosis before the treatment.

Materials and Methods

The study was retrospective covering a 7 year period [from January 1st 2006 to December 31st 2012]. Files of patients diagnosed with osteomyelitis who had been admitted were included (referred or not), regardless of age and sex. Data was collected on standardized anonymous investigation for measuring patient confidentiality. Data was analyzed using SPSS software version 18.0

Results

Thirty seven files were included. All the patients were hospitalized at least two weeks in the ward and then followed

as outpatients or transferred to an orthopaedic surgical ward depending on the evolution. Osteomyelitis represented 5.8% of all hospitalizations, with a mean age of 23.5 years; mostly represented by the 15-25 year age group. The first cause for consultation was a painful swollen limb (83.8%). Trauma (18.9%) and sickle-cell disease (18.9%) were the principal predisposing factors. Consultation at an advanced stage led to complications: neighbouring arthritis (75.7%), skin fistula (48.6%), multiple localizations (59.4%). Hyperleucocytosis was noticed in 73% of patients, the sedimentation rate was increased in 94.6% of patients, and CRP positive in 83.8% of patients. An inflammatory anaemia was found in 78.4% of patients. X-rays showed sequestrum and thickening of periostea, in all the patients, Brodie's abscess and bone cysts in respectively 21.6% and 64.9% of cases. Eighty three point eight percent of those patients who benefitted from ultrasonography had soft tissue anomaly. Probabilistic antibotherapy, was prescribed based on clinical analysis, biological and imaging studies. Staphylococcus species were found in 45.9% of cases (Table1).

Table1: Patients distribution according to isolated germs

Isolated germs	Effective	(%)
Staphylococcus aureus	17	45.9
Salmonella typhi	2	5.4
Streptococcus pneumoniae	4	10.8
Escherichia coli	1	2.7
Chryseomonaslutéala	1	2.7
Acinetobacter	1	2.7
Mycobacterias	1	2.7
Sterile	8	21.6
Culture not done	2	5.4
Total	37	100

Staphylococcus was causal in 45.9% of cases

Although rare, there was one case of mycobacterium tuberculosis. One out of the 12 patients voluntarily tested for HIV1 and 2 was positive for HIV1. Long bones were affected (femur in 30.9% of cases, tibia in 23.6% of cases, humerus in 16.8% of cases) and iliac involvement was found in 12.7 % of patients. Antibiotherapy was ajusted and maintained in all patients for at least three months. Pathologic fracture complication was observed on 18.9% of cases.

Discussion

Osteomyelitis is frequent with 5.8% of hospitalizations, Moyikoua *et al*[2] had reported 1.4% on 1800 hospitalizations during 4 years in the orthopaedic and surgical ward of Brazzaville's. The age group of 15-25 years was the most represented with a mean of age of 23 years and 6 months. Kouame *et al*[3] in their study had found 7 years and 5 months. Moyikoua *et al*[2] affirmed that this affection is rare in adults, that it comes from an infectious awakening and rarely from the evolution of a childhood osteomyelitis. This assertion is not antithetic to the results of our study. A painful febrile swelling was the main reason for consultation (83.8%), superior to Guindo's study results[4] which reported 53.2%. Traumatism was frequently reported before the episode, (18.9%); it was the frequent predisposing factor in male children, probably because of their vivacity[5]. Imaging was a determinant factor in the orientation for diagnosis of osteomyelitis. In a prospective study in the Middle-East by William[6] including 31 children, a sensitivity of 74% and a specificity of 63% was found with the use of ultrasonography in the diagnosis of osteomyelitis using the presence of an under periostea collection of 4 mm or more. The co-morbidity of osteomyelitis/sickle-cell disease, has been reported by other authors [2, 4,7]. It was 18.9% in this series. One case of immunodepression to HIV1 was noticed, this co-morbidity is rarely reported. Three positive HIV serologies reported by Moyikoua *et al*[2] and the only one case identified by Traore *et al*[8] makes it difficult to come to a conclusion. Staphylococcus was a predominant factor in confirming anterior data[1,9]. Antibiotherapy combined with local care (abscess drainage) did not always prevent pathological fractures (18.9%), thus making complementary orthopaedic surgery necessary. According to Chevrel and Richarme[10] fractures occur willingly on fistulized callousosteomyelitic lesions. Eighty one point one percent patients were considered in remission (clinical and biological improvement) because of the possible risk of relapse.

Conclusion

Acute osteomyelitis occurs at all ages but mostly affects the young teenager. Sickle-cell disease is the most frequent co-morbidity. HIV immunodepression is rarely associated. Tuberculosis, even if endemic, is rarely incriminated. Antibiotherapy combined to local care (abscess drainage) does not always prevent pathological fractures.

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