SAS Journal of Surgery
Abbreviated Key Title: SAS J Surg
ISSN 2454-5104
Journal homepage: https://www.saspublishers.com

OPEN ACCESS

Pediatric

Chronic Osteomyelitis of the Tibia in Children: About 01 Cases

A Doumbia[1*], M B Daou[2], Ouattara K[3], O Coulibaly[2], B Kamate[2], MK Djire[2], I Amadou[2], Y Coulibaly[2]

[1]Pediatric Surgery Unit of the Mohammed VI Perinatal Clinic in Bamako- Mali
[2]Pediatric Surgery Department of CHU Gabriel Touré, Mali
[3]Anesthesia-Resuscitation Service of the Reference Center of Commune II of Bamako, Mali

DOI: 10.36347/sasjs.2023.v09i11.015 | **Received:** 18.10.2023 | **Accepted:** 24.11.2023 | **Published:** 29.11.2023

***Corresponding author:** A Doumbia
Pediatric Surgery Unit of the Mohammed VI Perinatal Clinic in Bamako- Mali

Abstract **Case Report**

***Introduction*:** Chronic osteomyelitis is a chronic infection of the bone and marrow. It evolves in a tenacious and recurrent manner. ***Observation*:** 15 year old boy, not in school, without known ATCD, admitted for painful swelling of the left leg in whom the onset of the disease dates back to 04 years marked by pain in the left leg associated with a fever. On the locomotor examination we noted a painful swelling of the left leg with 03 fistulous orifices on the anteromedial aspect of the left leg; leaking foul-smelling pus. He benefited from a pus sample for a cytobacteriological study, a sequestrectomy, curettage and abundant washing with hydrogen peroxide and physiological serum. The postoperative course was simple. The patient was seen again at 10 months and he presented a good clinical, biological and radiological evolution. ***Conclusion*:** Chronic osteomyelitis mainly affects the young population. Pandiaphysitis with sequestra remains its clinical forms which pose enormous therapeutic problems.

Keywords: Bone, Infection, chronic, Tibia, Child.

INTRODUCTION

Chronic osteomyelitis is a chronic infection of the bone and marrow. It evolves in a tenacious and recurrent manner; The adage osteomyelitis for one day, osteomyelitis for a lifetime illustrates this tenacity well. It has been the subject of several publications not for its frequent and stereotypical location on the long bones of the limbs or its occurrence in damaged areas but above all for the difficult therapeutic problems it poses [1].

OBSERVATION

15 year old boy, not in school, with no known history, admitted for painful swelling of the left leg in whom the onset of the disease dates back to 04 years marked by pain in the left leg associated with a fever. Faced with this picture, he benefited from traditional treatments such as massage and taking unspecified antibiotics without success.

The evolution was marked by painful swelling of the left leg with a soft tissue fistula associated with absolute functional impotence of the left lower limb.

On the locomotor examination we noted a painful swelling of the left leg with 03 fistulous orifices on the anteromedial aspect of the left leg; leaking foul-smelling pus.

The X-ray of the left leg in front and profile revealed pandiaphysitis, periosteal apposition, osteolysis and osteocondensation, rupture of the cortex in some areas and bone sequestra (Fig. 1). The biological assessment showed a hemoglobin level of 12g/dl, a white blood cell level of 15,000, a CRP of 20 mg/l, and an accelerated ESR.

Fig. 1: Pandiaphysitis; osteolysis; bone sequestra of the left tibia

He underwent surgery. Exploration found bone destruction (Fig. 2) with a soft tissue fistula leaking pus on the anteromedial aspect of the proximal, middle and distal 1/3 of the left leg with several bone sequestra. We took a pus sample for a cytobacteriological study, a sequestrectomy (Fig. 3), a curettage + bone biopsy for an anatomo-pathological examination and abundant washing with hydrogen peroxide and physiological saline. The postoperative course was simple. The patient was seen again at 10 months and he presented a good clinical (Fig. 4), biological and radiological evolution.

Fig. 2: Intraoperative image of bone destruction of the left tibia

Fig. 3: Intraoperative image of the bone sequestra of the left tibia

Fig. 4: Evolution 10 months after surgical treatment of the left leg

DISCUSSION

Chronic osteomyelitis is generally the sequela of acute osteomyelitis that was treated too late or did not respond to treatment. Does chronic osteomyelitis exist from the outset? In 1893, Garré [2] described a form of chronic osteomyelitis immediately characterized by bone "thickening" that did not progress towards suppuration, sequestration or fistulization. This is a purely clinical description. Among the cases of sclerosing osteomyelitis published during the first half of this century, there are certainly several uncertain diagnoses and in particular cases of osteoid osteomas ignored.

In 1982, Collert and Isacson [3] from Stockholm reviewed a series of eight patients collected over 20 years and meeting the following criteria:

- Histological diagnosis of chronic non-suppurative osteomyelitis;
- Bone densification on the x-ray.

According to CHEVREL and RICHARME [4], chronic osteomyelitis has three etiological forms: post-traumatic osteomyelitis, prolonged osteomyelitis complicating acute osteomyelitis, chronic osteomyelitis immediately considered as a decapitated form of acute osteomyelitis. by antibiotic therapy. This classification does not take into account the terrain on which chronic osteomyelitis develops. The mode of contamination and especially the metaphyseal site different from those of adults (hematogenous route and often site metaphyseal in the former, notion of trauma corresponding to a portal of entry and diaphyseal site in the latter) [1].

The clinical picture is extremely variable. It can present in the form of an acute picture, with pain and functional impotence of the limb, local inflammatory signs and temperature. These will then be cases of infections with aggressive germs (staphylococcus aureus or strains of streptococcus). The picture of chronic osteomyelitis often follows a picture of acute osteomyelitis as in the case of our observation, generally within 3 months following the end of antibiotic therapy, and more regularly between the 2nd and 3rd months. It may also be noted in late declarations of postoperative infections, beyond the postoperative month and in the year following the surgical procedure, posing the difficult problem of differential diagnosis between an acute hematogenous infection and acute late awakening. of a chronic postoperative infection [5].

Remember that the most frequent locations [1] were the tibia: 12 times, the femur: 11 times. Next come the humerus: 5 times, the ulna: 4 times, the radius and fibula: 3 times each. Our statistics corroborate with the literature except for the ulna which seems to be less affected than the radius in most authors. Furthermore, in our study series, the lesions took a hyperostosing form, making the ulna larger in its lower part than the radius. The evolution of these hyperostosing lesions proceeded rapidly towards the formation of necrosis and then sequestrum.

In the acute phases [5], blood tests (C-reactive protein (CRP), leukocytes) demonstrate elevated values but these abnormalities are not specific. A normal value is in fact not exclusive of the diagnosis and are regularly normal in the event of persistent discharge. The realization of a sedimentation rate is probably still of interest here because it can be the only biological marker disturbed as in the case of our observation.

Standard radiological imaging will make it possible to assess bone changes: areas of resorption with osteopenia, dense images suggestive of sequestra like the case of our observation, degree of bone consolidation, state of alignment of bone structures. Imaging will be more indicative in damage to the cortex with the appearance of a periosteal reaction and sclerosis [5]. CT and nuclear magnetic resonance (MRI) make it possible to assess with greater precision the extent of the disease in the soft tissues and the spinal cavity and currently represent the examinations of choice. The scanner allows in particular the careful evaluation of the bony cortex, the search for possible sequestra or foreign bodies, and the identification of collections. MRI makes it possible to better assess abscesses or collections. These two examinations also allow the diagnosis of transformation into squamous cell cancer in the areas of fistulization [5].

Microbiological culture is the key element of diagnosis. We will simply recall the need to ideally have 5 deep samples and to ensure that the cultures are sown as quickly as possible and extended for 14 to 21 days to allow the isolation of fragile germs. The anatomo-pathological examination must be carried out at the same time as the biopsy for culture and we recommend coupling these examinations in such a way that the culture result can be correlated with the histological result [5].

The treatment of chronic osteomyelitis is primarily surgical [5], as was the case in our observation. It aims to evacuate inert and necrotic elements, whether from bone or synthetic material, to remove elements that can serve as a basis for bacterial adhesion and to reduce the inoculum. Insufficient resection is the most certain source of therapeutic failure. Resection can compromise bone continuity and temporary function of the limb. It exposes the patient to a complex subsequent reconstruction, lastingly limiting his function. Such a heavy surgical sanction requires informing the patient about the length and complexity of the treatment. It is appropriate to discuss with him the alternatives of therapeutic abstention, amputation or simpler cleanliness surgery.

The principles to be applied for the treatment are as follows:

- Resection of necrotic tissues and inert material;
- Obliteration of dead space and bone stabilization;
- Bone cover;
- Bone reconstruction. Antibiotic treatment is complementary and must be started quickly intravenously, after having obtained all the microbiological samples including the bone sample. It is not curative in itself but prevents the secondary development of new bacterial grafts from bacteria released during the surgical procedure.

CONCLUSION

Chronic osteomyelitis mainly affects the young population. Pandiaphysitis with sequestra remains its clinical forms which pose enormous therapeutic problems.

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