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Primary Tumors of Long Bones at The Regional Hospital of Sokode: Epidemiological, Diagnostic and Therapeutic Characteristics

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Abstract

Introduction: The objective of the study was to describe the epidemiological, diagnostic, therapeutic and evolutive aspects of long bones primary tumors at the Regional Hospital of Sokode.

Patients and Method: It was a prospective descriptive study of patients with long bone primary tumors for a period of 04 years from January 2019 to December 2022.

Results: Twenty-eight tumors were identified in 18 men and 10 women. The morphological assessment was standard radiography (n=28), CT scan was performed in 18% (n=05). These were osteolytic tumors (39.2%), osteocondensing tumors (21.4%), mixed tumors (25%) and mixed tumors with fracture (14.4%). Anatomopathology examination of 14 patients showed osteosarcoma (n=06), chondrosarcoma (n=03), Ewing's sarcoma (n=01) and an osteochondroma (n=04). Surgical treatment by transfemoral amputation was performed in 06 cases for malignant tumors. An excision biopsy was performed for the 04 lesions whose diagnosis was an osteochondroma.

Conclusion: Diagnosis and treatment of primary long bone tumors is difficult in isolated surgical areas. The subsidy of their treatment, the implementation of diagnostic and therapeutic tools could improve the vital prognosis of patients with malignant tumor.

Keywords: bone tumor; radiography; biopsy; treatment

Introduction

Primary bone tumors are relatively rare conditions [1-3].

They represent a therapeutic challenge and can be life threatening in the case of malignant bone tumors [4-7]. The management of these lesions is multidisciplinary and requires an appropriate exploration and technical platform. In developed countries, there are specialized centers or services dedicated solely to the treatment of these pathologies. [8-11].

In Togo, as in most developing countries, these centers are few and are usually located in the capital of the country [7, 12]. They are therefore distant from the population outside the capital.

Thus, in the peripheral centers, treatment of these tumors is provided by the orthopedic surgeon in remote collaboration with the pathologist, oncologist, radiologist and other specialists in a general trauma center.

When treatment is not available, medical evacuation in countries with an advanced technical platform remains the last resort for the patients [13].

The objective of the study was to describe the epidemiological, diagnostic, therapeutic and evolutive aspects of long bone tumors in a regional hospital in Togo.

Patients and Method

This was a prospective descriptive study of patients admitted from January 2019 to December 2022. All patients admitted for consultation and hospitalized in the Orthopaedics Traumatology Department of the Regional Hospital of Sokode during this period, which have been diagnosed for primary bone tumor were included. The nearest pathology and cancer center was located 340 km away in Lome.

An exchange of medical records was made between the surgeon, the radiologist, the oncologist and the pathologist before the therapeutic decision was made.

The parameters studied were age, sex, site, radiological aspect, anatomopathological type, treatment and evolution. The admission was considered early when < 03 months and late > 03 months after the onset of the symptomatology.

Variables were collected with Epi Info 7. Categorical variables were expressed as a percentage.

Results

Epidemiology

During this period, 2705 patients were admitted to the department for traumatic and orthopedic conditions. Twenty-eight patients presented primary long bone tumors. The prevalence was 1.03%. There were 09 patients under 20 years and 19 patients over 20 years. The average age of the patients was 27 11.6 years with extremes of 12 and 58 years. There were 18 male and 10 female patients, i.e. a sex ratio of 9/5 in favor of men. According to the profession, we noted liberal professions (n=11), civil servants (n=07), students (n=08) and two patients without profession.

Diagnosis

- The circumstances of discovery were pain with limb deformity in 39% (n=11), pathologic fracture in 22% (n=06), pain only 21% (n=06), incidental finding 18% (n=05).
- The limb was scarred (traditional treatment) in 39% (n=11) before admission. Admission to hospital was late in 89% of cases (n=25). Tumors with skin ulcerations were noted in 22% (n=06 cases) associated with weight loss and anemia.
- The first-line morphological assessment was the standard X-ray, which was performed in 100% of cases (n=28). According to the radiological aspect, osteolytic lesions were noted in 39% (n=11), osteocondensing lesions in 22% (n=06), mixed lesions in 25%

(n=07) and a mixed lesion with an associated pathological fracture in 14% (n=04) (figures 1, 2, 3).

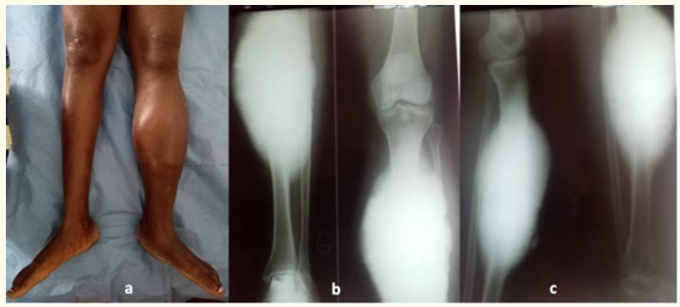

Figure 1: Clinical (a) and radiographic (b,c) appearance of an osteo-condensing tumor.

Figure 2: Mixed radiographic appearance (osteocondensation and osteolysis) of a tumor of the distal femur associated with a fracture.

Figure 3: Radiological aspect of an osteolytic tumor of the humerus.

- Depending on the site, the distal femur was involved in 39% (n=11), the proximal femur in 18% (n=05), the tibia in 22% (n=06), the humerus in 18% (n=05), the distal radius in 03% (n=01).
- The borders were condensed and clear in 44% (n=12); an irregular contour was noted in 56% (n=16) with invasion of the soft parts.
- A complementary CT scan was performed in 18% (n=05).
- Pathology examination was performed in 50% of cases (n=14) (Table 1).

	N°	***Age/sex***	***Seat***	***Pathologist diagnose***	***Treatment***
Malignant tumors	1	13 y.o /M	Distal femur	Osteosarcoma	Transfemoral amputation
	2	12 y.o /M	Distal femur	osteosarcoma	Referral for multidisciplinary care
	3	28 y.o /M	Humerus	Ewing's sarcoma	Referral for multidisciplinary care
	4	58 y.o/ F	Distal femur	chondrosarcoma	Transfemoral amputation
	5	14 y.o /M	Proximal tibia	osteosarcoma	Transfemoral amputation
	6	42 y.o/ M	Proximal femur	Chondrosarcoma	Referral for multidisciplinary care
	7	19 y.o /F	Distal femur	Osteosarcoma	Transfemoral amputation
	8	32 y.o /M	Distal femur	Osteosarcoma	Transfemoral amputation
	9	34 y.o / F	Tibia	Osteosarcoma	Transfemoral amputation
	10	18 y.o / F	distal radius	Chondrosarcoma	Referral for multidisciplinary care
Benign tumors	11	26 y.o/F	Distal femur	Osteochondroma	Biopsy excision
	12	22 y.o / F	proximal Tibia	Osteochondroma	Biopsy excision
	13	28 y.o /M	distal Tibia	Osteochondroma	Biopsy excision
	14	35 y.o/ F	Proximal femur	Osteochondroma	Biopsy excision

Table 1: Summary of patients who underwent pathological examination.

Treatment

Treatment consisted of excisional biopsy in front of tumors with condensed margins in 14% of cases (n=04) (Figure 4) followed by pathological examination. The tumor was an osteochondroma in all 4 cases.

Figure 4: Clinical appearance(e) of an osteochondroma(note the presence of scarification) of the left distal femur, radiographic appearance(f), operative appearance(g) and postoperative radiograph.

For 28% (n=08) of the patients, therapeutic abstention was done with annual follow up.

In case of suspected malignancy, the patient was referred to the referral centers in the capital (Lome) where chemotherapy and radiotherapy were available. Four patients received multidisciplinary management after referral. These were two osteosarcomas, one Ewing's sarcoma and one chondrosarcoma.

Six patients were treated on site by transfemoral amputation for lack of financial means to reduce blood spoliation (Figure 5). A preoperative biopsy was performed by surgical sampling. Pathological examination confirmed 04 osteosarcomas and 02 chondrosarcomas.

Six patients refused treatment and were discharged against medical advice.

Figure 5: Clinical aspect of a bone tumor of the left knee with soft tissue invasion and soft tissue invasion and skin ulceration, medial view(d) and lateral view(e).

Evolution

There was one death in the immediate postoperative period. Three other patients treated by amputation were discharged against medical advice and were lost to follow-up. The last two patients died at 04 and 06 months.

At 12 months, no recurrence was noted for the benign tumors operated.

Discussion

We recorded a series of 28 primary long bone tumors over a period of 04 years.

The young population was the most represented as in most studies. Benign and malignant primary bone tumors are the prerogative of the young subject. For Omolade et al [6] the peak age is between 11 and 22 years;

One third of our series was under 20 years of age. On the other hand, according to Ottaviani et al [14], osteosarcoma presents a bimodal peak, the first at puberty and the second after 65 years of age in patients with predispositions like Paget's disease.

Malignant tumors seemed to be more represented in this series. This may be explained by the semi-urban environment. A medical consultation was not systematically sought in the event of the appearance of a non-painful mass on a limb, as also pointed out by Walla et al and Gnassingbe et al [3, 5].

Thus, there are many undiagnosed patients unlike in developed countries where subsidized treatment facilitates early detection and treatment. In addition, patients generally went to a bonesetter before admission. This explains the presence of scarification (39.2%) on the limb and favors the rapid presence of skin ulcerations and an alteration of the general state of health by superinfection.

Morphological assessment was limited essentially to standard radiography and rarely to CT scan because of the insufficient technical platform. As the care was at the patient's expense, a complete extension workup and appropriate management in this series required a closer approach to the capital. Nevertheless, as Errani [15] et al emphasizes, standard radiography still has an indisputable place in the initial analysis of lesions.

When the conditions are met, a workup consisting of an angioscanner, an MRI, and a biochemical or even genetic study of the lesion is performed after biopsy [16-18]. The scintigraphy allows the identification of possible metastases that can guide the definitive treatment. Surgery does not exclude amputation, but reconstructive surgery is possible after carcinological resection, radiotherapy and/or chemotherapy [9, 19-21].

The malignant lesions were predominantly around the knee as found by Walla et al and consisted of osteosarcoma.

According to the consensus recommendations [22] for malignant bone tumors, preoperative biopsy for anatomopathological examination should only be performed by the team providing definitive treatment; in our context, the patient was in these cases referred when possible for global management.

In the absence of a work-up and in view of the late admission of patients to isolated hospitals and limited financial means, the therapeutic decision was based on the radiological aspect but also on the clinical condition of the patient. In front of a significant alteration of the general state with skin ulcerations and radiological signs of invasion of the soft parts, amputation constituted the best option in order to reduce the blood spoliation and to decrease the pain of the patient.

Despite this palliative treatment, the prognosis was poor.

The lack of subsidy for the treatment of these pathologies explains the difficulty in establishing a suitable management plan, as pointed out by Diop et al [7].

For benign tumors, essentially represented by an osteochondroma in this series, the indication for surgery was only given when there was pain with significant discomfort around the tumor.

It consisted of a complete removal of the tumor and the peri-tumoral soft tissues as recommended by most au thors [23, 24]. Anatomopathological examination was systematic in all these cases and confirmed the removal in a healthy area. No recurrence was noted in cases of benign bone tumor resection.

Conclusion

During this study in a regional hospital, bone tumors were infrequent representing 1.03% of all orthopedic and traumatological pathologies in the department. The main reason for consultation was pain with limb deformity. Anatomopathological examination could only be performed in 50% of cases. Amputation was the default treatment for malignant tumors with blood spoliation. The management of malignant tumors was limited by the technical platform and insufficient human skills. They constitute an orphan pathology whose treatment remains precarious and difficult in tropical environments.

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