# Giant cell tumors of the child's fibula: a case study

G Ngom, A Ndiaye, O Ndour, M Fall, A Désiré, M Ndoye

**Citation**

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**Abstract**

We report an exceptional case of Giant Cell Tumor (GCT) in child. A twelve –year-old girl which presented a tumefaction at the lower extremity of her right leg. The clinical examination revealed a good general state of health, a non inflammatory tumor at the latero-external side of his right leg. A standard X-ray photography showed a bee nest like osteolysis lesion at the lower fibula metaphyse. A biopsy was performed and confirmed the diagnosis of a GCT. The treatment consisted in a large ablation of the tumor including part of the healthy zone, followed by an autologous iliac bone graft, stabilized with a Metaizeau pin and a cruropedal plaster. The evolution was favourable after a period of two years. The case we are presenting is fairly exceptional because of its location and the age of the patient.

## INTRODUCTION

Giant cell tumors (GCT) are practically benign, osteolytic, recurring and metastatic usually located at the epiphysio-metaphyseal level of the young adult's long bones [1, 2, 3]. Its location at the child's lower fibula extremity is exceptional. We are reporting a case of a Giant Cell Tumor of a twelve year –old child's lower fibula extremity.

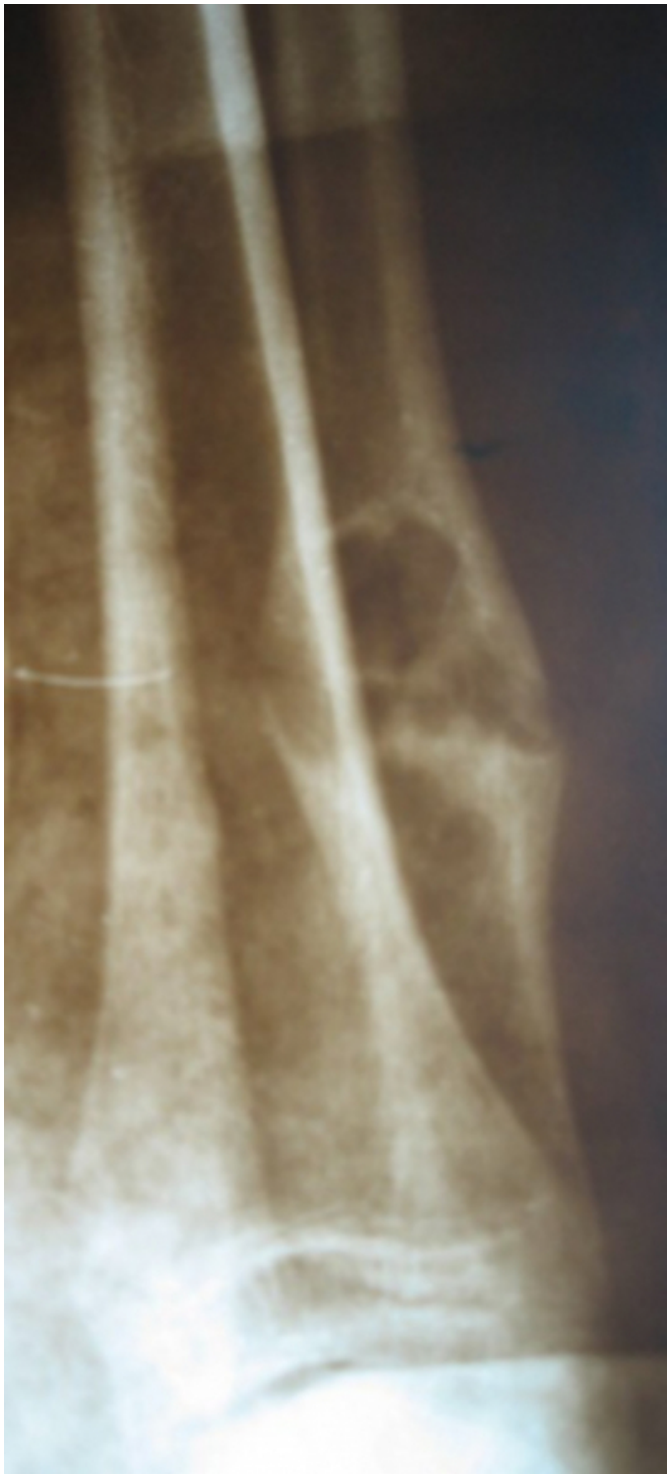
## CASE REPORT

A twelve -year-old girl with a past of a road accident at the age 4, which caused her an open fracture of her right leg.

She was examined for a painful tumefaction at the lower extremity of her right leg. The patient reported that her tumefaction had been gradually developing for four to six months. The clinical examination revealed a non inflammatory at the latero-external face of her right leg, with no vascular and nervous troubles. The ankle movement were normal had objectivised no locoregional adenopathies, no alteration of the general state of health and no other abnormalities. The standard radiography of the right leg revealed a bee hive like osteolysis lesion at the lower fibula metaphysic without articular invasion or of the soft parts (Figure 1).

**Figure 1**

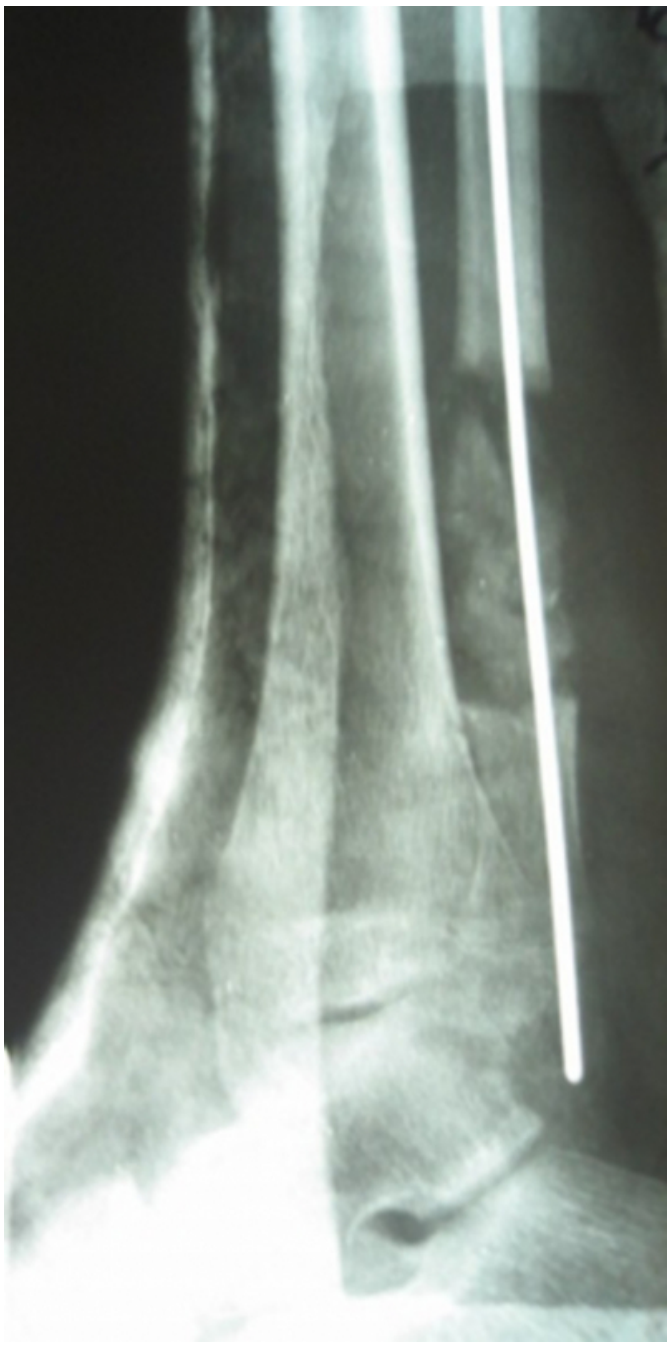
Figure 1: Leg Face and profile X-ray, "bee hive" like osteolysis image



The scanning and the sound magnetic resonance imaging were not performed because of a lack of means. The X ray photography of the lungs and biology were normal. The bone biopsy confirmed the diagnosis of giant cell tumor at level II according to Jaffe – Lichtenstein classification. The treatment consisted of a large ablation of the tumor including part of the healthy zone, followed by an autologous bone graft removed from the right iliac wing, stabilised by Métaizeau pin and a cruropedal plaster (Figure 2).

**Figure 2**

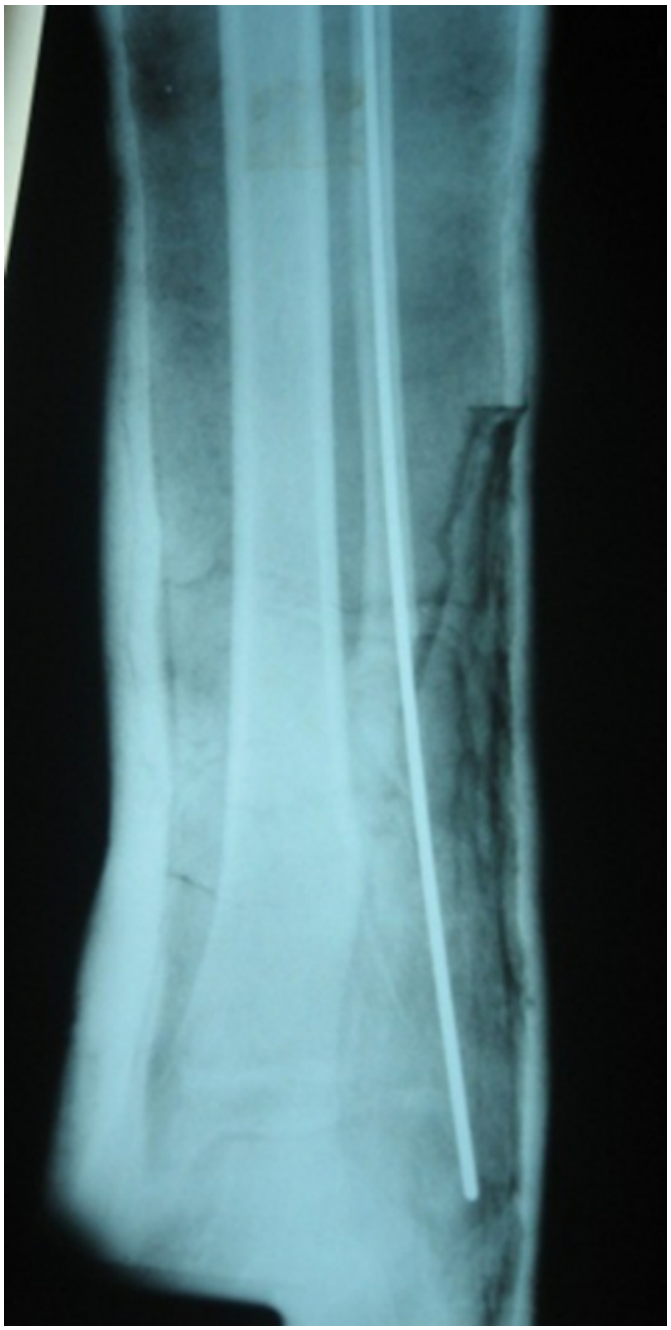
Figure 2: Ablation of the tumour followed by an iliac bone graft stabilised by a Métaizeau and a cruropedal plaster.



The consolidation was completed during the sixth month, time when the pins were removed (Figure 3).

**Figure 3**

Figure 3: bone consolidation after a six-month evolution.



During a 24 month-regular monitoring, no recurrence was noted and the lung radiography was still normal.

## COMMENTS

Described for the first time by PAGET, in 1853, giant cell tumors represent 5 to 10 % of the totality of primitive bone tumors. A histopathological clarification will be brought by JAFFE and LICHTENSEIN in 1940. The majority of giant cell tumours is observed among patients aged between 20 and 40 and is exceptional at the age of 15 [1, 4]. The epiphysio-metaphyseal location in long bones, near the knee and far from the elbow is commoner [4]. The location at the fibula level, at its high extremity is rare [1, 5] and is almost absent in the literature, at the level of the fibula distal extremity as it was a case in our observation. The clinical grid showed nothing specific, the appearance of painful tumefaction and specially of a pathological fracture, alerts the patient [4, 6]; it is the appearance pain from a tumefaction of the lower extremity of the leg evolving for six months which led the patient to seek medical care. Besides, the clinical examination in our observation as well as in most described cases was normal. The standard radiography brings in more diagnosis arguments with the presence of osteolysis image called "bee hive image" located at adult's metaphysio-epiphysis and specifically at child's metaphysic. [1, 7, 8] as it is the case in our observation. The angiography, the bone scintigraphy, the tomodensitometry (TDM), the magnetic resonance imaging ( MRI) rarely change the diagnosis based on the simple initial radiographies. The examinations serve in fact to evaluate the scope of the lesion and the affection of the surrounding areas. [1, 8, 9]. In our observation, we did not perform them because of a lack of means. The certainty diagnosis is histopathological. Not only does it allow to classify GCTs in three levels according to JAFF- LICHTENSTEIN's prognosis-oriented classification, but also and above all to set the differential diagnosis with chondroblastoma, aneurismal cyst, a reactional osteogenesis or a sarcoma [1, 7]. The biopsy performed in our observation confirmed a JAFFE-LICHTENSTEIN's level II GCT. The biological constants came back normal like in most cases [1]. The phospho- calcium assessment was normal in our observation, which allowed to exclude a hyperparathyroidism. The treatment consisted of an aggressive curettage associated with a variable fill according to the teams (allograft, autograft, adhesive) fixed or not by osteosynthesis material. Some adjuvant treatments are proposed: intra –focal thyrocalcitonin, phenol, liquid nitrogen or thermocoagulation of the tumour cavity surface to reduce the recurrence risk. When the curettage was no longer possible, the marginal sometimes detoriating resection is the rule [1, 4, 7, 10]. In our case, we performed an ablation – a fill by autograft removed from the right iliac crest stabilised by Metaizeau pin and a cruropedal plaster. The GCT evolution is marked par the appearance of recurrences and metastases according to variable times and locations [1, 4, 9] which justified a prolonged surveillance.

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## Author Information

**Gabriel Ngom, PhD**
Department of Paediatric Surgery, Aristide Le Dantec Hospital

**Aïnina Ndiaye, MD**
Department of Paediatric Surgery, Aristide Le Dantec Hospital

**Oumar Ndour, MD**
Department of Paediatric Surgery, Aristide Le Dantec Hospital

**Mbaye Fall, MD**
Department of Paediatric Surgery, Aristide Le Dantec Hospital

**Alumeti Munyali Désiré, MD**
Department of Paediatric Surgery, Aristide Le Dantec Hospital

**Mamadou Ndoye**
Department of Paediatric Surgery, Aristide Le Dantec Hospital