

Epidemiological Aspects of Lefort II Fractures Treated at Nianankoro Fomba Hospital in Segou: About 17 Cases

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Abstract

The Lefort II fracture (pyramidal fracture) or high transfacial is a solution of bone continuity of the middle stage of the face whose fracture line concerns the glabella, the ethmoid massif, the two maxillary sinuses and the pterygoids causing more or less important the mobility of the middle stage of the face. **Objectives:** of this study were to study the frequency of Lefort II fractures at Nianankoro FOMBA Hospital in Segou; to study the target population of Lefort II fractures at the Nianankoro FOMBA hospital in Segou; evaluate the treatment option for this pathology; to study the fate of treated patients. This was a prospective study, carried out in the stomatology and maxillofacial surgery department of Nianankoro FOMBA Hospital in Ségou over a period of 3 years, i.e. 36 months from October 1, 2016 to October 1, 2019. It covered all cases of Lefort II fractures admitted to this department for their care. During our study we recorded 225 cases of maxillofacial trauma including 17 cases of Lefort II fractures or 7.55% of all traumatic injuries admitted to the service. Lefort II fractures are a social and public health problem affecting mainly young male subjects in the 20 to 29 age group most often following accidents on public roads. Their diagnosis is made by clinical examination associated with paraclinical examination (computed tomography) which makes it possible to locate the fracture foci.

Keywords: Diagnosis, Treatment, Evolution.

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I. INTRODUCTION

The Lefort II fracture (pyramidal fracture) or high transfacial is a solution of bone continuity of the middle stage of the face whose fracture line concerns the glabella, the ethmoid massif, the two maxillary sinuses and the pterygoids causing more or less important the mobility of the middle stage of the face.

This condition frequently affects young subjects in activity; The diagnosis of these lesions is radio-clinical and their treatment is done surgically or orthopedically. Well treated their evolution is generally favorable.

Objectives of this study were to study the frequency of Lefort II fractures at Nianankoro FOMBA

Hospital in Segou; to study the target population of Lefort II fractures at the Nianankoro FOMBA hospital in Segou; evaluate the treatment option for this pathology; to study the fate of treated patients.

II. MATERIALS AND METHODS

This was a prospective study, carried out in the stomatology and maxillofacial surgery department of Nianankoro FOMBA Hospital in Ségou over a period of 3 years, i.e. 36 months from October 1, 2016 to October 1, 2019. It covered all cases of Lefort II admitted to this service for their care. To complete this study we used the following variables: age of patients by ten-year increments, gender of patients, occupation, residence, mechanism of trauma, type of radiological assessment, type of treatment and type of course.

The collection of these data was made on the basis of the survey sheets drawn up after the drafting of the patients' medical records. The analysis of this data was done by the Epi info software version 3.5.4.

III. RESULT

During our study we recorded 225 cases of maxillofacial trauma including 17 cases of Lefort II fractures or 7.55% of all traumatic injuries admitted to the service.

Among the 17 cases of fractures fracture of Lefort II; We recorded 16 male cases (94.1%) and 1 female case (5.9%) with a sex ratio of 5 in favor of men (Fig. 1). The age of patients ranged from zero to sixty (0-60) years and older with an age range of ten (10) years. The age group most affected by the Lefort II fracture is that of 20- 29 years with a frequency of 6

cases or 35.29% (fig. 2). The professionals most affected by the Lefort II fracture are growers with a frequency of 7 cases or 41.2% (fig. 3). The region is composed of two zones; rural and urban areas. Subjects from rural areas are the most affected by the Lefort II fracture with a frequency of 10 cases or 58.8% (fig. 4). The traumatic mechanisms responsible for the Lefort II fractures are numerous but the most frequent is the accident on the public road with a frequency of 16 cases or 94.1% (fig 5). The radiological assessment mainly carried out is that of computed tomography with a frequency of 17 cases or 100%. The type of treatment mainly carried out was that of osteosynthesis with a frequency of 14 cases including 8 cases or 47.1% by the targeted plates and 6 cases or 35.5% by steel wire (fig 6). Evolution has been supportive in all of our patients. All of our patients have had a good evolution with good dental joint and without postoperative infection.

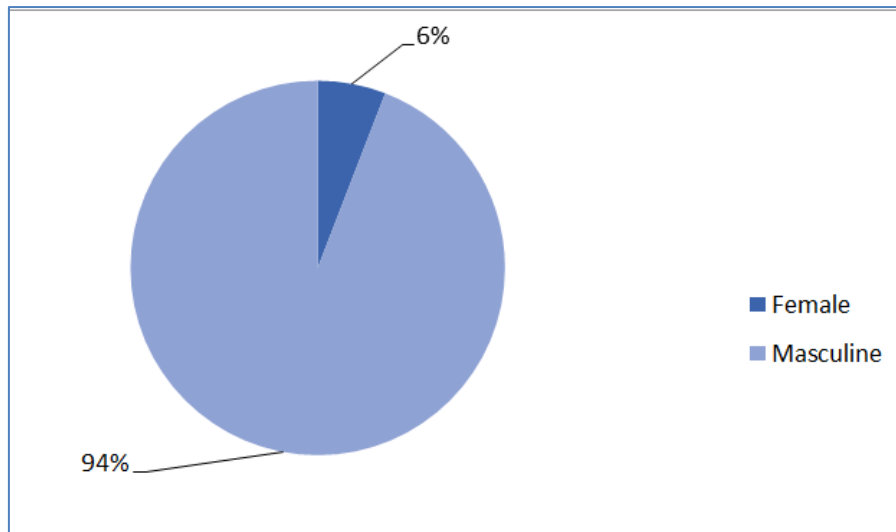


Fig. 1: Distribution of patients by sex

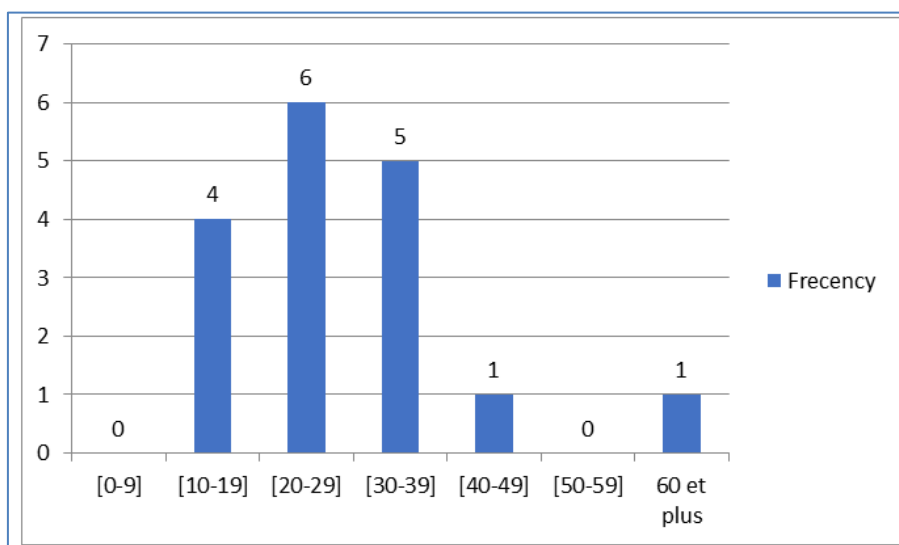


Fig. 2: Distribution of patients by age group

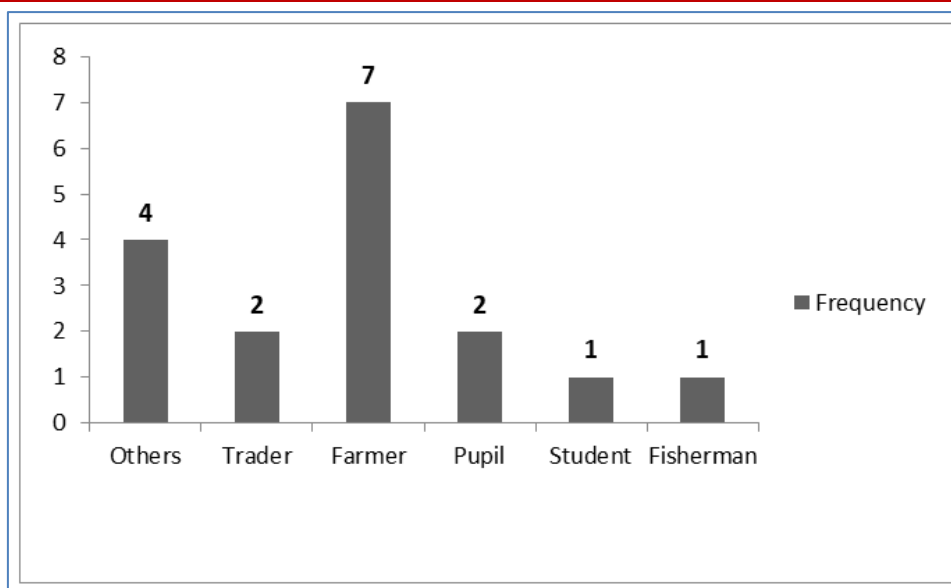


Fig. 3: Distribution of patients by occupation

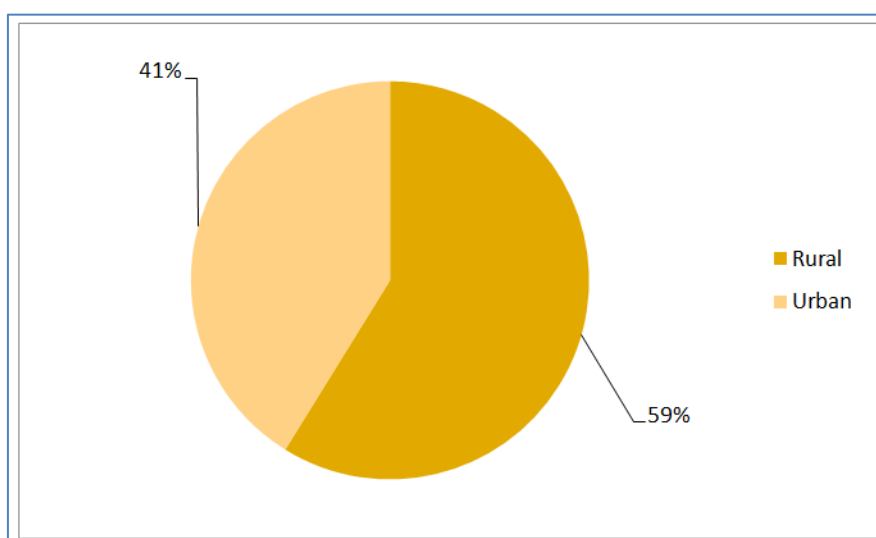


Fig. 4: Distribution of patients by residence

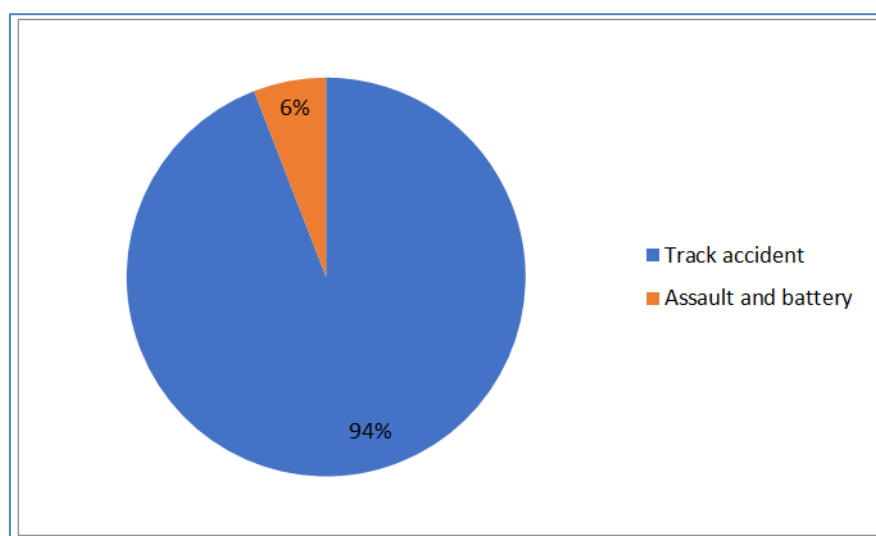


Fig. 5: distribution of patients by mechanism

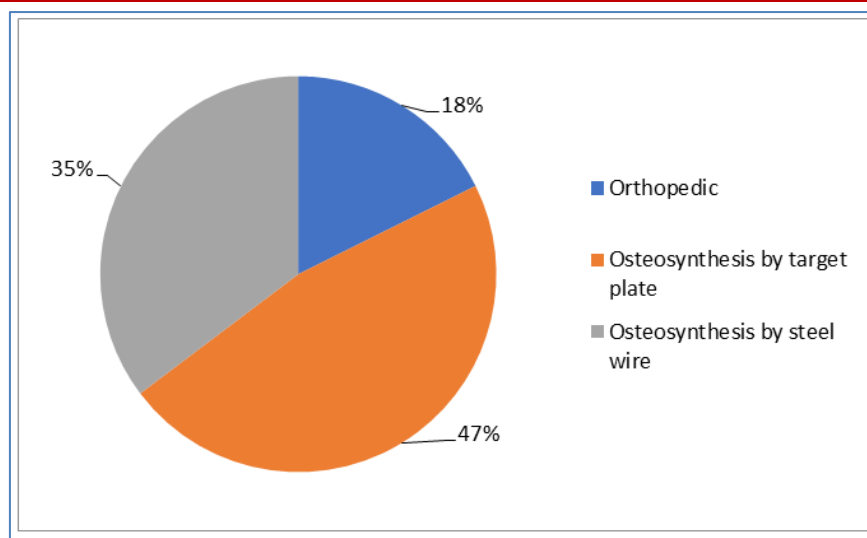


Fig. 6: Distribution of patients by type of treatment

IV. DISCUSSION

During our study we recorded 225 cases of maxillofacial trauma including 17 cases of Lefort II fractures or 7.55% of all traumatic injuries admitted to service over a period of 3 years or 36 months. Unlike other studies that have had higher frequencies than ours such as that of Moussa M *et al.*, where the hospital frequency is about 25% over a period of 30 months [1] and that of Diallo in Bamako which had reported 11 cases out of 62 or 17.7% over a period of 9 months [2]. This difference in frequency may be related to the demographic population of different localities. The age group most affected by the Lefort II fracture is that of 20-29 years with a frequency of 6 cases or 35.3%. Our result is consistent with data from the literature where the study population had an average age of 28.7 years with extremes ranging from 8 to 53 years. The distribution of Lefort II fractures according to age group had shown a predominance of young subjects between 16-30 years (46.70%) [1]. This is because young people are more exposed to violent activity. We recorded 16 male cases or 94.1% and 1 female case 5.9% with a sex ratio of 5 in favor of men. Our result is consistent with the results of other studies where the study population was male-dominated with a sex ratio of 4.0 [1] as reported in most previous studies [3- 6]. This is because young males are more exposed to violent activity. The professionals most affected by the Lefort II fracture is that of growers with a frequency of 7 cases or 41.2%. Our result agrees with that of the study where farmers and craftsmen represented 20.56% (22 cases), traders 13.08% (14 cases), students 10.28% (11 cases), civil servants 9.35% (10 cases), students and workers respectively 6.54% (7 cases) and military and sportsmen each representing 4.81% (5 cases) [7]. Subjects from rural areas are the most affected by the Lefort II fracture with a frequency of 10 cases or 58.8%. This result of the study is consistent with that of ours, the patients came from the north-central regions of Côte d'Ivoire in 102 cases (95.33%) [7].

The traumatic mechanisms responsible for Lefort II fractures are numerous but the most frequent in the Ségou region is the accident on the public road with a frequency of 16 cases or 94.1%. The result of our study is consistent with the result of the study where road accidents (AVP) were predominant (90%) [1]. This etiological finding was the same in the results of previous work [8, 9,] [4-10]. According to Giraud *et al.*, despite the means of prevention against AVP, traumatology of the facial mass by AVP remains common [11]. This is because young males do not master the rules of the road, do not respect the rules of the road and do not wear helmets. The radiological assessment mainly carried out is that of computed tomography with a frequency of 17 cases or 100%. On the other hand, in the study of Moussa M *et al.*, panoramic radiography had been carried out in 70.0% of cases; 7 patients had a sinus X-ray and CT was performed in 14 subjects (46.7%) [1]. Computed tomography is the paraclinical examination used in all patients in the study to properly locate the different fracture foci in order to facilitate osteosynthesis. The type of treatment mainly performed was that of osteosynthesis with a frequency of 14 cases including 8 cases or 47.1% by the targeted plates and 6 cases or 35.5% by steel wire. Unlike other studies where orthopaedic treatment by intermaxillary blockade was frequently performed (93.4%) [1]; as reported by Biauou *et al.*, in Benin in 2006 and Coulibaly in Mali [10,11]. Orthopaedic treatment alone was used in 33.64% [7]. The results of these current studies are consistent with those of the study by Diallo *et al.*, which evolved in a similar context and observed a higher rate (58.99%) of orthopedic treatment [12]. On the other hand, Sidibé in Mali, had reported surgical treatment by osteosynthesis with steel wire at the top of therapeutic means (40.26%) [13]. In Cairo, Mabrouk *et al.*, had opted for surgical treatment in 90% of cases [14]. Osteosynthesis was the most widely used treatment option in our study. The evolution has been 100% favorable in all our patients. All of our patients have had a good evolution with good

dental joint and without postoperative infection. Unlike the results of other studies where the treatment result was good in 83.4% of cases, [1]. This figure is lower than that reported by DIALLO in Bamako which found satisfactory results in 94% [2]; The post-treatment course was favorable in 87 patients (79%) and highlighted 22 cases (21%) of complications [7].

V. CONCLUSION

Lefort II fractures are a social and public health problem affecting mainly young male subjects in the 20 to 29 age group most often following accidents on public roads.

Their diagnosis is made by clinical examination associated with paraclinical examination (computed tomography) which makes it possible to locate the fracture foci. The management of these fractures is medical-surgical-orthopedic. Well treated, their evolution is generally favorable.

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