

## Traumatic Fractures of the Mandible at the University Hospital Center - National Center of Odontostomatology of Bamako (Mali): 124 Cases

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### Original Research Article

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**Abstract:** The fracture of the mandible occupies the second place after fracture of the own bones of the nose. The aim of our work was to study mandibular fractures at CHU-CNOS Bamako (Mali). We conducted a retrospective study on mandibular fractures treated at the University Hospital of Odontostomatology of Bamako from January 2012 to January 2013. In our study 124 cases of traumatic fractures of the mandible, including 104 men and 20 women with a predominance of the age group between 15 and 30 years (46.6%) were recorded. The Accidents of the Public Way (APW) were the most common etiology (66.1%) whereas symphysis fracture was the most common fracture with 24% of cases. The majority of patients were pupils and students (48.8%). Low-side radiography was the most requested radiological examination for diagnosis. 97.60% of our patients received orthopedic treatment. The fracture of the mandible is a frequent reason for consultation in odontostomatology with male predominance.

**Keywords:** Fracture, mandible, CHU-CNOS, Bamako, Mali.

### INTRODUCTION

The mandible is the lower skeleton of the face, its low and advanced position makes it a highly exposed structure during maxillofacial trauma. The fracture of the mandible is second only to fracture of the bones of the nose with an incidence of about 38% according to Patrocínio Gomes *et al.*, [1].

It usually affects young, male subjects whose aetiology is multifactorial and mainly induced by accident of the public way and brawls [2]. The objective of this study was to evaluate the management of fractures

### PATIENTS AND METHODS

This is a retrospective study that took place from January 2012 to January 2013 at the CHU odontostomatologie of Bamako. The study recently included 104 patients who either came for consultation or were referred by another health facility, who had a mandibular fracture with or without other fractures and who had been treated in the department.

We used the medical records of the patients, the operating room register and the age, sex, place of residence, etiology, number of fracture lines, topography of the fracture, type of radiological

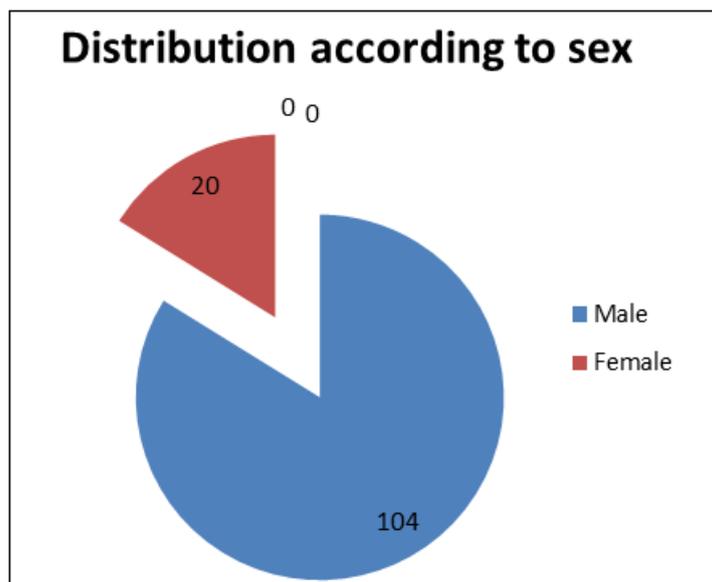
examination required, therapeutic modalities and were the main parameters exploited. The statistical software epi info version 3.5.1 was used for data analysis.

### RESULTS

#### Sociodemographic characteristics

The age limits were between 6 and 74 years old. The age group 16-30 was the most represented with 58 cases (46.60%)

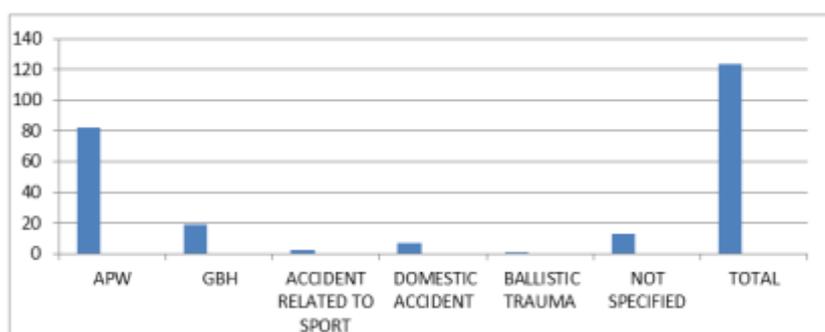
The male sex was the most represented with 104 cases (83.90%) against 20cas (16.10%) for women with a sex ratio of 5.2 (Figure-1).



**Fig-1: Distribution of the workforce by gender**

Distribution according to the occupation and the residence of the patients: all the socio-professional actors were represented. Pupils and students were the most represented with 61 cases (48.80%). The majority of our patients resided in Bamako with 75 cases (60.50%)

- Clinical and therapeutic features
- Distribution according to etiology
- RA accounted for 82 cases (66.10%) of the etiologies shown in Figure-2.



**Fig-2: Distribution by etiology**  
GBH: Grievous Bodily Harm

The symphysis was the most affected mandibular region with 30 cases (24%). Most of our

patients had a single fracture trait (uni-focal fracture) or 83 cases (66.70%) (Table-1).

**Table-1: breakdown by fracture line**

Singlefracture trait	Number	Fréquency (%)
Unifocal	83	66,70 %
Bifocal	36	29,30 %
Trifocal	5	4,10 %
TOTAL	124	100 %

The mandible alone was fractured in 105 patients, meaning 84.60% of cases. The mandibular fracture was associated with other fractures in 15.40%.

cases), 29 patients did not receive a radiological assessment.

Low-side radiography was the main complementary examination requested (28.20%) of the

The vast majority of our interventions were performed under general anesthesia (54% of cases).

The orthopedic method was the most used therapeutic method with 121 cases (97.60%) and consisted of Jacket arch placement with or without intermaxillary blocking.

## DISCUSSION

### Sociodemographic aspects

In our study fracture of the mandible was found practically in all age groups. The age limits were between 6 and 74 years old. The age group 16-30 was the most represented with 58 cases (46.60%)

These results are similar to those of previous studies in Africa, 20-39 years, 20-29 years [3, 4] in Canada 20 and 30 years [6]

The predominance of this age group is due to the fact that these young people are very active and very mobile, and usually drive two-wheeled machines.

The male gender predominated in our study (83.9% of cases) with a sex ratio of 5.2. Authors have made the same observation of male predominance for fractures of the mandible [1-4, 6].

The fracture of the mandible was observed at the level of all socio-occupational actors. Our study found a predominance among pupils and students with 48, 80% of cases.

In the study of DIA TINE S *et al.*, [4] workers were the most represented with 25.25% of patients received.

### Clinical and therapeutic features

Etiology: Accidents of public road was the most common etiology (66.10% of cases). This observation has been made by previous studies, particularly in Benin and Dakar [3, 4].

Whereas in Toronto, domestic accidents are the most common cause of maxillofacial injuries [5].

In the district of Bamako, accidents of public roads would concern the students more as they are heavy users of two-wheeled vehicles. This could be explained by:

- The non-respect of the highway code, the refusal of wearing helmet, and use safety belt by the users of the road
- Excess of speed
- Inadequate and degraded road conditions
- The obsolescence of the rolling machines and the lightness of the technical control of the vehicles at the national center of road safety
- The increase in the consumption of narcotics

During our study, the symphysis was the most affected region (24% of cases), this is explained by the

fact that the symphysis is more exposed during trauma affecting the mandible

This symphyseal predominance is noted by other previous studies: those of Bancolé S.A. *et al.*, [3] (64.28% of cases), DIA TINE S [4] (55.30% of cases), and M. Czerwinski *et al.*, [7] (29% of cases). While N'Gouoni BG *et al.*, [8] found a high frequency of the horizontal branch with 36.7% of cases.

The most common association in our study was that of the symphysis and the mandibular angle and the symphysis with the horizontal branch with 6 cases each or 4.8% of associations. M.Czerwinski *et al.*, [7] found in their study that 60% of patients had multiple fractures of the mandible.

In our study fracture of the mandibular region was associated with fracture of other regions of the human body in 15.4% of cases. M. Hugentobler *et al.*, [6] reported 7.40% of cases for the fracture of the middle third of the face and 40% for a lesion of other systems (neurosurgical, orthopedic, cardiothoracic or urodigestive). In his study S. Rocton et al found that the most common association found was bifocal symphysis angle fractures (32%) [9].

In our study, the low-side radiograph was the most requested radiological assessment (28.20% of cases). This finding is the same in KEÏTA K [10] who found 36.80% of cases.

### Therapeutic aspects

The most used therapeutic method in our study was the compression by jacket and IMB arches (64% of cases) followed by Jacket's arches (28.8% of cases). Two of our patients (1.60% of cases) benefited from osteosynthesis. KEÏTA K [10] found in her study 52.60% of the cases for the Jacket and IMB arches, 33.30% of the non-orthopedic treatment cases and 26.30% of the Jacket arch cases. N'Gouani BG *et al.*, [8] found in their series 82 cases (48.52%) of contention therapy by backgammon bow placement and IMB, 52 (30.76%) cases of wire treatment of steel and 35 cases (20.71%) of miniaturized plate osteosynthesis.

## CONCLUSION

The fracture of the mandible is a frequent reason for consultation in odontostomatology with male predominance. The 15-30 age group is the most concerned in our life, which is explained by the fact that this period of life corresponds to school life. Students on the way to school are often victims of road accidents. In our study, the symphysis was the most affected mandibular region (24% of cases), and orthopedic treatment was the most commonly used for the treatment of these traumatism.

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