ECRONICON OPEN ACCESS

EC CLINICAL AND MEDICAL CASE REPORTS
Research Article

Musculoskeletal Injuries Caused by Attacks at the Gabriel Toure University Hospital Center

Abdoul Kadri Moussa*, Bagayoko Thierno Boubacar, Touré Layes, Diallo Mahamadou, Traoré Mamadou Bassirou, Kanikomo Drissa and Django Djibo Mahamane

Orthopaedic-Traumatology Service, CHU Gabriel Toure, Faculty of Medicine and Odontostomatology (FMOS), University of Technical Sciences and Technologies of Bamako (USTTB), Bamako, Mali

***Corresponding Author:** Abdoul Kadri Moussa, Orthopaedic-Traumatology Service, CHU Gabriel Toure, Faculty of Medicine and Odontostomatology (FMOS), University of Technical Sciences and Technologies of Bamako (USTTB), Bamako, Mali.

Received: January 11, 2022; **Published:** February 25, 2022

Abstract

Introduction and Aim: Injuries to the musculoskeletal system related to aggression are sometimes complex, sometimes requiring multidisciplinary care. The aim was to determine the epidemiological-clinical, therapeutic, and prognostic aspects of injuries to the musculoskeletal system by aggression at the orthopedic-traumatology department of the Gabriel Toure Bamako University Hospital.

Equipment and Methods: This was a prospective and descriptive retrospective study of patients with aggression injury to the musculoskeletal system, managed from January 2017 to December 2019.

Results: We collected 151 patients. Males accounted for 91.4%. The average age of our patients was 31, 31 years, with extremes of 7 years and 85 years. Pupils/students were the most represented layer (17.9%). Firearm injuries accounted for 53%. The upper limbs were the most experienced with 52.98%. In 3.31% of the lesions were in the upper and lower limbs. The most affected segments were the leg and forearm with 15.9% and 14.6% respectively. Associated vital lesions were observed in 8 cases (5. 29%). Standard X-ray performed showed 64.9% fractures and 2.6% fracture-dislocations. Tendon, nerve, and vascular lesions accounted for 27.15%, 19.86%, and 18.4% respectively. The combination of medical-surgical and orthopedic treatment was carried out in 81.5%. The main complications recorded were stiffness (27.9%), vicious callus (13.9%), paralysis of the traumatized limb (7.3%), amputation (4.6%), 1 case of death.

Conclusion: Injuries by the aggression of the musculoskeletal system are becoming more frequent and serious, constituting a public health problem. The lesions are sometimes complex and multiple requiring multidisciplinary care.

Keywords: *Aggression; Musculoskeletal System; Injuries; Treatment; Prognosis*

Introduction

Violence is a universal phenomenon from which no society is spared. The severity of the violence varies according to the injuries inflicted and the injuries used [1]. No age group is spared [2]. Assault is a universal problem that destroys the social fabric and threatens the lives, health, and prosperity of all those who experience these acts of violence [3]. Current or past, these injuries have a heavy impact on physical and mental health with a plural impact on relational, family, social, professional and economic life [4]. Injuries to the musculoskeletal system related to aggression are sometimes complex sometimes requiring multidisciplinary management [5]. These lesions

can involve the functional and or vital prognosis of the limb or even the vital prognosis of the subject [6]. There have been many studies on intentional assault injuries in general, but few studies have been devoted to musculoskeletal injuries. In Mali, no studies have been devoted specifically to injuries to the musculoskeletal system related to aggression. These lesions are medical-surgical emergencies and represent the 2nd cause of hospitalization in our department.

Aim of the Study

The aim of the work was to determine the epidemiological-clinical, therapeutic, and prognostic aspects of injuries to the musculoskeletal system by aggression at the orthopedic-traumatology department of the Gabriel TOURE Bamako University Hospital.

Materials and Methods

This was a retrospective descriptive and analytical study from January 1, 2017, to December 31, 2019.

Included were all patients who had an injury to the musculoskeletal system associated or not with damage to another device following intentional assault and follow-up that was managed and followed up in the ward.

We did not include cases of unintentional injuries, war injuries, isolated injuries from other aircraft, deaths recorded on arrival, lost to follow-up.

The collection of data was made from the operating room, emergency, and hospitalization records. A physiotherapy protocol has been instituted in all patients.

Our results were assessed according to the following criteria: pain, mobility, muscle strength, sensory recovery, socio-professional impact.

The calculation and analysis of the data was done using SPSS 20.0, Word and Excel 2010 software, a statistical test of chi^2 with a risk $p < 0.05$.

Results

We collected 151 patients. Males accounted for 91.4%, compared with 8.6% females. The average age of our patients was 31, 31 years, with extremes of 7 years and 85 years. All socio-professional strata were affected: workers 19 cases (12.6%), pupils/students 27 cases (17.9%), housewives with 6 cases (4%), farmers 10 cases (6.6%), drivers with 7 cases (4.6%), civil servants in 16 cases (10.6%), traders in 17 cases (11.3%), others with 26 cases (17.2%), and in 23 cases (15.2%) the profession was undetermined. Injuries were caused by firearms in 80 cases (53%), bladed weapons in 65 cases (43%), and in 6 cases by blunt objects (3.9%). Lesions were found in the upper limbs alone (Figure 1-3) in 78 cases (51.7%), the lower limbs alone (Figure 4a) in 62 cases (41.1%), the upper and lower limbs in 5 cases (3.3%), the two upper limbs in 2 cases (1.3%) and both lower limbs in 4 cases (2.6%). In 3.31% of the lesions were in the upper and lower limbs. The most affected segments were the leg and forearm with 15.9% and 14.6% respectively. Associated vital lesions were observed in 5.29%. These were 2 cases of cranial injury, 2 cases of chest injury, 2 cases of abdominal injury, and 2 cases of pelvic injury. Standard radiographic examinations carried out revealed 98 cases of fractures alone (64.9%), dislocation and fracture-dislocations in 4 cases (2.6%), and 2 cases of traumatic amputation (1.3%). The types of lesions were open fractures in 69 cases (45.7%) with complex lesions (skin, vascular, nerve and bone) in 37 cases (or 24.5% of all lesions). Tendon, nerve, and vascular lesions accounted for 27.15%, 19.86%, and 18.4% respectively. Trimming was carried out in 108 cases (71.5%). The combination of medical-surgical and orthopedic treatment was performed in 80.79%, medical and orthopedic treatment in 13.9%, and medico-surgical treatment in 5.29%. We performed 14 cases of external osteosynthesis, 36 cases of internal osteosynthesis (Figure 4b), and plastered splint immobilization pending surgery or permanent

restraint All patients benefited from tetanus seroprophylaxis and antibiotic therapy in 71 cases (47%) from thromboembolic prophylaxis. Immediate complications were 12 cases of shock (7.9%) including 1 case of death, cranial, thoracic, abdominal, and pelvic lesions (2 cases each), and 7 cases of traumatic amputation (4.6%). The secondary complications observed were sepsis in 17.2%, secondary displacement of the fracture in 16 cases, lodge syndrome in 9.9%, paralysis of the limb in 11 cases (including 9 cases of neurotmesis), and 1 case of phlebitis of the lower limb. We noted the following late complications: stiffness in 42 cases (27.9%), vicious calluses in 21 cases (13.9%), algodystrophy, and paralysis in 11 cases each (7.3%). At the average decline of 28.4, we obtained 44% good results, 30% average, and 26% bad results.

Figure 1: *Image of traumatic amputation of the thumb spine and thenar eminence and part of the hypothenar eminence of the left hand (stab wound).*

Figure 2: *Injury of the forearm and left hand by stabbing (lesions of the radial and ulnar pedicles and tendon lesions associated with tendon, vasculonerval lesions in Zone III of Verdan: operative view).*

Figure 3: *Stab wound of the middle part of the left forearm with a section of the muscles of the anterior lodge of the forearm, radial, and ulnar vascular-nervous pedicles: operative view).*

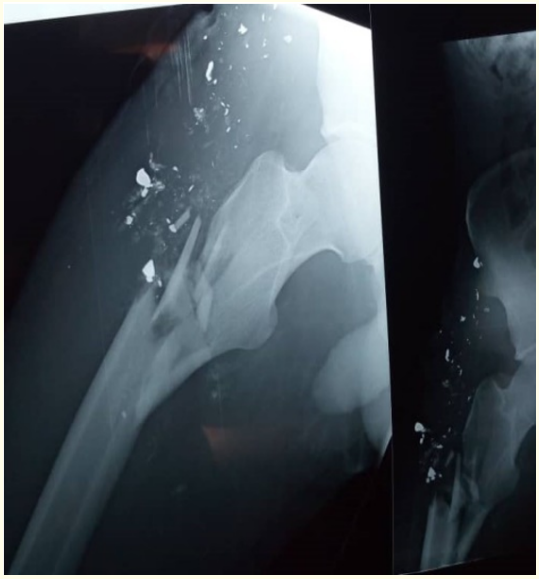

Figure 4a: *X-ray of the front right hip showing a complex trochanterodiaphyseal fracture by firearm with the presence of foreign bodies.*

Figure 4b: *X-ray of the front control hip: complex trochanterodiaphyseal fracture treated with DHS plate.*

Statistical analysis

There was a relationship between the type of weapon and the type of lesion: $Chi^2 = 98,870$, $p = 0,000$. It is the same between the type of lesions and late complications: $Chi^2 = 190,046$, $p = 0,000$. On the other hand, there was no correlation between treatment and results: $Chi^2 = 11.337$, $p = 0.183$.

Discussion

In our series, the male sex predominated with 91.4%. This male predominance has been noted in most series: Boufetal M., *et al*. [7], Diallo T., *et al*. [8] and which find respectively 75.5% and 71.97% male. This is because men are most often subject to arguments and expose themselves to unhealthy activities. Our average age was 31,31 years. Our result is similar to those of Bardaa., *et al*. [2] who find an average age of 30 years, Boufetal., *et al*. [7] who had an average age of 25 years and Soumah., *et al*. [9] who obtained 29.88 years. This is explained by the fact that most of the subjects are active, highly mobile, carry out lucrative activities where they are subject to banditry as well as violence in schools and universities. Firearms were the most common causative agent with 53%. Diallo T., *et al*. [8] found in their series 1.91% firearm, while Bardaa., *et al*. [2] and Boufetal., *et al*. [7] found no cases of firearm injury. The easy acquisition of weapons with the development of banditry, the consumption of alcohol and drugs have favored the aggression of populations by firearms. The preferred site of lesions was the upper limbs alone in 51.7%. Bardaa., *et al*. [2], Soumah., *et al*. [9] find 64% and 79.4% respectively. Injuries by the aggression of the musculoskeletal system more frequently affect the upper limb, which is most often the defence element. Complex lesions were observed in 24.4%. Our rate is lower than that of Boufetal., *et al*. [7] who find 43%, but on the other hand, Bardaa., *et al*. [2] have not made any case of the complex lesion. This is explained by the violence of trauma especially with firearms. Our functional results were rated as good in 40% of cases. Our rate is lower than those of Velomalala., *et al*. [6] and Boufetal., *et al*. [7] which find respectively 97.5% and 57%. This can be explained by the frequency of amputation cases related to the complexity of the lesions, neurological and tendon lesions frequencies as well as the non-mastery of microsurgical techniques where most lesions are taken care of in the first place by junior surgeons.

Conclusion

Injuries by the aggression of theomotor apparatus are more and more frequent and are especially the prerogative of young subjects. They are a public health problem. The sometimes complex and multiple lesions are extremely serious requiring multidisciplinary care. The evolution of these lesions is marked by significant sequelae. In perspective, the improvement of care in order to minimize functional sequelae, requires the learning and development of microsurgery in our country.

Bibliography

1. S Bardaa., *et al.* "Voluntary violence in children: epidemiological data: retrospective study of 247 cases collected at the forensic medicine service of Sfax-Tunisia". *The Journal of Forensic Medicine* 11 (2020): 158-164.
2. S Bardaa., *et al.* "Serious intentional violence and medico-legal consequences. Review of the activity of the medical department of the hospital of Sfax, Tunisia". *Medicine and Law* (2019): 82-88.
3. Ansara DL and Hindin MJ. "Formal and informal help-seeking associated with women's and men's experiences of intimate partner violence in Canada". *Medical Science* 70.7 (2010): 1011-1018.
4. Health Agriculture (WHO). World Report on Violence and Health Geneva (2002).
5. Apnet Samu., *et al.* "Wound management in the emergency department". 12th Consensus Conference (2005).
6. Velomalala I., *et al.* "Etiolologies,medico-legal impacts of voluntary aggressions at fianarants on University Hospital". *Med Afr Nre* 60.12 (2013): 533-536.
7. Monsef Boufetal., *et al.* "Wounds to limbs by aggression: analysis of 245 files". *Pan African Medical Journal* 22 (2015): 183.
8. Diallo Thierno Mamadou Cherif., *et al.* "Patients victims of physical assault: Epidemiological, clinical and forensic aspects at the forensic pathology unit of Donka Hospital". EDUCI2019 Rev int sc méd ABj-RISM 21.3 (2019): 248-252.
9. Mohamed Maniboliot Soumah., *et al.* "Medical certificates for assault and battery in medico-judicial practice in Dakar". *Pan African Medical Journal* 33 (2018): 25.

Volume 5 Issue 3 March 2022