



Management of Abdominal Wounds at the Ignace Deen National Hospital of Conakry (Guinea)

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To cite this article:

Ansoumane Conde, Mohamed Saliou Bangoura, Djiba Camara, Fode Cisse, Aminata Fofana, Ibrahima Sory Camara, Labile Togba Soumaoro, Aboubacar Toure. Management of Abdominal Wounds at the Ignace Deen National Hospital of Conakry (Guinea). *Journal of Surgery*. Vol. 11, No. 4, 2023, pp. 91-93. doi: 10.11648/j.js.20231104.14

Received: July 28, 2023; **Accepted:** August 15, 2023; **Published:** August 28, 2023

Abstract: *Introduction:* the aim of this study was to report our experience in the management of abdominal wounds in the general surgery department of the Ignace Deen national hospital of Conakry (Guinea). *Patients and Methods:* This was a retrospective, descriptive study covering a 3-year period (January 2020 to December 2022) of consecutive records of patients admitted and managed for abdominal wounds in our department. *Results:* We collected 50 cases representing 33.1% of all traumatic abdominal emergencies (n=151). The mean age was 25.8 ± 12 years. We noted a male predominance (78%). Criminal assault was the most frequent circumstance of occurrence (76%). The causal agent was a knife (44%) or a firearm (32%). Wounds were penetrating in 84% of cases. Clinical presentation was parietal wound (n=8; 16%), hemoperitoneum syndrome (n= 20; 40%), evisceration (n=10; 20%) and peritonitis (n=12; 24%). Lesions of the small intestine (38%) and omentum (28%) were the most common. Simple excision-suture (24%) was the most common procedure. Follow-up was uneventful in 82% of cases; however we recorded a morbidity of 6% and an overall mortality of 12%. *Conclusion:* Wounds of the abdomen are frequent, concern a young population and are often the result of a criminal assault in our context. They cause visceral lesions that can be life-threatening.

Keywords: Abdominal Wounds, Management, Conakry, Guinea

1. Introduction

Abdominal wounds are a real public health problem worldwide, especially in low-resource countries [1]. Their frequency is on the increase in Africa due to the uncontrolled development of automobile traffic and armed assaults; the increase in high-risk gambling and easy access to small arms; and the increase in conflict zones [2, 3]. Penetrating trauma is characterized by its extreme immediate severity in the case of damage to large vessels, the liver or the spleen, and by its risk of septicemia. These injuries must be rapidly recognized and treated to avoid unnecessary premature death, most often from hemorrhage [4]. The management of abdominal wounds requires multidisciplinary collaboration, starting in the pre-hospital phase. [4, 5]. The aim of this study was to report on our experience in the management of abdominal wounds in

the general surgery department of the Ignace Deen national hospital of Conakry (Guinea).

2. Patients and Methods

This was a retrospective, descriptive study covering a 3-year period (January 2020 to December 2022), based on the records of patients admitted and treated for abdominal wounds in the general surgery department of the Ignace Deen national hospital of Conakry. Variables studied included frequency, age, gender, socio-professional strata, and circumstances of occurrence, clinical, therapeutic aspects and outcome. Qualitative data were presented in terms of frequency or percentage, while quantitative data were evaluated in terms of average. Analysis was performed using EPI INFO 3.2.2 software, and the Chi-square test was used to compare variables in relation to morbidity and mortality. The

threshold of significance was 0.05.

3. Results

Over a 3-year period, we recorded 50 cases of abdominal wounds, representing 33.1% of all abdominal traumas. We noted a male predominance (78%) with a sex ratio of 3.5. The average age of patients was 25.8 ± 12 years, with extremes of 3 and 75 years. Pupils/students were the most represented (42%). The average admission time was 5 ± 2 hours, with extremes of 30 minutes and 48 hours. The circumstances of occurrence are summarized in Table 1. Bladed weapons (44%; figure 1) were the most common means of injury, followed by firearms (16%). Wounds were penetrating in 84% ($n=42$) and non-penetrating in 16% ($n=8$) of cases. Emergency laparotomy was performed for hemoperitoneum ($n=20$; 40%), evisceration ($n=10$; 20%) and acute generalized peritonitis ($n=12$; 24%). Table 2 and 3 summarize, respectively, the visceral lesions observed and the surgical procedures performed. Postoperative outcome was uneventful in 82% of cases. We noted 3 cases (6%) of surgical site infection and 6 deaths (12%). Hemorrhagic shock was the leading cause of death. The average hospital stay was 12.8 ± 10.4 days, with extremes of 1 and 60 days.



Figure 1. Abdominal X-ray showing a penetrating wound by a knife (arrow).

Table 1. Circumstances of occurrence.

Circumstances of occurrence	Numbers of cases	Percentage
Criminal assault	38	76
Attempted autolysis	07	14
Public road accident	03	06
Work accident	02	04
Total	50	100

Table 2. Assessment of visceral lesions.

Viscera	Numbers of cases ($n=42$)	Percentage
Small intestine	19	38
Omentum	14	28
Colon	5	10
Liver	2	04
Spleen	2	04

Table 3. Surgical procedures performed.

Procedures	Numbers ($n=50$)	Percentage
Excision-suture	20	40
Small bowel resection-anastomosis	7	14
Omentectomy	14	28
Colostomy	2	04
Colonic resection-anastomosis	3	06
Packing	2	04
Splenectomy	2	04

4. Discussion

Abdominal wounds are on the increase in Guinea, representing 33.1% of abdominal trauma. In 2019, Fofana N et al [6] in Guinea reported a rate of 16.65%. This difference could be explained by growing insecurity, the anarchic development of automobile traffic and the high rate of youth unemployment in our country [1]. The young, male population found in our study is also described in the literature [2, 3, 6], and this could be explained by men's socio-professional activities, which expose them to armed assaults and public road accidents [7]. In the majority of cases, admission was within the first six (6) hours. This result is similar to that of Bombah F et al [3], who reported 70.3% of cases. Although this timeframe is favorable, it is still a long one for rapid and appropriate care [3]. Injured people generally arrive at the emergency department by common transport without any initial care, and this is a factor that worsens their prognosis. In our study, criminal assault was the most common circumstance of occurrence. Ngaroua A et al [8] in Cameroon, Diallo FK et al [9] in Gabon and Kanté L et al [10] in Mali also reported 59.4%, 70.8% and 70% criminal aggression respectively. These rates can be justified by increasing aggressiveness in our societies, for a number of reasons, including juvenile delinquency, crime, unemployment, and socio-economic factors such as idleness, poverty [8]. Stabbing was the most common vulnating agent. In the series by Bombah F et al [3], Ngaroua A et al [8] in Cameroon and Diallo FK et al [9] in Gabon, and Raj Siddharth B et al [11] in India, bladed weapons were reported in 96.6%, 63.4%, 87.5% and 53% of cases respectively. This result can be explained by the ease with which they can be acquired, and their common use by all. More than 4/5 of wounds were penetrating. This result is similar to a series of studies carried out in Niger [2] and Burkina Faso [5], which found 78.44% and 83.2% penetrating abdominal wounds respectively. The speed and force applied by the blunt object to the abdomen would explain these results [5]. In Africa, where investigative resources are limited, the immediate laparotomy of any abdominal wound for a precise lesion assessment is of medico-legal interest, especially in cases of aggression; however, there is no dogma on the subject [12]. In our series, 42 patients underwent laparotomy. Unlike other authors [3, 8, 13], we did not record any white laparotomy. The organ most affected was the small intestine. The same observation was made by several authors [3, 9]. The large cumulative volume and sub-parietal anatomical situation of the small intestine would justify these results [14, 15].

Surgical procedures were dominated by simple digestive suture and anastomotic resection in over 2/5 of cases. These surgical procedures were found in the literature [3, 15, 16]. Cases treated by the non-operative method underwent armed clinical monitoring. However, further studies are need to assess the morbidity and mortality associated to the non-operative approach of abdominal trauma in our environment. Overall, the evolution was favorable. The mortality rate in our series was higher than that of other authors [3, 6]. The main cause of death was hemorrhagic shock due to splenic and hepatic rupture. For those massively injured trauma victims, the damage control laparotomy approach with careful replacement of blood and blood products along with correction of hypothermia represents a critical phase in the management. The average length of hospital stay depended on the severity of the lesions and the treatment option [6].

5. Conclusion

Wounds of the abdomen are frequent, concern a young population and are often the result of a criminal assault in our context. They cause visceral lesions that can be life-threatening. In a context of limited resource setting the management of massively injured abdominal trauma victims is associated with a high mortality rate. Combating juvenile delinquency, regulating the carrying of weapons and complying with the highway code are all measures that can be taken to reduce the frequency of these injuries. Training staff and equipping the technical facilities of our hospitals could considerably improve the prognosis of these injured patients.

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