

Research article

Anatomo-clinical Aspects and Management in the General Surgery Department of the Siguiri Prefectural Hospital

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Abstract

Introduction: The aim of this study was to describe abdominal wounds managed in the general surgery department of the Siguiri Prefecture Hospital. **Methodology:** This was a descriptive, mixed-method (retrospective and prospective) cross-sectional study spanning five years, from January 1, 2021, to December 31, 2025, covering all patients admitted to and treated in the department for abdominal wounds during the study period. **Results:** Abdominal wounds accounted for 7.50% of admissions to the department; penetrating wounds represented 82 cases (82.60%). The mean patient age was 31.5 years, ranging from 12 to 51 years. Men were the most represented group, with a male-to-female sex ratio of 3.18. Assaults were the leading cause of these injuries (48.91%), followed by fights (26.08%) and workplace accidents (10.86%); bladed weapons were the most commonly used by assailants (60.86%). Treatment was non-operative in 26 cases (28%) and operative in 66 cases (72%). The small intestine was the most frequently injured organ (40.90%). The most common surgical procedure was excision and suture (28.78%). Postoperative recovery was uncomplicated in 72.82% of cases, with a mortality rate of 8.69%. The average length of hospital stay was 8.5 days. **Conclusion:** Abdominal wounds are common and primarily affect young men. Challenges in patient management are linked to delayed presentation and a lack of medical and paramedical equipment.

Keywords

Abdominal Wounds, Management, Prefecture Hospital, Siguiri

1. Introduction

Abdominal wounds are defined as any break in the continuity of the abdominal wall resulting from penetrating or non-penetrating trauma, which can be life-threatening due to damage to solid or hollow organs or major blood vessels [1]. If these wounds reach the peritoneal cavity, they are called penetrating. When they damage the underlying viscera, they are

called perforating [1].

According to the World Health Organization, trauma is responsible for more than 5 million deaths per year worldwide, a significant proportion of which is attributable to thoracoabdominal injuries [2].

In sub-Saharan Africa, the incidence of abdominal wounds

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remains high, due to the increase in road traffic accidents, the rise in motorcycle transport, the intensification of mining activities, and the resurgence of knife and gun violence [3]. Mortality varies between 8 and 30% depending on the nature of the trauma, the time to treatment, and the technical capabilities of surgical services [4].

In Algeria, in 2018, penetrating wounds accounted for 29.7% of abdominal trauma [5].

In Mali, Dembele et al. reported in 2020, during their study, 11 cases (16%) of abdominal wounds among the 71 war wounded admitted to the Douentza district reference health center. [6].

In Guinea in 2021, Diallo MS, et al found a frequency of 3.44% of abdominal wounds due to all surgical activities [7].

Abdominal injuries manifest clinically as abdominal pain, external or internal bleeding, hemodynamic instability, evisceration in the case of a penetrating wound, and sometimes signs of peritonitis in the case of visceral perforation. The initial assessment, which must be rapid and rigorous, should incorporate ATLS-type triage protocols, including hemodynamic status assessment, search for associated injuries, and identification of an urgent surgical indication [8].

Management is based on initial resuscitation, diagnostic exploration, and then specific treatment. The latter may be surgical or conservative in well-selected situations, in accordance with recent recommendations [9].

In resource-limited settings, such as the prefectural hospital of Siguiri, technical and material constraints strongly influence the therapeutic strategy, making contextual adaptation essential.

The choice to study abdominal wounds at the Siguiri prefectural hospital is justified by the increasing frequency of trauma, the rapid evolution of risk factors (mines, road traffic, assaults) and the lack of updated local data to define protocols adapted to the context.

The research question is: what is the frequency and therapeutic outcomes of abdominal wounds at the Siguiri Prefectural Hospital?

The objective of this work was to contribute to the study of abdominal wounds in the general surgery department of the Siguiri prefectural hospital.

2. Methodology

This was a descriptive study, with mixed data collection, lasting 5 years, starting from January 1, 2021. until December 31, 2025 in the surgery department of the Siguiri prefectural hospital.

This level 1 hospital in the Guinean healthcare system admits patients for medical and surgical care, either for an initial consultation or referred by peripheral healthcare facilities. Inclusion criteria were patient consent to participate in the study

and access to their complete medical records, particularly those of patients admitted for traumatic abdominal wounds during the study period. For each patient, the following data were collected: sociodemographic data (age, sex, occupation), lifestyle habits (alcohol consumption, smoking, etc.), clinical data (clinical signs, circumstances of onset, vulnerability factors, outcome), paraclinical data (laboratory tests and medical imaging), treatment modalities (surgical and non-surgical), and outcome (favorable or unfavorable).

Non-operative treatment was indicated in patients with non-penetrating and penetrating wounds, a stable hemodynamic state and no suspected visceral injury, and consisted of wound debridement under local anesthesia.

Surgical treatment was indicated for patients with a wound involving evisceration, peritoneal irritation syndrome, and hemoperitoneum syndrome with hemodynamic instability. This treatment consisted of resuscitation, empirical antibiotic therapy (ceftriaxone combined with metronidazole infusion), and laparotomy for wound repair. Blood transfusion was indicated for patients with a hemoglobin level below 10 g/dL who presented with signs of shock.

Data were collected using a pre-established questionnaire and analyzed with SPSS version 21. Quantitative variables were analyzed by determining the maximum, minimum, mean, and standard deviation. Qualitative variables were analyzed based on their frequency and percentage.

The patients received free and informed consent and confidentiality was the principle; the data was used for scientific purposes.

3. Results

We collected 92 cases of abdominal wounds during the study period, representing 7.50% of admissions to the department, 18% of abdominal surgical emergencies and 41% of abdominal trauma.

The mean age of the patients was 31.5 years $\pm$ 10 years, with a range from 12 to 51 years. The most affected age group was 32-41 years (46.73%). Men were in the majority (n = 70), with a male-to-female ratio of 3.18.

Liberal professions and the unemployed were the most affected socio-professional categories, with 38 cases (41.30%) and 19 cases (20.65%) respectively.

Lifestyle factors included smoking in 22 cases (23.91%), alcoholism in 12 cases (13.04%), and four (4) cases of mental disorders (4.35%).

The average waiting time was 20 hours $\pm$ 10 hours with extremes of 1 hour and 54 hours, 48.91% of patients were seen within 6 hours.

The circumstances of the event are described in Table 1.

Table 1. Distribution according to circumstances of occurrence.

Circumstances of the event	Effective	Percentage
Assaults	45	48.91
Fights	22	23.91
Workplace accident	10	10.86
road accident	5	5.43
Domestic accident	3	3.26
hunting accident	3	3.26
attempted suicide	4	4.35
TOTAL	92	100

Table 2. Distribution according to vulnerability agents.

Vulnerable agents	Effective	Percentage
bladed weapons	56	60.86
Firearm	22	23.91
Horns (beef)	6	6.52
motorcycle handlebars	4	4.34
Drink	3	3.26
Undetermined	1	1.08
TOTAL	92	100

Table 3. Frequency according to reasons for consultation.

Reasons for consultation	Frequency (92)	Percentage
Abdominal pain	92	100
Parietal hemorrhage	63	68.47
Fever	51	55.43
Nausea / Vomiting	48	52.17
Dyspnea	15	4:30 PM
Psychomotor agitation	9	9.78
Intense thirst	2	2.17
Metrorrhagia	1	1.08
Total hematuria	1	1.08

Table 4. Distribution according to physical signs.

physical signs	Effective	Percentage
Abdominal defense	59	64.13
The bomb in Douglas's dead end and the pain	50	54.34
Abdominal muscle spasm	48	52.17
Matite tilts its sides	37	40.21
Umbilical cry	30	32.60
Disappearance of pre-hepatic dullness	13	14.13
Post-traumatic evisceration	10	10.86

Penetrating wounds accounted for 82 cases, or 82.60%, and non-penetrating wounds for 16 cases, or 17.39% of cases.

The associated injuries were mainly limb fractures in 4 cases and closed chest trauma associated with a rib fracture in

3 cases.

The treatment was non-operative in 26 cases, or 28%, and the treatment was operative in 66 cases, or 72%; the surgical indications are illustrated in Table 5.

Table 5. Distribution of patients according to surgical indications.

Surgical indication	Effective	Percentage
Abdominal wound and peritoneal irritation syndrome	37	56.06
Abdominal injury + hemoperitoneum syndrome + hemodynamic instability	19	28.79
Abdominal wound + Evisceration	10	15.15
Total	66	100

Table 6. Frequency according to the type of visceral injury during surgery.

Type of injury	Number of employees = 66	Percentage
ileal/jejunal lesion	27	40.91
colic ulcer	17	25.76
Gastric lesion	13	19.69
Mesenteric wound	13	19.69
Retroperitoneal hematoma	4	6.06
Liver wound	4	6.06
Spleen injury	3	4.54
Bladder injury	1	1.51
Uterine lesion	1	1.51

Table 7. Distribution according to actions performed.

Actions taken	Number of employees (66)	Percentage
Excision + suture	32	48.48
Resection + anastomosis	13	19.69
Resection + stoma	12	18.18
hemostatic suture	4	6.06
Respect for the retroperitoneal hematoma	4	6.06
mesentery repair	4	6.06
total splenectomy	3	4.54
Cystorrhaphy	1	1.51
Hysterorrhaphy	1	1.51

Table 8. Distribution according to evolutionary sequences.

Evolutionary suites	Personnel (92)	Percentage
Simple	67	72.82
Complications	Type of complication 17	18.48

Evolutionary suites		Personnel (92)	Percentage
Type of complication	parietal suppurations	8	8.69
	fecal fistulas	4	4.34
	Postoperative peritonitis	3	3.26
	Post-operative eviscerations	2	2.17
	Death	8	8.69

The average length of stay was 8.5 days $\pm$ 5 days with extremes of 1 day and 20 days, 42 cases or 45.65% of patients were discharged within 7 days.

4. Iconography



Figure 1. Penetrating abdominal wound caused by a bladed weapon (General Surgery Department, Ignace Deen Hospital).

A 45-year-old patient was admitted for an abdominal injury showing the weapon (knife) embedded in the abdomen, a tear in the mesentery, following an attempted self-mutilation.

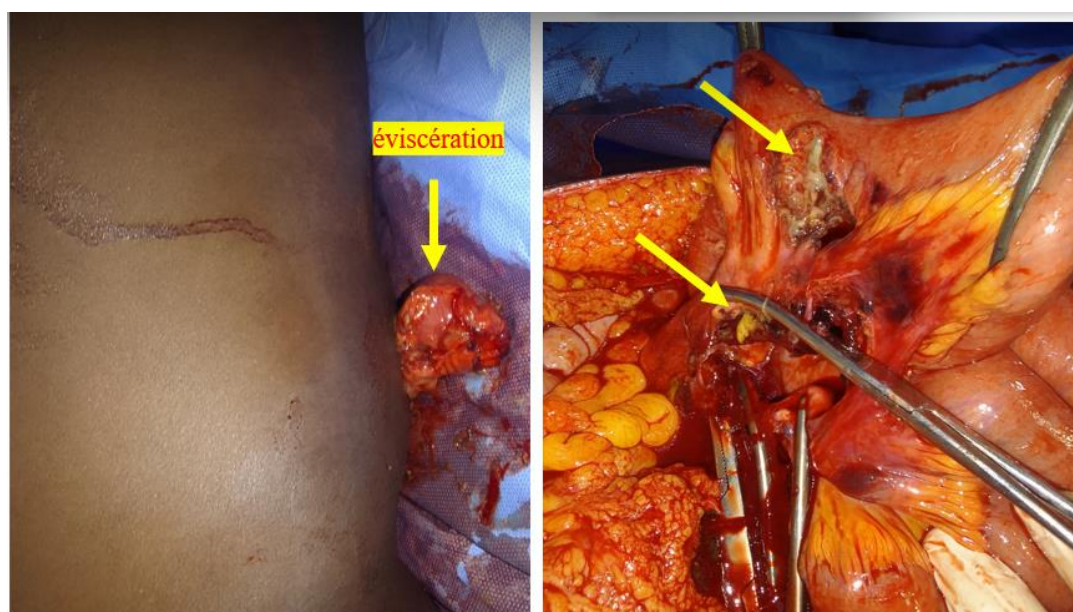


Figure 2. Penetrating gunshot wound to the abdomen (Department of General Surgery Ignace Deen).

A 32-year-old patient, admitted for a penetrating gunshot wound with evisceration, a mesenteric wound and an incomplete section of the ileum, following a fight.

5. Discussion

In this mixed-methods study, conducted over a five-year period, traumatic abdominal wounds accounted for 7.50% of admissions to the department. This result is higher than that of Diallo et al. [7], at the Lab é Regional Hospital in 2021, who observed a frequency of 3.44% for abdominal wounds.

This high frequency of abdominal injuries is thought to be due to the banditry prevalent in the city and the insecurity of road transport.

The male predominance reported in our study is consistent with that of Wabada S et al who found a sex ratio of 5.4 [10].

This male predominance could be explained by the high exposure to accidents and assaults in our context.

In our study, the most affected socio-professional stratum was that which exercised a liberal function, followed by pupils/students.

Our results differ from those of Raherinantenaina et al. [11] who found that the unemployed (32.50%) followed by pupils/students (25%) were the most affected socio-professional stratum.

Our series shows that assaults were the main cause of these traumas, followed by aggression. Bender Wabada et al. reported a frequency of 56.5% related to aggression, 21% related to socio-political conflicts and 20% due to work accidents [10].

The bladed weapon was the most frequently used wounding agent in our series. This result was reported in a French epidemiological study which found that penetrating abdominal wounds accounted for 34% of bladed weapon injuries and 13% of firearm injuries [12].

It is believed that this high frequency of use of bladed weapons is due to their ease of acquisition and handling.

In our study, the average time to patient care was 20 hours $\pm$ 10 hours after the injury. This delay is explained, on the one hand, by difficulties in accessing transport to the hospital, the absence of an emergency medical service (EMS) and the poor condition of the roads, and on the other hand, by the multiplicity of healthcare facilities in the periphery, which slows down patient transfers.

As indicated in our study, Ivatury et al noted that the small intestine was the most affected organ at 42%, followed by the colon at 17.4% [13], while Hoffmann et al reported that the most affected organs were the colon in 86 cases or 21.5%, followed by the small intestine in 79 cases or 19.75% [14].

Severe damage to the organs of the digestive tract, and more particularly to the small intestine, would be due to its topographic position in the abdomen and its mobility.

Our study revealed that penetrating wounds were the most frequent; similarly, Diallo et al. found 57.74% penetrating wounds and 42.26% non-penetrating wounds [7]. This high

frequency of penetrating wounds in our study could be explained by the premeditated use of weapons by the assailants.

Resection followed by anastomosis, then excision followed by suturing of the small intestine, were the most frequently performed procedures.

The mortality of 8.69% reported in our study is comparable to that of Chiche B et al. [12], who found a mortality rate of 8% in their study on penetrating abdominal wounds.

6. Conclusion

Abdominal wounds are common in our setting, especially among young men. They occur primarily during assaults, with bladed weapons being the most frequently used. The small intestine is the organ most often affected. Complications mainly include wound infections and fecal fistulas.

A prospective multicenter study would help to identify several factors with a view to reducing the frequency of abdominal wounds and improving their management.

Abbreviations

ATLS	Advanced Trauma Care Student
SAMU	Lack of emergency medical assistance services
SPSS	Statistical software for the social sciences

Author Contributions

Keita Seydou: Formal Analysis, Writing – original draft

Diakite Sandaly: Funding acquisition

Doumbouya Bakary: Methodology, Writing – original draft

Soumaoro Labile Togba: Funding acquisition

Conflicts of Interest

The authors declare that they have no conflict of interest.

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