Journal of
Medical Research and Surgery

Review Article

Barry AM, et al. J Med Res Surg 2026, 7:2

Penetrating Abdominal Wounds in the General Surgery Department of the Koundara Prefectural Hospital: A Report of 26 Cases

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Received date: February 07, 2026; **Accepted date:** February 23, 2026; **Published date:** March 02, 2026

Citation: Barry AM, Sylla H, Camara FL, et al. Penetrating Abdominal Wounds in the General Surgery Department of the Koundara Prefectural Hospital: A Report of 26 Cases. *J Med Res Surg*. 2026;7(2):19-22. doi:10.52916/jmrs264199

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ABSTRACT

Objective: To determine the epidemiological, lesion-related, and therapeutic aspects of penetrating abdominal wounds at the Prefectural Hospital of Koundara.

Patients and Methods: This was a prospective and descriptive study conducted in the General Surgery Department of the Prefectural Hospital of Koundara over a period of one (01) year, from January 1 to December 31, 2021.

Results: The study included 26 patients, comprising 20 men (76.92%) and 6 women (23.07%), with a male-to-female ratio of 3.33. The mean age was 27.92 years. Penetrating abdominal wounds accounted for 8.33% of abdominal surgical emergencies. The main reason for consultation was pain (100%). Assaults were the most frequent cause (38.46%), with sharp weapons being the main injuring agent (100%), followed by road traffic accidents with impalement (23.07%). Small bowel perforations and omental injuries were the most common lesions (89.5% and 7.34%, respectively). Surgical procedures mainly consisted of excision and suturing in 91.3% of cases. Morbidity and mortality rates were 19.23% and 3.84%, respectively.

Conclusion: Penetrating abdominal wounds are a relatively common surgical emergency. They are predominantly caused by assaults, with the small intestine and omentum being the most frequently injured organs. Their management is often associated with significant morbidity and mortality.

Keywords:

Penetrating wounds, Abdomen, Hemoperitoneum, Surgery, Injured organs.

Introduction

Penetrating abdominal wounds are injuries of the abdominal wall that breach the peritoneal serosa, with or without damage to an intraperitoneal organ [1]. They represent a significant public health problem in several countries [2]. Their frequency varies worldwide depending on the circumstances of occurrence. In the United States of America, they are estimated to account for 70% of injuries, with a predominance of firearm-related wounds [2,3]. In Africa, the incidence of penetrating abdominal wounds is higher, particularly in South Africa [2].

The current management of penetrating abdominal wounds remains controversial, oscillating between systematic exploratory laparotomy and non-operative management known as selective non-operative management or “watchful waiting” [2,4,5].

The objective of this study was to determine the epidemiological aspects, describe the clinical and paraclinical features, and analyze the therapeutic and outcome modalities of penetrating abdominal wounds in the General Surgery Department of the Prefectural Hospital of Koundara.

Materials and Methods

This was a prospective and descriptive study conducted in the General Surgery Department of the Prefectural Hospital of Koundara over a 24-month period from January 1, 2021, to December 31, 2022. All patients of both sexes presenting with penetrating abdominal wounds who were operated on and followed up in the department were included. Patients who died before or during initial management were excluded.

The parameters studied included age, sex, occupation, circumstances of injury, injuring agent, clinical and paraclinical assessment, treatment, postoperative outcomes, and length of hospital stay.

Results

During the study period, 312 patients were admitted as emergencies to the General Surgery Department, including 98 cases of abdominal trauma, among which 26 had penetrating abdominal wounds. These represented 8.33% of emergency admissions and 26.53% of all abdominal trauma cases.

The mean age was 27.9 years (range: 15–56 years). The 21–30-year age group was the most represented (41.6%). The male-to-female ratio was 3.33 (20 men and 6 women). Most patients were admitted within 6 hours (Table 1). The mean consultation delay was 11.74 ± 22.39 hours, with a median of 2 hours. Alcohol

and tobacco consumption was noted in 42.30% of cases (n=11). Psychiatric history was found in 3.84% of cases (n=1).



Figure 1: Penetrating abdominal wound with omental evisceration and associated penile wound caused by a sharp weapon.



Figure 2: Penetrating abdominal wound caused by a sharp weapon with hemoperitoneum.



Figure 3: Penetrating abdominal wound with small bowel evisceration due to impalement.

Table 1: Distribution by admission delay (N=26).

Admission Delay	Cases	(%)
<6 hours	20	76.92
6-24 hours	5	19.23
>24 hours	1	3.85
Total	26	100

Figures 1 and 2 illustrate clinical cases, and Figure 3 shows lesions of different organs. Several circumstances of injury were identified (Table 2).

Table 2: Circumstances of occurrence of abdominal wounds (N=26).

Circumstances	Cases	(%)
Assault	11	42.3
Road traffic accidents	8	30.76
Cattle horn injuries	4	15.38
Falls from trees	3	11.53

The most common injuring agent was sharp weapons in 11 cases (42.30%). Clinical symptoms and signs are summarized in Table 3. Abdominal pain was the main symptom in 100% of cases.

Table 3: Clinical characteristics of penetrating abdominal wounds (N=26).

Symptom	Cases	(%)
Abdominal pain	26	100
Bleeding from entry wound	15	57.69
Nausea/Vomiting	7	26.92
Hemodynamic instability	5	19.23
Omental evisceration	5	19.23
Dyspnea	4	15.38
Digestive fluid leakage	4	15.38
Abdominal distension	2	7.69
Intestinal evisceration	2	7.69

Diagnosis was mainly clinical, based on trauma history and physical examination. Hemoperitoneum was diagnosed in 10 cases (38.46%), while evisceration and generalized acute peritonitis were found in 11 cases (42.30%). Radiological investigations were limited; abdominal ultrasound performed in two patients revealed liver injury and hemoperitoneum. Computed tomography was not available.

All patients received pre-, intra-, and postoperative resuscitation. Analgesia with paracetamol was administered to all patients. Systematic dual antibiotic therapy with third-generation cephalosporins and injectable metronidazole was used. Tetanus prophylaxis was administered in all cases.

Table 4: Injured organs in penetrating abdominal wounds (N=26).

Injured Organ	Cases	(%)
Jejuno-ileum	10	38.46
Mesentery	6	23.07
Stomach	2	7.69
Liver	2	7.69
Colon	1	3.84

All patients underwent laparotomy, with 20% being non-therapeutic. Several organs were injured (Table 4), with the small intestine being the most commonly affected.



Figure 4: Penetrating abdominal wound with small bowel evisceration caused by a sharp weapon.

Surgical management depended on etiology. The most common procedure was excision and suturing of hollow organ perforations (Table 5).



Figure 5: Penetrating abdominal wound with perforation and ecchymosis of the small bowel caused by a sharp weapon.

Table 5: Surgical procedures performed (N=26).

Surgical Procedure	Cases	(%)
Excision and suturing of digestive perforations	10	38.46
Lavage and drainage	6	23.07
Intestinal resection and anastomosis	2	7.69
Hepatic suturing	2	7.69

Postoperative recovery was uneventful in 20 patients (76.92%). The mean hospital stay was 6 days. Postoperative complications occurred in 5 cases (4 parietal wound infections and 1 intestinal fistula), giving an overall morbidity of 17.8%.

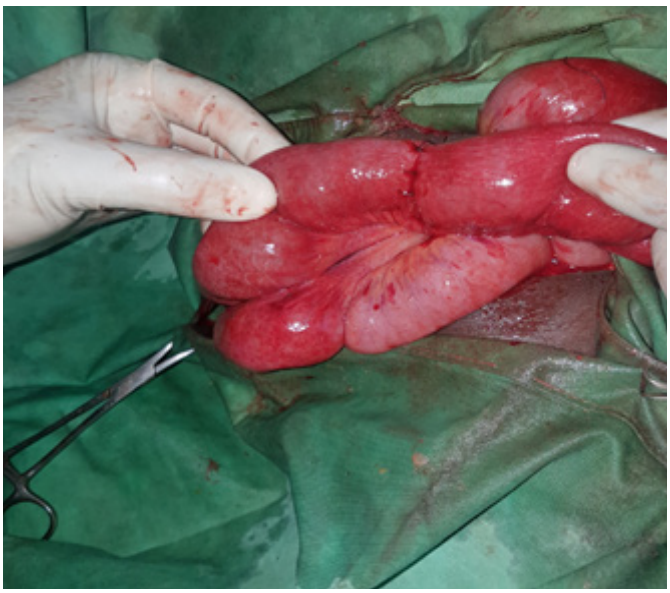


Figure 6: Two-layer suturing of an ileal wound.

Discussion

The abdomen is the third most frequently injured region in trauma, accounting for 15–20% of traumatic lesions [2,3]. In this study, penetrating abdominal wounds were relatively rare among emergency surgical conditions but significant among abdominal traumas. These findings are consistent with studies from N'Djamena [2,3].

The young mean age and male predominance align with existing literature [4,6,7], likely due to greater exposure of men to high-risk situations. Assaults were the predominant cause, followed by road traffic accidents. Sharp weapons were the most common injuring agents, consistent with reports showing a prevalence of 50–80% [2,8,9].

Diagnosis relied primarily on clinical evaluation due to limited imaging availability. Hemodynamic instability justified emergency laparotomy in some cases. All patients underwent emergency laparotomy, similar to other African series [2,3,7–11].

The small intestine was the most frequently injured organ, consistent with literature [1-3,9,12]. Excision and suturing were the most common surgical procedures. Morbidity was 17.8%, mainly due to wound infections, comparable to other African studies [2,6].

Conclusion

Penetrating abdominal wounds are relatively uncommon in routine hospital practice at the General Surgery Department of the Koundara Hospital. Their management remains challenging due to limited diagnostic resources, making systematic laparotomy the standard approach and explaining the high rate of non-therapeutic laparotomies.

Conflict of Interest

The authors declared no conflict of interest.

Funding

None.

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