



Research Article

# Hemoperitoneum: Frequency, Management and Prognostic Factors in the General Surgery Department Hospital National Ignace Deen, CHU de Conakry, Guinea

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## Abstract

**Aim:** To report our experience in the management of haemoperitoneum in the general surgery department of the Ignace Deen National Hospital. **Patients and methods:** This was a retrospective descriptive and analytical study, covering a period of 5 years, from January 2017 to December 2021, carried out in the general surgery department of the Ignace Deen National Hospital. All records of patients admitted for hemoperitoneum were included. **Results:** During the five (5) years, 120 cases of hemoperitoneum were collected, representing 1.1% of all abdominal surgical emergencies. The mean age of the patients was  $24 \pm 16.83$  years. The patients were predominantly male, with a sex ratio M/F: 1,05. The average admission time was 32.1 hours. Haemoperitoneum was traumatic in 58.33% of cases. Road traffic accidents accounted for 35.83% of cases. Treatment was surgical in 81 patients (69.23%). The main anatomopathological lesions found were: rupture of ectopic pregnancy (33.33%), rupture of the spleen (17.5%). The procedures performed were: salpingectomy (61.72%), splenectomy (23.45%). The prognostic factors were: age greater than 30 years, admission time greater than 48 hours, large haemoperitoneum. Post-operative management was straightforward in 92.50% of cases with a death rate of 4.17%. **Conclusion:** Hemoperitoneum is a frequent occurrence in the department. Treatment was surgical with hemostasis, salpingectomy and splenectomy. Prognostic factors were age, admission time and quantity of hemoperitoneum.

## Keywords

Hemoperitoneum, Management, Surgery, Ignace Deen

## 1. Introduction

Hemoperitoneum is a localized or diffuse blood effusion in the peritoneal cavity [1]. It is one of the abdominal emergencies of greatest concern to the surgeon [2].

It can be of traumatic or spontaneous origin [3].

The advent of ultrasonography and computed tomography (CT) has changed the management of this condition, allowing conservative treatment [4].

Nonoperative treatment is currently the mainstay of man-

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agement for abdominal contusions, with a marked decrease in operative indications [5].

Their prognosis depends on the severity of the abdominal lesions, associated extra-abdominal lesions, and the speed and quality of therapeutic management [2]. The aim of this study was to report the experience of the general surgery department of the Ignace Deen National Hospital in the management of hemoperitoneum.

## 2. Patients and Methods

This was a retrospective descriptive-analytical study, covering a 5-year period from January 2017 to December 2021, of usable records (medical observation, operative report, and follow-up) of patients admitted to and managed at the General Surgery Department of the Ignace Deen National Hospital for hemoperitoneum. Incomplete records were excluded. Our study variables were qualitative (sex, diagnostic characteristics, type of treatment, morbidity and mortality) and quantitative (age, hospital stay). Our data were collected and analyzed using epi info version 7.1 software and presented as text, percentages, and means. The kh2 test was used for association measures with a significant P value if less than 0.05.

## 3. Results

During the five (5) years, 120 cases of hemoperitoneum were collected, representing 1.1% of all abdominal surgical emergencies managed in the General Surgery Department of the Hôpital National Ignace Deen. The mean age of the patients was  $24 \pm 16.83$  years, with extremes of 6 and 62 years. The most common age group (34.17%; n=41) was 11 to 20 years. The study included 61 males and 59 females with a sex ratio of M/F: 1.05.

The mean admission time was 32.1 hours, with extremes of 2 hours and 53 hours. The majority of our patients (n=69; 57.98%) were seen within the first 24 hours of illness. However, 21.85% (n=27) were admitted after 48 hours.

Abdominal pain was present in 97.5% of patients. Dyspnea and dizziness were observed in 90.83% of the patients. Details of clinical signs are shown in Table 1.

Hemoperitoneum was traumatic in 58.33% of the cases. Road traffic accidents accounted for 35.83% of the circumstances in which hemoperitoneum occurred, see (Table 2).

Imaging studies were performed in almost all of our patients. Abdominal-pelvic ultrasound, abdominal CT scan and PSA were performed in 99.16%, 8.33% and 7.5%, respectively.

Ruptured ectopic pregnancy and ruptured spleen were the main anatomopathologic lesions found in 33.33% and 17.5%, respectively. (Table 3) shows the lesions found intraoperatively. Hemoperitoneum was large (>300 ml) in 43.33% of cases.

Treatment was operative in 81 patients (69.23%). All our

surgical patients underwent laparotomy. The procedures performed are listed in (Table 4).

Postoperative follow-up was uncomplicated in 92.50% of the cases. We noted 4 cases of parietal suppuration and recorded 5 deaths, for a mortality rate of 4.17%.

Statistically significant prognostic factors were age over 30 years (P= 0.045), admission time over 48 hours (P= 0.03) and large hemoperitoneum (P= 0.04).

**Table 1.** Distribution of Cases by Clinical SI.

clinical Signs	Number (N=120)	Percentages
Abdominal pain	117	97,5
Dyspnea	109	90,8
Vertigo	109	90,8
Vomiting/Nausea	88	73,3
Thirst for liquids and air	36	30,0
Hiccups	21	17,5
Meteorism	14	11,7
Metrorrhagia	2	1,7

**Table 2.** Distribution of Cases by Circumstances of Occurrence.

Circumstances of occurrence	Numbers (N=120)	Percentages
Public road accident	43	35,83
Work accident	17	14,17
Sports accident	8	6,67
Domestic accident	2	1,67
Non Traumatic	50	41,67
Total	120	100,00

**Table 3.** Distribution of cases according to anatomopathologic lesions found.

Pathological lesions	Numbers (n=81)	Percentages
GEUR	50	61,73
Ruptured spleen	21	21,93
Renal wound	8	9,88
Hematoma	7	8,64
Mesenteric wound	4	4,94

**Table 4.** Distribution of cases according to surgical procedures performed.

Surgical procedure performed	Numbers (n=81)	Percentages
Hemostasis	57	70,37
Salpingectomy	50	61,72
Splenectomy	19	23,45
Nephrectomy	7	8,54

## 4. Discussion

The hospital incidence of hemoperitoneum was 1.1% of gastrointestinal surgical emergencies. In the series of Vignon KC et al [6] in Benin, it was 1.8%. This significant frequency of hemoperitoneum could be explained by the increase in abdominal trauma and the increasing number of ectopic pregnancies.

The predominance of hemoperitoneum in young men was the rule in this study, as in other African series [6-9].

In this context, young men are the main users of motorcycles, the vehicles most involved in road traffic accidents. The prevalence of traffic accidents is one of the most common in sub-Saharan Africa [7, 8]. The causes are multifactorial: exponential growth in the number of cars and motorcycles in emerging countries, and failure to meet basic road safety standards. In addition, the condition of roads, their lighting at night, and the promiscuity between different types of motorized vehicles increase the risk of crashes [9].

Splenic lesions were the major anatomopathologic lesion found in our study of traumatic hemoperitoneum. In the literature, 60-80% of adults with splenic trauma do not undergo splenectomy [10, 11]. The best rate of splenic salvage is achieved by nonoperative management. It must be performed in a surgical intensive care unit. The prerequisites are hemodynamic stability, absence of suspicion of hollow organ perforation, and availability of morphologic studies [4, 12]. Accessibility to morphological examinations constitutes an obstacle to conservative treatment. In fact, at the cost of a twice-daily clinical examination, a daily blood count, an abdominal ultrasound repeated after 48 hours, and a CT scan on request, the spleen salvage rate is 80% [4]. This rate is close to that of major trauma centers in the USA or France, where systematic CT scans and early splenic embolization are performed [12, 13].

Renal wounds were the second most common lesion found in our abdominal trauma patients. Nephrectomy for hemostasis was performed in 87.5% of cases. Three situations require nephrectomy for hemostasis: pedicle involvement with active bleeding; hemodynamic instability not explained by another lesion and not controlled by resuscitation measures; presence of an expansive, pulsatile retroperitoneal hematoma during exploratory laparotomy [14].

Conservative management has become the gold standard in the vast majority of cases, regardless of grade, when hemodynamics are stable [15]. In the case of asymptomatic mild renal trauma (AAST grade 1 to 3), early systematic surveillance imaging is of no benefit [16]. Early follow-up imaging should be reserved for patients with grade 4 or 5 trauma and those with a change in symptomatology (fever, macroscopic hematuria, worsening pain). It usually consists of a new uroscan between D5 and D10 to detect the appearance of a pseudoaneurysm and the appearance or increase of urine extravasation [17, 18].

Ruptured ectopic pregnancy was the main cause of spontaneous bleeding in our series. Ectopic pregnancy (EP) corresponds to the implantation and development of the egg outside the uterine cavity [19]. It is a serious pathology that remains the leading cause of maternal mortality in the first trimester of pregnancy and significantly affects subsequent fertility [20].

Salpingectomy was performed in all of our patients. The surgical approach was less radical, with a salpingectomy rate of 90.4% in Gabkika's study [20].

In developed countries, medical management and conservative laparoscopic surgery are more widely practiced and, in early forms, improve overall management and subsequent fertility [21].

In developing countries, delay in diagnosis leads to laparotomy in most cases for advanced forms of ectopic pregnancy [20-25], as in our series.

Salpingectomy was most frequently performed in the series of Randriambololon [22], Nayama [24] and Sy [25], who reported a radical treatment rate ranging from 80.3% to 95%. Factors such as intraoperative adnexal status and parity of the patient may explain these conservative or non-conservative attitudes.

The outcome of the patients is comparable to that of Benissa N et al [4] in 2007, who reported a good outcome in 94% of unoperated patients. Kambire JL et al [26] in Burkina Faso in 2016 reported 57.1% good outcome. Postoperative complications were recorded with 4 cases of parietal suppuration and 5 cases of death. The favorable outcome in the majority of our patients was due to hemodynamic stability and the availability of an experienced medical-surgical team, ready to intervene at any time in case of an operative indication.

More than 2/3 of patients had a hospital stay of less than 7 days. Kambire JL et al [26] in Burkina Faso in 2016 achieved an average hospital stay of 6 days.

Prognostic factors were age, time to admission and amount of hemoperitoneum. This result is different from that of Hsieh TM in 2014 [27], who found no association between age, admission time and amount of hemoperitoneum.

## 5. Conclusions

Hemoperitoneum is a common medical-surgical emergen-

cy, with young men being the most affected. They were mainly of traumatic origin, mainly due to traffic accidents. Treatment was surgical with hemostasis, salpingectomy and splenectomy. Prognostic factors were age, time to admission and amount of hemoperitoneum. Awareness of the general population, especially young people, of the need to obey traffic rules and refrain from assaults would reduce the frequency of traumatic forms of hemoperitoneum, which in fact represent the majority of cases.

## Abbreviations

AAST	The American Association for the Surgery of Trauma
CT	Computed Tomography
GEUR	Ruptured Ectopic Pregnancy
PAS	Unprepared Abdominal X-ray

## Statement of Informed Consent

All authors appearing in this article equally share and agree to the publication of this article in your journal.

## Author Contributions

**Yattara Abdoulaye:** Project administration, Resources, Writing – original draft

**Oularé Ibrahima:** Conceptualization, Resources, Supervision, Visualization, Writing – original draft, Writing – review & editing

**Diallo Mamadou Saliou:** Formal Analysis, Methodology, Resources, Writing – original draft

**Konaté Lancinet:** Supervision, Visualization

**Condé Ansoumane:** Software, Visualization, Writing – review & editing

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## Conflicts of Interest

The authors declare no conflicts of interest.

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