

Research Article

Open Access, Volume 3

Abdominal Trauma in Children in the Pediatric Surgery Department of the Hospital in Mali

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Abstract

Abdominal trauma is a shock of any type exerted on the stomach. Traumatic lesions of the abdomen are very frequent and very varied. It can be closed or open. According to the world report on the prevention of injuries in children established in 2004, the sex ratio is between 3/1 and 5/1 in favor of boys. The objective was to write the epidemiological, clinical and therapeutic characteristics of abdominal trauma in children under 0 to 15 years old. This was a prospective study over a period of 24 months carried out in the surgical department hospital at the CHU Hospital du Mali in Bamako, Mali. During the study period we collected 20 patients, 65% of the children were between 9 and 15 years old. The average age is 10 years old. The male sex was the most represented with 70%, the sex ratio is 2.33. 45% of the children had consulted after a delay of 12 hours following the trauma. Road accidents were the most frequent circumstances with 45%. A hemoperitoneum was found in 40% of cases on ultrasound, 20% liver and splenic lesions. Non-operative treatment was practiced in 65% of cases and surgical treatment in 35% of cases. Mortality was nil, one patient was operated on for a bridle occlusion after a 6-month follow-up. Abdominal trauma in children is common and is particularly due to road accidents. The resulting lesions are very varied. Conservative treatment achieves a very high rate of satisfactory results. Surgical treatment intervenes in specific situations where we find life-threatening lesions. The short and medium term evolution is mostly simple in our context.

Keywords: Trauma; Belly; Surgery.

Manuscript Information: Received: Apr 05, 2023; Accepted: May 09, 2023; Published: May 16, 2023

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Citation: Sidibé S, Cissé MCA, Kouyaté M, Diakité Y, Kané ZS. Abdominal Trauma in Children in the Pediatric Surgery Department of the Hospital in Mali. *J Surgery*. 2023; 3(1): 1098.

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Introduction

Abdominal trauma is a shock of any type exerted on the abdomen [1]. Traumatic lesions of the abdomen are very frequent and very varied. They are divided into two entities: contusions of the abdomen (without rupture of parietal continuity) and wounds of the abdomen (with rupture of parietal continuity). They are mainly due to road accidents in 80% of cases [2]. They are caused by a direct or indirect shock. A visceral lesion is found in 10 to 30% of cases [4]. Abdominal trauma can be associated with polytrauma often with a vital prognosis and therefore a surgical decision that is difficult to make [5]. This study aims to evaluate the epidemiological and evolutionary aspects of abdominal trauma in children.

Materials and methods

We conducted a prospective, descriptive, cross-sectional study. To do this, we took into account the records of children hospitalized in the pediatric surgery department of the Mali hospital over a period of 2 years from May 17, 2017 to April 16, 2019. All children aged 0 to 15-year-olds received in our service for abdominal trauma were included. On admission we took into account a certain number of criteria: approval of non-operative treatment after clinical examination and the disposition to take in the event of treatment failure conservative. Indications for surgery were: unstable hemoperitoneum, presence of signs of peritoneal irritation, pneumoperitoneum, evisceration and a penetrating wound in the abdomen. The parameters studied were sociodemographic, clinical, paraclinical, therapeutic and evolutionary data. Data were entered and analyzed using SPSS software.

Results

During our study period, 241 patients were hospitalized in the department, including 20 children aged 0-15 years for abdominal trauma, a frequency of 8.30%. Of these 20 cases, 14 were boys (80%) and 6 girls (20%), i.e. a sex ratio of 2.33. The average age was 10.05 ± 3.8 years with extremes of 1 and 15 years. The age group between 9-15 years was the majority with 65%. In our series, 80% of our patients lived in Bamako where there is a strong agglomeration. Abdominal pain was present in 100% of our patients. Hemodynamic instability was present in 45% of our patients. We found dullness in 75% of cases. In our series, 50% of patients had a hemoglobin level above 11 g/dl. Patients had hemoperitoneum in 40% of cases. Ultrasound found hemoperitoneum of great abundance in 37.5% of patients. Non-operative treatment was the most used therapeutic means with a rate of 65%, and 57.14% operated for evisceration. The average length of hospitalization was 8.95 days with extremes of 1 day and 30 days. The postoperative course was simple in 85.71%. No deaths were observed. After a follow-up of 6 months, one patient was operated on for an occlusion on a flange. At 3 years of follow-up, all the patients were seen again and one in twenty presented with keloids at the level of the laparotomy scar.

Discussion

The limitations of our study were related to its prospective nature and low sampling. Our frequency of 8.30% obtained are close to those reported by several works [6,7] with respective rates, 8.88% and 8.40%. It presents a significant difference compared to Camara [8] of 2.4%, and Koné [9]: 4.2%. This difference could be due on the one hand to the different study duration in the differ-

ent works and on the other hand by several factors in particular (the study population, the increase in the number of machines two-wheelers, non-compliance with the highway code and the resurgence of road accidents). In our series, the average age was 10.05 ± 3.8 with extremes of 1 to 15 years, which is similar to those found by Laamrani [10] in Morocco (10.5 years) and Camara [8]. In 2014 in Mali (9.48 ± 3.7 years). Our study has objectified a clear male predominance, i.e. a sex ratio equal to 2.33. Just like the American and Moroccan series, we noted a male predominance. The turbulence, the great vivacity of the boys could be the cause. Nine of our patients, or 45%, consulted after the 12 hours of trauma. Our results are consistent with those of Camara [8], in whom 56.2% of patients consulted within 6 hours of the injury. In our series, AVP represented 45% of cases. Our results are consistent with literature data [11,12]. AVPs dominate causes in traumatology. The other etiologies are domestic and sports accidents. Abdominal pain is usually the first sign after abdominal trauma. It was the most constant sign in our series, i.e. 100%, unlike Ozturk [13] who only noted it in 32%. Other signs were vomiting, headache, thirst and haematuria. Abdominal trauma most often leads to hemoperitoneum which can be responsible for a state of shock revealed by hypotension, tachycardia and mucosal pallor. These signs have been reported by Malian [8-14], Swiss [7] and American [15] studies. Hyperthermia is generally absent during blunt abdominal trauma except for infectious complications. We noted it in 30% of our patients. In our series 54% of our patients had an abdominal defense. This rate is statistically higher than that of Togola [14] (13.0%) and Camara [8] (26.7%). Sloping dullness was objectified in 15 patients (75%) in our series. This rate is higher than that of Koné [11] (28.7%) and Camara [8] (63.8%). Abdominal ultrasound is a sensitive and effective examination for the diagnosis of any intra-abdominal effusion. It was performed in 80% of our patients. This result is comparable to that found by Mohamed [16] who achieved it in 88.8% of cases. Computed tomography is considered the examination of choice in cases of blunt abdominal trauma in children. Its sensitivity is close to 100% for some authors [12], it was achieved in 15% of our patients. We note that in all the studies the operative treatment is no longer systematic in the event of blunt abdominal trauma. These authors have a high rate of nonoperative treatment. Our rate of 65% is higher than those of other authors [17,18]. Laparotomy was performed in 35% of cases with reintegration of the viscera in 57.14% of cases followed by intestinal suture in 28.57% and white laparotomy in 14.29% of cases. Our laparotomy rate is close to those reported in the literature [17,18] with respective rates, 44.7% and 42.1%. This is due to the fact that there is a greater absorptive capacity of antherocytes in children on the one hand and on the other hand, the study population (children only). In our series, the postoperative course was favorable in all our patients. We did not record any deaths intraoperatively or postoperatively, but we have a morbidity of 10% (occlusion on a flange and parietal suppuration). Those of other African authors have a statistically similar mortality rate to Choua [19], Sambo [20] and Bah [21].

Conclusion

Abdominal trauma in children is the most common and is particularly due to road accidents. The resulting lesions are very varied. Conservative treatment achieves a very high rate of satisfactory results. Surgical treatment intervenes in specific situations where we find life-threatening lesions. The short and medium

term evolution is mostly simple in our context.

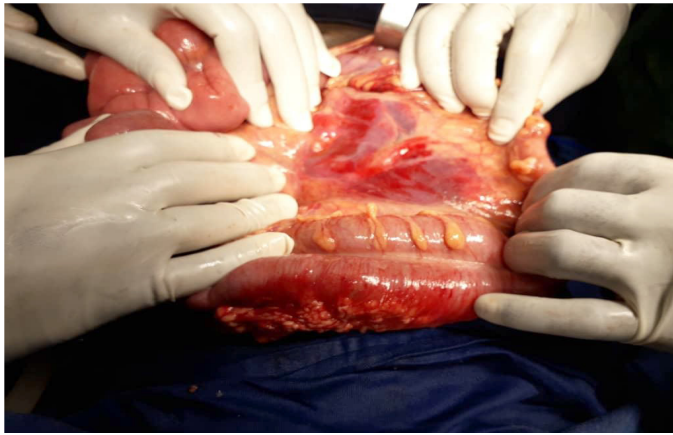


Figure 1: 12-year-old patient, abdominal contusion and intestinal perforation.



Figure 2: Patient 8 years old, evisceration by goring.

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