

(CASE REPORT)



A case of massive retroperitoneal hematoma secondary to hernia repair and review of the literature

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Abstract

Retroperitoneal hematomas are very rare and possibly fatal complications of hernia surgery. In this study, we report the case of a 24-year-old patient who developed a massive left preperitoneal and retroperitoneal hematoma following vessel injury during Shouldice hernia repair. Despite a packing during haemostasis surgery and being well resuscitated, the patient died in haemorrhagic shock. This case highlights the importance of early detection of signs of postoperative bleeding in the outcome of patients undergoing hernia repair.

Keywords: Indirect inguinal hernia; Shouldice technique; Postoperative complication; Retroperitoneal hematoma; Preperitoneal hematoma; Death

1. Introduction

Hematoma is the most frequent hemorrhagic complication following hernia surgery. However, massive retroperitoneal hematomas requiring surgical intervention are rare [1]. A review of the literature reveals only four confirmed cases, respectively by Alz'beta Ginelliova et al (2016); Xiaohui Yang et al (2019); Seetha Venkateswaran et al (2020) and Takahisa Fujikawa et al (2023). [1, 2, 3, 4]. In this case, we will present a patient who underwent a left inguinal hernia repair using Shouldice's technique, complicated by unexpected postoperative retroperitoneal hemorrhage that required reoperation.

2. Clinical case

This is a 24-year-old patient referred to the Yaounde Emergency Center (CURY) for intense asthenia and left iliac fossa pain, following elective surgery indicated for unstrangulated left inguinal hernia. Seven hours prior to his consultation in our department, the patient had undergone left inguinal hernia surgery under spinal anesthesia using the Shouldice technique, on an outpatient basis in a nearby hospital. During surgery, bleeding was reported by the surgical team, prompting haemostasis stitches, which stopped the bleeding. The post-operative period was marked by intense asthenia and a progressive drop in blood pressure, which prompted his transfer to CURY.

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On admission, the patient's primary assessment found:

- A: unobstructed airways;
- B: saturation 98% on room air, respiratory rate 26 cycles per minute;
- C: blood pressure 86/ 41 mmHg, pulse 95 beats per minute. Blood samples and two venous lines were taken, and 1000 cc fluid was administered, raising blood pressure transiently to 96/52 mmHg and obtaining a pulse of 85 beats per minute.
- D: The patient was conscious with a Glasgow score of 15/15.
- E: Left inguinal wound. No external bleeding. His temperature was 37°C with a blood glucose level of 2.22 g/dl, prompting administration of rapid insulin at 2cc/hour.

On secondary assessment, the patient presented with conjunctivo-palmar pallor and dry mucous membranes. His abdomen was distended and mobile with respiration, with slight swelling in the operated area, and a 5 cm oblique wound in the left inguinal region (Figure 1). Palpation revealed tenderness in the three lower regions of the abdomen, with no rebound tenderness at the umbilicus examination. The genitals were male, with testicles of normal size and consistency. Examination of the hernial orifices was normal. The lower limbs were warm and all pulses were symmetrical.



Figure 1 Left inguinal swelling

An E-FAST performed at the patient's bedside revealed a medium-sized effusion in Koller's and Morrison's spaces, with an inferior vena cava of 14 mm in diameter. Postoperative hemoperitoneum complicated by clinical anemia and hemorrhagic shock was thus evoked.

Blood tests revealed a drop in hemoglobin from 13.1 g/dl preoperatively to 6.1 g/dl on admission to the emergency unit. A plain abdomen (Figure 2), which was normal, was performed at the patient's bedside.

Persistent hemodynamic instability despite resuscitation has indicated a hemostasis surgery.

The patient underwent surgery 4 hours 30 minutes after admission to CURY, under general anesthesia with orotracheal intubation. A median laparotomy was performed after administration of 1g of tranexamic acid and noradrenaline (4.0)

using an electric syringe pump. A voluminous left retroperitoneal and preperitoneal hematoma was found (Figure 3), with no intraperitoneal lesions. The left toldt fascia was opened, revealing a large mass of coagulated blood and around 500cc of liquid blood, which was aspirated. We evacuated a part of the hematoma to investigate the origin of the bleeding. The iliac vessels were intact, but there was a low diffuse bleeding of uncertain etiology.

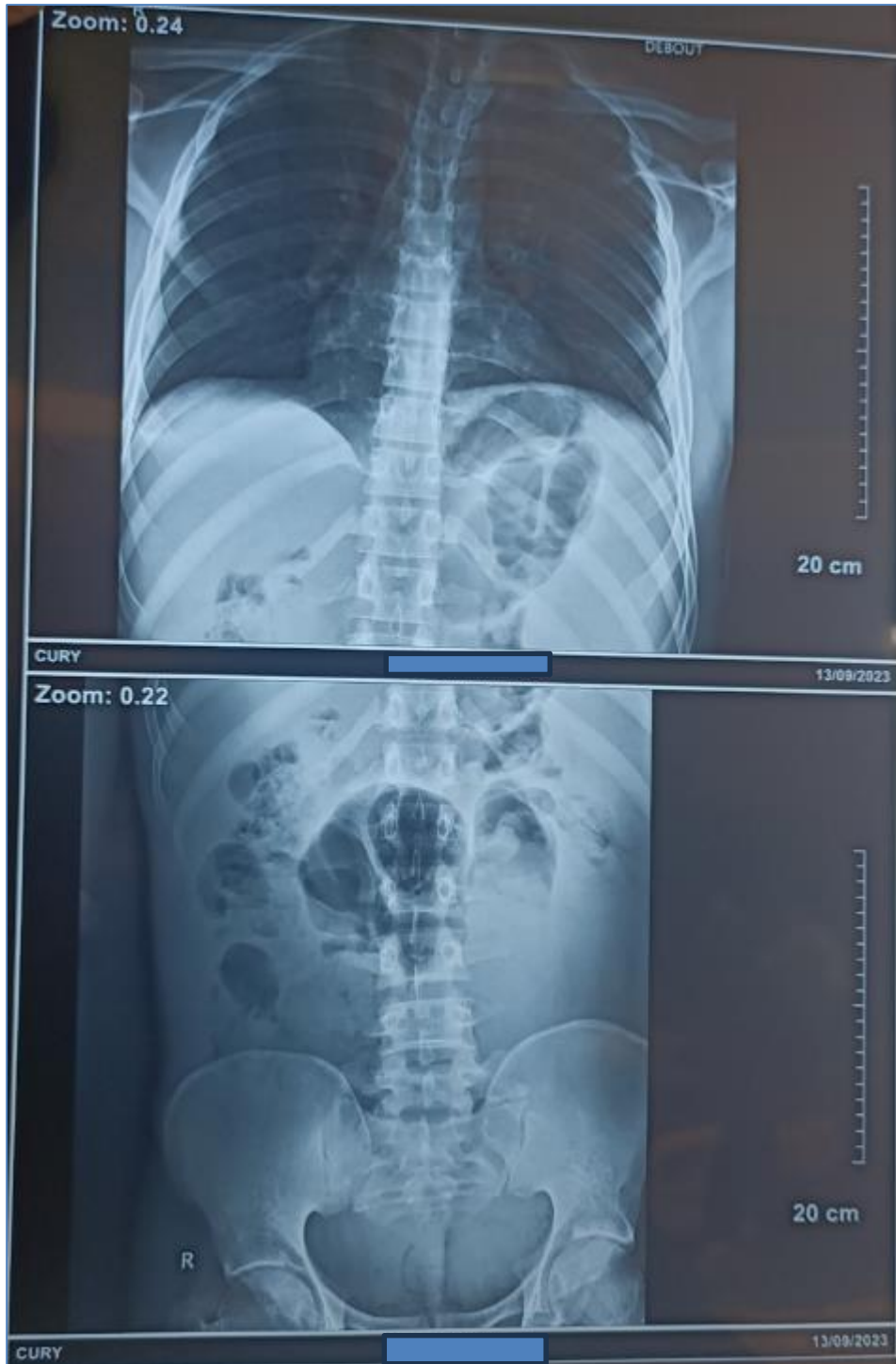


Figure 2 Plain Abdomen X-ray, normal

A packing was performed and the surgical approach closed. During the 53-minutes surgery a transfusion of three blood bags was done, one of AB-positive intraoperatively, and two of A-positive postoperatively.

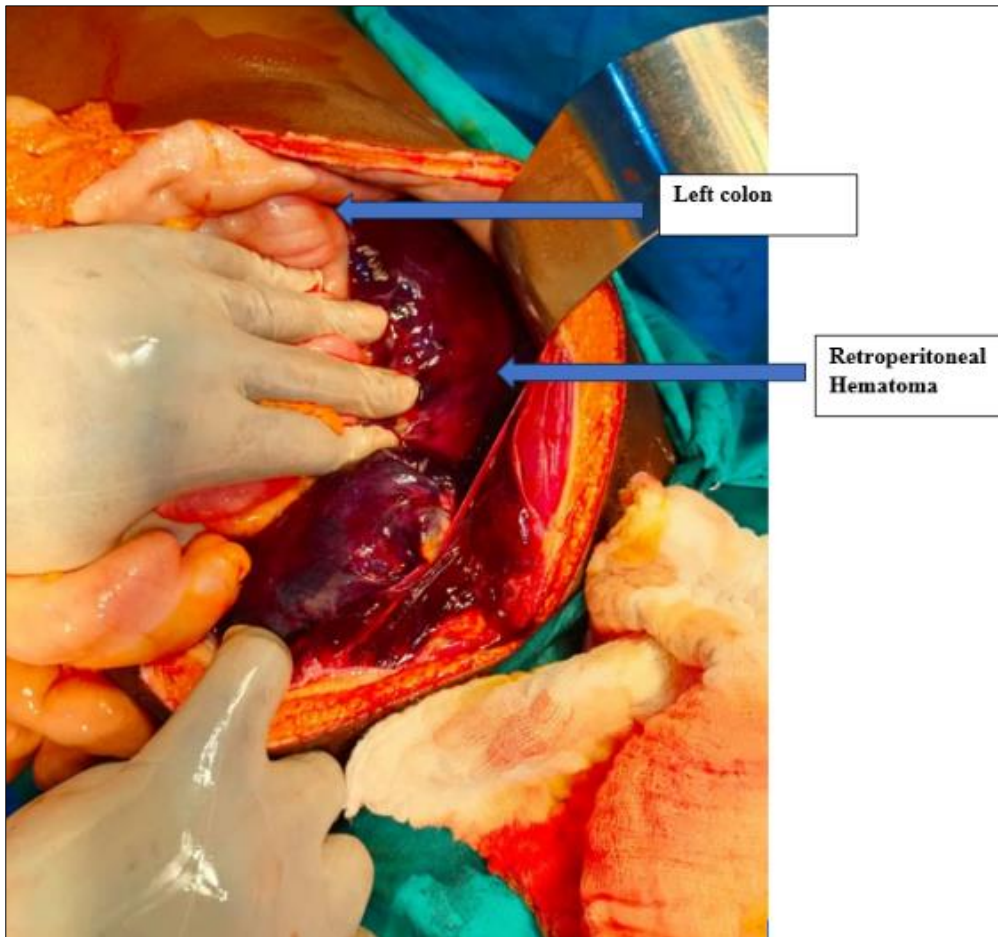


Figure 3 Massive left retroperitoneal hematoma

The post-operative course was marked by persistent hypotension under noradrenaline, bleeding through the median laparotomy approach, and the patient died two hours after the end of his haemostasis surgery.

3. Discussion

A few weeks prior to our patient's admission, massive bleeding following elective hernia repair surgery was reported in a nearby hospital in Yaoundé. This recurrence of adverse events after surgeries reputed to be safe raises questions about the etiology of such bleeding. Although the actual origin of retroperitoneal bleeding could not be established in the cases described by Alz̃beta Ginelliova et al ; Seetha Venkateswaran et al and Takahisa Fujikawa et al ; we can note the extensive dissection of the preperitoneal space by laparoscopic approach for Alz̃beta and by open approach for Takahisa. The approach and type of treatment are not specified by Seetha, however perioperative intake of antivitamin K [1 ,4] and saw palmetto [3], concomitant with dissection in these 3 studies, would have favored bleeding. In the case of Xiaohui Yang et al, open preperitoneal plasty resulted in a preperitoneal hematoma, whose surgical exploration revealed active bleeding from the corona mortis. In our study, although the origin of the bleeding has not been established, we suspect firstly a bleeding from the inferior epigastric artery, due to the type of hernia (external oblique) and the type of surgery performed, and secondly, a lesion of the corona mortis due to its relationship with the operative area, its hemorrhagic potential and its non-negligible prevalence. The corona mortis is a vascular anastomosis (arterial, venous or mixed) connecting the external iliac pedicle and the obturator vessels in the retropubic space. It is found in 46% of hemi-pelvis (with 42% venous and 25% arterial anastomoses) in a review of Western and Asian literature by G. Noussios et al [5], and in 43% of hemi-pelvis (30.8% arterial, 7.7% venous and 61.5% arterial and venous) in a study carried out in Sudan by A. Abbas et al [6].

Once the etiologies have been discussed, the treatment methods and their results need to be evaluated. In the studies by Fujikawa et al and Seetha Venkateswaran et al, the patients' hemodynamic status was relatively stable on admission, enabling abdominal CT with contrast injection and angioscan to be performed respectively. These examinations revealed a large left retroperitoneal hematoma and a large retroperitoneal hematoma with no active bleeding.

Management was conservative in both studies, with anticoagulant therapy discontinued, administration of a heparin antidote (protamine) and massive transfusion in the former, and a monitoring in the latter. Progression under these treatments was favorable, with a long hospital stay in the first case. In the study by Xiaohui Yang et al, the patient's hemodynamic status was satisfactory. Pain in the left groin and a drop in hemoglobin levels prompted an abdominal CT scan, which revealed a preperitoneal hematoma. The worsening of the biological anemia prompted a second surgery, with ligation of the corona mortis, removal of the prosthesis and Lichtenstein plasty. The patient's post-operative course was uneventful. In both our study and that of Alz`beta Ginelliova et al, patients arrived in a state of hemodynamic shock and no etiological work-up was possible. In Alz`beta's study, the patient was on antivitamin K and underwent ambulatory surgery; he was not seen again in the emergency department until two days after his surgery. Death was recorded on admission for Alz`beta Ginelliova et al, and after the second surgery in our study. While the hemodynamic status of patients seems to determine prognosis, prolonged postoperative monitoring played a decisive role in the outcome of patients operated on anticoagulants drugs.

4. Conclusion

In conclusion, the occurrence of retroperitoneal hematoma after hernia repair is a potentially life-threatening injury. Early diagnosis and treatment are therefore of the utmost importance.

Although inguinal hernia repair is one of the most common operations performed in general surgery, anatomical structures such as the corona mortis (the crown of death) make this procedure quite difficult, due to the risk of massive hemorrhage associated with injury to this vessel. Consequently, any surgeon planning an operation in the retro-pubic region, particularly during a hernioplasty procedure, should have an extensive knowledge of the anatomy of this vessel to avoid it being injured during the operation.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of ethical approval

'The present research work does not contain any studies performed on animals/humans subjects by any of the authors'.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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