

Left trans-thoracic evisceration of a perforated transverse colon

Abstract

We received a 31 years old male who presented to the emergency after been stabbed on both thorax. The left thoracic wound was the site of evisceration of colon. The eviscerated colon was perforated. The patient was instable. After stabilisation, he was operated under general anesthesia. A bilateral thoracic drainage done, one and the right thoracic stab wound was then closed. A median laparotomy discovered the left colic herniation through the left diaphragmatic coupole, continuing through the thorax by the evisceration and a gastric tear. The colon was washed and reduced first through the abdomen by gentle traction. The left parietal wound was then closed. The left thorax cavity was washed and the diaphragmatic hole closed. The left transverse colonic tear was excised and closed. He stayed 5 days in the intensive care unit. We had a superficial site infection of the laparotomy wound treated by saline wet dressing for 20 days. After one month hospitalisation, the patient was discharged. He resumed his work after 3 months and is doing well at 12 months postoperative. This case emphasizes on a rare surprise awaiting the trauma surgeon.

Key words : thorax stab wound – evisceration – colon – perforation- emergency thoracophrenolaparotomy

Introduction

Stab wounds are more and more frequent and poorly documented in our environment [1]. The thoracic region is most often affected and diaphragm hernias are reported [2,3]. In thoraco abdominal traumas surgeries, there are many surprises. We report here one of these per operative surprises, a rare case where both thorax were stabbed with a colonic evisceration on the left. Abominal evisceration are common, diaphragmatic hernias are possible but we have found no publication on transdiaphragmatic bowel evisceration through the thorax. The trauma surgeons working in ressource limited areas should be aware of this very rare possibility in opened thoraco abdominal traumas involving the upper part of the abdomen and the lower part of the thorax.

Presentation of case

Identification: Mr. X, 31 years old, is a security guard living in Douala, who was the victim of a knife attack on March 2, 2020 in Makepe Missoqué, around 1 p.m.

Main complain: After being stabbed with a hooked dagger, twice in the left and right basithoracic regions, he was immediately taken by the police by taxi to the emergency room of the Deido district hospital 15 minutes later.

General state: On admission, he was conscious but in shock. His blood pressure was 100/10 mmHg, his respiratory rate was 28 cycles per minute, his heart rate was 100 cycles per minute and his temperature was 37.5°. Arterial blood oxygen saturation was 90%.

Physical examination: The conjunctivae were faintly colored and the chest covered with blood. There was a superficial polypnea, a blowing wound at the right thoracic base and at the left thoracic base a wound with evisceration of a colonic loop which in addition had a perforation through wich could be seen yellowish and soft stools. The blowing wound on the right thoracic base was 5 centimeters wide and leaked air on inspiration. Vocal vibrations and

breath sounds were diminished, and there was **tympanism**. On the left, the chest wound measured 10 centimeters and was closed by evisceration. The abdomen was not distended, not very mobile with breathing and tender to palpation. The rest of the **physical examination** was unremarkable. Our clinical diagnosis of thoraco-abdominal trauma with a blowing right chest wound and left trans-thoracic evisceration was made on the clinical basis and the indication for surgery. We were unable to do an X-ray or CT scan **because of the unstable polytrauma state**.

First aid measures : The **polytraumatized** patient was initially installed in the emergency room in a semi-sitting position, lower limbs elevated, for preoperative resuscitation. We gave him oxygen by face mask at the rate of 6 liters per minute. During the placement of two venous catheters number G18, we did a preoperative laboratory assessment which revealed moderate anemia at 9g/dl. We gave him 1000cc of physiological saline and 1000cc of Ringer's lactate on one of the lines with a perfuser and on the other he received 500cc of blood through a transfuser. After stabilizing him for 30 minutes, he was transferred to the operating room. We performed general anesthesia with orotracheal intubation before asepsis and draping of the chest and abdomen.

Surgery stages:

The first stage of surgery was the right chest tube thoracostomy drainage. It was placed at the 5th right intercostal space in the anterior axillary line. The blowing wound was then closed in three planes: 8 separate points of polyglactin 910 (Vicryl®) number 1 on the muscle level, 8 separate points of Vicryl®) number 2 on the aponeurosis and 9 points of Blair Donati on the skin with skin thread number 2/0. The drain was secured by a fixation to the skin with skin suture number 2 and its suction brought back air and 200cc of blood.

The second operation consisted in placing the left chest drain. It was placed at the 5th left intercostal space in the anterior axillary line. This drain was also fixed to the skin with skin suture number 2 and its suction brought back air and 200cc of blood. He brought back air and 300cc of blood.

The third operation consisted of a midline laparotomy first above the umbilical then xyphopubic bypassing the umbilicus on the left. At the opening, we discovered: 100 cc of blood in the abdominal cavity, an aspiration of the transverse colon through the left diaphragmatic dome which continued with the evisceration. We washed and **protected** the eviscerated and perforated colon before reducing it through the abdomen. The reduction of the diaphragmatic hernia by gentle traction therefore made it possible to reduce the evisceration and to discover a wound of 20cm on the left diaphragmatic dome. Through this wound, we could see the lower lobe of the left lung which was normal on inspection, shrunken in the hilar region and expandable on inspiration. Our drain was also visible as well as the pleural breach. Our evisceration was thus reduced and protected.

The 4th stage of surgery was the closure of the left chest cavity to insure aerostasis. The left thoracic wound was closed externally in three **planes :** 8 separate points of polyglactin 910 (Vicryl®) number 1 on the muscle level, 8 separate points of Vicryl®) number 2 on the aponeurosis and 9 points of Blair Donati on the skin with skin thread number 2/0. We then washed the pleural cavity and closed, **through the abdominal incision**, the wound of the left

diaphragmatic dome in two planes with continuous suture of Vicryl® number 2. The chest tubes were kept in gentle suction to bring the lungs back to the wall after insuring aerostasis.

The 5th step of surgery concerned the stomach and the colon: There was a 10cm wound in the anterior aspect of the stomach along the left greater curvature of the stomach. The gastric wound was also closed with a double continuous suture of Vicryl® number 2. The abdominal cavity was washed with saline. There was a 2cm colonic wound located on the transverse colon slightly to the left of the midline. It was excised and sutured in two layers using Vicryl® 0. A double drainage of the abdominal cavity was carried out: a drain towards the Douglas pouch, that and a drain under the left diaphragmatic dome. The laparotomy was closed with a number 2 Vicryl® suture on the aponeurosis and 15 Blair Donati stitches on the skin with a number 2/0 skin suture, followed by dressings.

Medical treatment : He also received anti tetanus serum, an analgesic treatment (1g of paracetamol infusion immediately then every 8 hours for 5 days combined with nefopam), antibiotics (Ceftriaxone 2g immediately then daily, Metronidazole 500 mg immediately then every 8 hours, Gentamycin 160 mg immediately then every day for 5 days), a nasogastric tube for 5 days, omeprazole 40 mg per day for 5 days, an anti-tetanus serum, a urinary catheter and dressings.

Immediate follow up and complications: The drainages of the residual hematomas and eventual liquides was performed for 48 hours (pleural cavity). The nasogastric tube was removed after 5 days (in the morning) and the urinary catheter was removed after 48 hours. The transit returned after 3 days and progressive oral liquid intake started on day 5 in the morning. The abdominal cavity drains were removed in the evening at day 5 post operation. He stayed 5 days in the intensive care and 25 days in surgery ward. After one month of hospitalisation, the patient was discharged.

Long term follow up : The postoperative course was simple regarding the thorax, the respiration, the stomach and the colon. At he resumed his work at tree months postoperative and is doing well when seen at 12 and 34 months after surgery.

Discussion

Unilateral chest trauma has been described in the literature unlike bilateral chest trauma [1]. Further more, an association of bilateral chest trauma with colonic evisceration has never been reported, to the best of our knowledge. Cases of herniated omentum have been reported [2]. The frequency of diaphragmatic injury is reported to be low in our environment : a study found 20 cases over 1535 injuries [2] in Dakar (1.3 %) and another found 27 cases 11 years in Yaounde [5]

Diaphragm rupture is a life-threatening injury [4]. They most often occur as part of a polytrauma [5]. Traumatic diaphragm rupture follow blunt abdominal trauma in 1% to 7% or an open thoracoabdominal trauma in 10 to 15% [4] [6]. Postoperative mortality for this lesion is between 5% and 18% [7] [8].

Mechanism

Our patient was male, aged in his thirties, and the mechanism was open trauma as reported by several authors [2,3,9]. We had a double open chest trauma. There was a hemopneumothorax

as also reported by Al-Koudmani et al. in 2012 [9] after a review of 888 chest traumas over 11 years. We had a left diaphragmatic hernia as is often the case [2,3], the right side being protected by the liver. We had a transthoracic evisceration and Guy Aristide Bang [3] had already mentioned a transthoracic epiplocoele in 2022 in Yaoundé. Ours was colon transthoracic evisceration.

Diagnostic

Contrary to the **Dakar [2] and Yaounde** studies [3] and, our diagnosis was neither difficult nor delayed because of the visualization upon inspection of the eviscerated colon through the left basi thoracic wound. But we could not imagine the associated gastric lesion which was an operative discovery; the surgeon should expect surprises in these laparotomies as suggested in 2022 [11] by Ahmed Shabbay et al. Complementary imaging examinations did not contribute to our diagnosis (not done), which is similar to cases where the diagnosis remains unclear by these examinations when they are performed [2,3] because ultimately it is the clinical reasoning that prime. This is different from the endoscopic successes (thoracoscopy and laparoscopy) reported by Sardorbek et al. in 2022 [10]. It was the colon that was eviscerated in our case, whereas generally it is the omentum or small bowel [11].

Management

We immediately opted for open surgery as found in the study published in 2021 [12] by Brittany Robinson et al. This is contrary to the proposals of endoscopic and interventional radiology, given the initial instability of our patient and the severity of the initial clinical picture. Chest tube thoracostomy was sufficient to manage our thorax stab wounds like in other publications [9,13,14]. Our drains were suctioned as recommended in 2018 [13] by Tim Michael Feenstra et al.

Prognosis

High mortality was reported in 2019 [15] by Aram Baram et al. who studied 107 patients with bilateral chest trauma. Contrary to the poor prognosis associated with these multiple trauma victims [2,3,10,12,17], our patient survived, certainly because of the onset during the day which facilitated the speed of his transport and arrival at the hospital, at a time when the whole team was in place and the operating room free.

Trends and advances in diagnostic and treatment

Where they are available, total body scan and or magnetic resonance imaging can help in the diagnosis, provide the patient is stable or stabilised. A two team surgery would have been quicker and faster, the first priority been given to the thorax.

Conclusion

This case presents and discusses a rare bilateral chest stab wound, with a left transverse colon trans diaphragmatic evisceration following a stab wound, associated to a gastric and colic tears. **From this case, we concluded that transthoracic bowel evisceration in opened thoraco-**

abdominal injuries is one of the possible, surprises awaiting the trauma surgeon in resource limited areas, and and present the steps we followed in management.

Consent

As per international standard or university standard, patient(s) written consent has been collected and preserved by the author(s).

Ethical Approval:

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

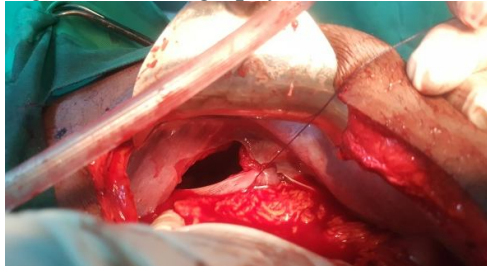
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UNDER PEER REVIEW

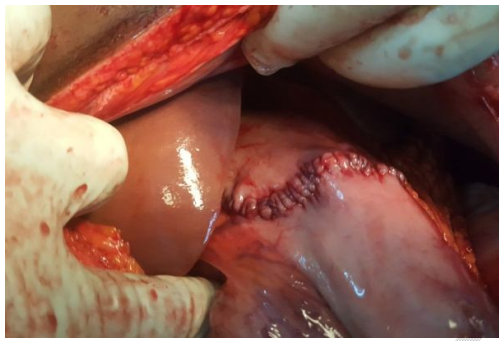
Figure 1 : Iconography



A. Initial aspect of the left diaphragmatic tear



B. Left diaphragmatic tear suture



C. Left gastric tear suture



D. Resection-anastomosis of the ileal tear