



High Bowel Perforation Due Closed Abdominal Trauma in Patient with Chronic Desnutrition and Turner Syndrome. Clinical Case

Alejandro Alberto Flores-López

General Surgery Service of Hospital General de Playa Del Carmen.
Constituyentes Avenue with 135 Street, Ejidal Suburb. Solidaridad,
Playa Del Carmen, Quintana Roo, México. PC: 77712

Luis Arturo Falcón-Cancino

General Surgery Service of Hospital General de Playa Del Carmen.
Constituyentes Avenue with 135 Street, Ejidal Suburb. Solidaridad,
Playa Del Carmen, Quintana Roo, México. PC: 77712

Laura Daniela Caridad Carrillo-Pinto

General Surgery Service of Hospital General de Playa Del Carmen.
Constituyentes Avenue with 135 Street, Ejidal Suburb. Solidaridad,
Playa Del Carmen, Quintana Roo, México. PC: 77712

Alicia Valeria Espinosa-Rosales

General Surgery Service of Hospital General de Playa Del Carmen.
Constituyentes Avenue with 135 Street, Ejidal Suburb. Solidaridad,
Playa Del Carmen, Quintana Roo, México. PC: 77712

Cristóbal Aldair Cáceres-Moreno

General Surgery Service of Hospital General de Playa Del Carmen.
Constituyentes Avenue with 135 Street, Ejidal Suburb. Solidaridad,
Playa Del Carmen, Quintana Roo, México. PC: 77712

Fidel Echevarría-Fernández

General Surgery Service of Hospital General de Playa Del Carmen.
Constituyentes Avenue with 135 Street, Ejidal Suburb. Solidaridad,
Playa Del Carmen, Quintana Roo, México. PC: 77712

Rubén García-Flores

General Surgery Service of Hospital General de Playa Del Carmen.
Constituyentes Avenue with 135 Street, Ejidal Suburb. Solidaridad,
Playa Del Carmen, Quintana Roo, México. PC: 77712

Guillermo Padrón-Arredondo

General Surgery Service of Hospital General de Playa Del Carmen.
Constituyentes Avenue with 135 Street, Ejidal Suburb. Solidaridad,
Playa Del Carmen, Quintana Roo, México. PC: 77712

ABSTRACT

Introduction: Surgical emergencies continue to be a public health problem it is estimated that 5 billion people around the world do not have access to surgery when they need it, particularly in the context of an emergency, this is even more true in countries of low economic income, low political culture and poor per capita distribution of national income, where nine out of ten people do not have access to basic surgical care. **Clinical case:** A 46-year-old female was admitted to the emergency department due to dyspnea and abdominal pain. She begins 7 days before her admission, with a fall from the stairs of her home. When she was admitted, she had a blood pressure of 60/40 mmHg, and significant abdominal distension, for which she began management with noradrenaline, Acute Kidney Injury was documented. A Simple Abdominal Computed Tomography was performed, which reported: Pancreas increased in size at the level of the head, peripancreatic heterogeneous collection, and free fluid in the abdominal cavity 7000 mL; Exploratory laparotomy was performed, which found: abundant purulent and intestinal fluid in the cavity, perforation of 50% of the intestinal lumen at 12 cm and denuding of the serosa at 60 cm from the angle of Treitz, pancreatic tumor; the abdominal cavity is cleaned, a pancreatic biopsy is taken. During her hospital stay, she was managed with broad-spectrum antibiotics, Parenteral Nutrition, she presented metabolic pancreatitis due to TPN 4 days after treatment, Upper Digestive Tract Bleeding that required transfusions; she began an enteral liquid diet, progressed towards improvement until her hospital discharge 19 days after surgery. The histopathological report of pancreatic biopsy reported inflammatory tissue. **Discussion:** Trauma patients may visit the emergency department on foot, in private vehicles, or via an emergency medical service. In Japan, ambulances are available to everyone free of charge, and the telephone triage system recommends that patients with minor injuries go to the emergency department on their own and those with serious injuries use the Emergency Medical Service.

Keywords: Surgery, Emergencies, Blunt trauma, Abdominal injury, Laparotomy, Jejunum.

INTRODUCTION

Surgical emergencies continue to be a public health problem it is estimated that 5 billion people around the world do not have access to surgery when they need it, particularly in the context of an emergency, this is even more true in countries of low economic income, low political culture and poor per capita distribution of national income, where nine out of ten people do not have access to basic surgical care.

This constitutes a real burden in terms of morbidity and mortality in politically underdeveloped countries where there is less than one operating room per 100,000 inhabitants compared to high-income countries where there are 25 per 100,000. This is especially important for people who require emergency surgery, in minutes or hours, this has a great impact on potential disability and chances of survival (1).

Major trauma continues to be an important cause of morbidity and mortality. The World Health Organization (WHO) estimates that trauma is the direct cause of 9% of mortality worldwide. Abdominal trauma accounts for approximately 10% of the injury burden in Europe. Although the distinction between blunt and penetrating trauma is important, both frequently require exploratory surgery in the form of exploratory laparotomy.

Historically, the mortality rate for patients undergoing laparotomy for trauma was 40%. However, recent literature shows significantly lower mortality rates between 7 and 21%. These results can be attributed in part to advances in concepts such as Damage Control Surgery and Damage Control Resuscitation, which is now an integral part of the treatment strategy for severely injured patients to reduce the risk of morbidity and mortality (2).

CLINICAL CASE

A 46-year-old female was admitted to the emergency department due to dyspnea and abdominal pain. As an important history: Carrier of Turner Syndrome, she denies other important histories. Current Condition: Started 7 days before admission, with a fall from the stairs of her home, 24 hours before admission, she presented sudden dyspnea and abdominal pain and distension as well as hyporexia, for which she was transferred to the hospital for evaluation. At her admission, she had a blood pressure of 60/40 mmHg, and significant abdominal distension, for which she began management with Noradrenaline, Acute Kidney Injury (Creatinine 1.8) was documented, and a Nasogastric Tube was placed with a scant output of gastro biliary characteristics. A Simple Abdominal Computed Tomography was performed, which reported: Pancreas increased in size at the level of the head, peripancreatic heterogeneous collection, and free fluid in the abdominal cavity 7000 mL; Therefore, an exploratory laparotomy was performed, which reported the following findings: Abundant purulent and intestinal fluid in the cavity, perforation of 50% of the intestinal lumen 12 cm from the angle of Treitz, denuding of the serosa 60 cm from the angle of Treitz. , pancreatic tumor dependent on the head; Primary closure was performed in two planes, the first with Conell-Mayo stitches and the second with Cushing's invaginative stitches. Lambert stitches are placed in depolishing areas, the abdominal cavity is cleaned with a sterile solution, a pancreatic biopsy is taken, and drains are placed directed towards the left parieto colic slide and the pelvic cavity. Right pneumothorax was reported as an incident when attempting to place a subclavian venous catheter, for which an endo pleural probe was placed. She was evaluated by the ICU in the immediate postoperative period, commenting that she was not a candidate for management in that unit due to a poor prognosis, so she was sent to the General Surgery floor to continue management.

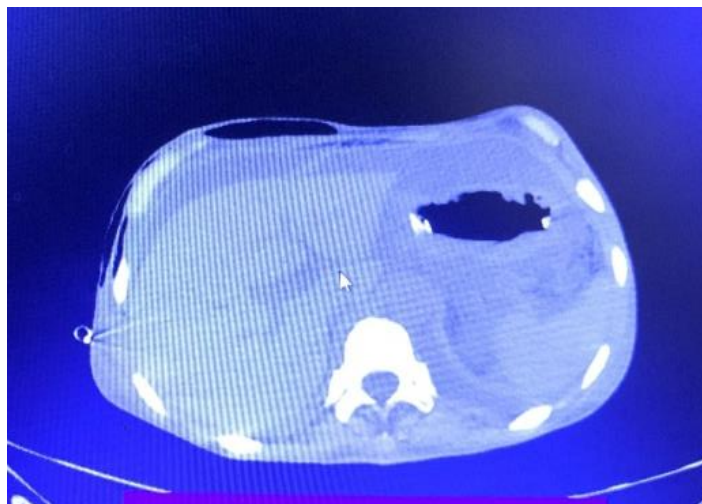


Figure 1. Tomography shows abundant free fluid in the peritoneal cavity.



Figure 2. Perforation of approximately 50% of the intestinal lumen is observed 12 cm from the Angle of Treitz.

During her stay on the floor of General Surgery, she was managed with broad-spectrum antibiotics, and early-onset Parenteral Nutrition (12 h postoperatively), she progressed with slow postoperative evolution towards improvement, decreasing the requirement for circulatory support until weaning from Norepinephrine; Renal function improved to normal, the pneumothorax remitted and the endo pleural tube was removed 72 h after surgery, it had multiple complications associated with the patient's nutritional status and the septic process: he presented metabolic pancreatitis due to TPN 4 days after treatment, he presented Surgical Site Infection by *E. coli*, Upper Gastrointestinal Bleeding that required multiple transfusions; Enteral liquid diet was started with slow but favorable progression, maintaining serous drainage, progressing towards improvement until hospital discharge 19 days after surgery. In the follow-up via outpatient clinic, she progressed adequately, the histopathological study report of the pancreatic biopsy reported only inflammatory tissue.

DISCUSSION

Ultrasound exams must be performed 24 hours a day, including on weekends. Uninsured patients were charged a minimal fee for the exam; patients unable to pay should be examined free of charge. Ultrasounds were performed by the attending physician in the emergency room. If performed by an inexperienced physician, the findings should be confirmed by a certified sonographer. If a certified sonographer was not on duty, abdominal or trauma patients admitted to the emergency room should receive an ultrasound the next morning by a competent sonographer.

Examinations of patients with an abdominal disorder should include imaging of the liver, gallbladder, bile ducts, spleen, pancreas, intestine, large blood vessels, including the inferior vena cava, kidneys, ureters, urinary bladder, uterus, adnexa, prostate, retro peritoneum, heart,

and pleural and pericardial space. In pregnant women, intrauterine pregnancy should be confirmed, where gestational age, fetal cardiac activity, fetal position, and location of the placenta should be assessed.

A problem-oriented approach can also be used, not all organs were always scanned. Patients with suspected blunt or penetrating abdominal or thoracic trauma should be examined according to the

Extended Focused Assessment with Ultrasound in Trauma (eFAST) protocol. Ultrasound findings should be used to support or modify the clinical diagnosis and to determine subsequent management, such as urgent transfer to the operating room or admission to the hospital ward (3).

On the other hand, in cases of abdominal trauma, a rapid and non-invasive FAST examination is recommended since its accuracy value reaches 99%, with a positive predictive value of 100% and a negative predictive value of 99%, thus abdominal ultrasonography is considered an important and integrated part of the management of patients with major trauma. The results of the FAST examination in cases of abdominal trauma will determine the follow-up of the patient, although experience in managing it is required because a failure can compromise the integrity of patients by delaying surgery in a patient who requires it. On the other hand, FAST has shown its great utility in cases where patients do not require unnecessary exploratory laparotomy due to its high diagnostic accuracy (4).

Trauma patients may visit the emergency department on foot, in private vehicles, or by emergency medical service (EMS). In Japan, ambulances are available to everyone free of charge, and the telephone triage system recommends that patients with minor injuries go to the emergency department on their own and those with serious injuries use EMS. Patients who come to the emergency department on foot or in private cars are classified as self-ambulatory; therefore, it is assumed that they have a lower lesion severity and are considered physiologically more stable than those transported by EMS. However, doctors experience cases where injured patients visit the emergency department for their failure to survive.

Previous studies have shown that post-traumatic mortality is associated with suboptimal medical care. If the injury is less severe in patients who present to the emergency department on their own and the patients have the potential to survive, knowledge of these patient characteristics and prognostic factors is important for better treatment strategies and better outcomes for the patients. Although there are several studies on prognostic factors in general trauma patients, data on patients visiting the emergency department by themselves are needed (5).

Duodenal perforation as a result of blunt abdominal trauma is an extremely rare condition, occurring in only 2-10% of cases. It is more common in children due to their weak muscles and thin abdominal wall. Except for the duodenal bulb, the first, second, third, and fourth parts of the duodenum are located retroperitoneal. The fourth segment is 2.5 cm long and runs up and to the left side of the aorta, anterior to the second lumbar vertebra, to join the jejunum at the duodeno jejunal angle. The duodenum is attached to the diaphragm by the ligament of Treitz (at the duodeno jejunal angle). This increases the risk of perforation during blunt abdominal

trauma due to compression of the duodenum against the lumbar vertebrae. The patient may present with mild abdominal pain, perforation peritonitis caused by the irritating content of duodenal juices, particularly bile, may present as emergency abdominal pain, with mortality rates as high as 19%. Abdominal radiography may show air below the diaphragm or retroperitoneal air bubbles. A contrast-enhanced abdominal-thoracic CT scan is the gold standard for diagnosis and may show pneumoperitoneo, retroperitoneal air, para duodenal fluid accumulation, and extravasation of contrast medium. Because diagnosis is often difficult, and even delayed, a high index of suspicion for duodenal perforation must be maintained in children who sustain abdominal injuries. It is inferred that the mechanism of injury in our case is similar to that reported by Kaur et al (6).

Sun B-L et al. They report on a 57-year-old woman who was referred to the hospital for acute abdominal pain and transient syncope. On examination, she had a low hemoglobin concentration and a high white blood cell count, and a percentage of neutrophils. Tomography of the abdomen revealed substantial bleeding in the abdomen. A large amount of exudate in the pancreatic area was considered a hematoma. The preoperative diagnosis was difficult. Her hemoglobin and her blood pressure did not increase after the blood transfusion. Suspecting progressive bleeding in the abdominal cavity and exploratory laparotomy performed urgently. During the operation, it was confirmed that her pancreas was ruptured; therefore, a resection of the body and tail of the pancreas was performed. Subsequently, it was discovered that the patient had undergone a vigorous abdominal massage the day before the onset of abdominal pain. Therefore, any action that increases intra-abdominal pressure can cause damage to internal organs, as was the case with our patient when she fell down the stairs in her house (7). The incidence of malnutrition is high in critically ill patients. Critical illness is often associated with loss of appetite, inability to eat normally, propensity for nutritional deficiencies, muscle atrophy, weakness, and delayed recovery, increased risk of infection, prolonged hospitalization, and even high mortality. Artificial nutrition support can improve the nutritional status of critically ill patients, and enteral nutrition and parenteral nutrition are commonly used for clinical nutrition support. Early enteral nutrition can protect intestinal function and maintain intestinal structure. Currently, most people agree that enteral nutrition can reduce infection and intensive care unit stay and improve prognosis. However, patients with severe disease often have gastrointestinal dysfunction or maladaptations resulting in inadequate feeding, which can affect nutritional status, increase the duration of infection, length of stay in intensive care, and risk of death. (8-11).

Non-surgical management (NOM) of blunt abdominal pain from trauma has been recognized as a safe treatment in many injury patterns in hemodynamically stable patients and is now considered part of the standard of care. Currently, the liver is the most commonly injured organ in blunt abdominal trauma, and more than 80% of patients are treated without the need for surgical intervention. Operation Delayed has typically been considered a failure of non-operational procedures. However, as some authors argue, it is increasingly being considered as part of the joint management plan due to complications associated with NOM that are known to require delayed surgical intervention. Such intervention may include delays for laparoscopic peritoneal lavage (12-13). Regarding Turner Syndrome, there is no association for the abdominal symptoms presented by the patient.

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Declarations

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