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Case Report

Perseverance pays: A complicated case of post laparoscopic cholecystectomy duodenal injury

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Introduction

Laparoscopic cholecystectomy (LC) is the gold standard today for the treatment of gallstone disease. The rates of major complication of this procedure are around 3%.[1] While the biliary complications, with rates of 0.1–0.6%,[2–4] have been well documented, the non-biliary complications have not been well reported, though these could be equally morbid and life threatening. Duodenal injuries are distinct non-biliary complications which have a different mechanism of injury. They pose difficult diagnostic and therapeutic challenges and are potentially fatal if not promptly recognized and managed. In one series of four cases of post LC duodenal injuries, three patients died.[5] We report a case of a post LC duodenal injury that was referred to us which was complicated by other events and was successfully managed.

Case report

A 39-year-old female patient underwent LC at a civil hospital. Per op, the patient had a thin-walled gallbladder with minimal adhesions. The operative time was 3 h with issues of maintaining pneumoperitoneum, the blood loss was negligible and as a routine, a tube drain was placed. Post-operatively, she developed hypotension, had bilious content in drain and a USG abdomen showed free fluid. The patient was resuscitated with fluids and was referred to tertiary center as a bile duct injury where she underwent an exploratory laparotomy on POD 2. Per-operatively, the patient was found to have a duodenal injury. A T-tube duodenostomy (TTD) through the injury and a feeding jejunostomy (FJ) was done. Post-operatively, she developed fever, pain abdomen, wound dehiscence and bilious drainage from the wound.

Her relatives sought discharge from there and admitted her to another tertiary center where CECT abdomen revealed a

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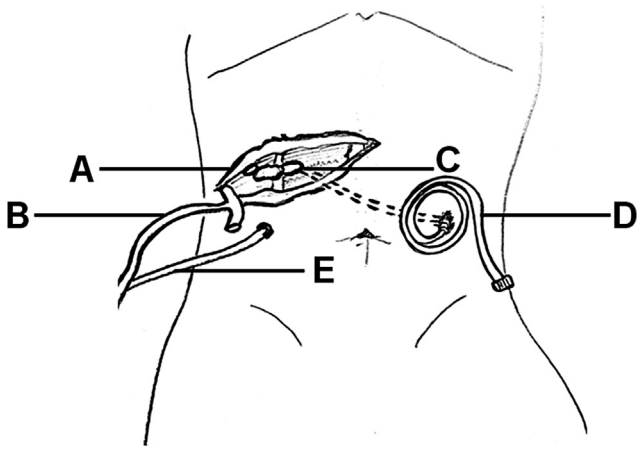

Fig. 1 – The condition of the patient at presentation to our center. (A) Dehisced wound with duodenal contents pooling in its lateral aspect causing extensive skin excoriations; (B) Displaced T-tube from duodenal rent; (C) Jejunal fistula; (D) Feeding jejunostomy; (E) Tube drain in Morrison pouch draining duodenal contents.

leak of contrast from the second part of duodenum along with superior vena cava thrombosis. She was managed conservatively for one month, a period which was complicated with intercurrent sepsis.

She was then brought to our center for further management. On evaluation, she was sick, was febrile, had tachycardia, tachypnea and pedal edema. Per abdomen, there was wound dehiscence with an expelled T-Tube that had led to an uncontrolled high output duodenal fistula, and an exposed jejunal loop that was fistulated with FJ feeds leaking from it (Fig. 1). There were extensive skin excoriations. She was managed with effluent control along with skin protection, sepsis control by culture based antibiotics/antifungals and aggressive fluid/electrolyte management. Special emphasis was placed on feeding fortified feeds through fistuloclysis along with supplemental parenteral nutrition through a femoral line. Low molecular weight heparin and other routine care of bed ridden a patient were also initiated. During hospitalization, sepsis worsened with respiratory distress and ARDS needing ventilatory support A CT angiogram done showed an extensive ileo-femoral venous thrombosis and ARDS but no pulmonary thromboembolism. Anticoagulation was escalated to therapeutic doses following which she developed massive hemoptysis with desaturation and hypotension necessitating inotropes. The patient had diffuse alveolar hemorrhage (anti coagulant associated) and was transfused blood products and vitamins K. Anticoagulation was withheld and an IVC filter placed. She developed septicemia with multi-organ dysfunction, which was managed aggressively and finally, weaned off from the ventilator.

She was taken up for surgery after nutritional build-up, ambulation and chest physiotherapy. She was explored through a midline laparotomy and was found to have dense adhesions between transverse colon, duodenum stomach and omentum as well as liver with a large fistula in exposed jejunum. Two fistulae in the 2nd part of duodenum 2.5 × 2.5 cm and 1 × 1 cm with saponification all over the omentum and mesentery of small and large bowel were present (Fig. 2). The jejunal fistula was dismantled and adhesiolysis was done. The larger duodenal fistula was repaired while the smaller one was closed over a T-tube. In addition, a pyloric exclusion along with an FJ was done (Fig. 3). The post-op recovery was uneventful. The IVC filter was removed and she was discharged on the 14th POD, four months after her initial surgery. Her TTD was removed after 4 weeks and FJ after 6 weeks. She has now completed 6 months of follow-up and is doing well. She is being worked up for thrombophilia.

Discussion

As compared to biliary injuries, post LC duodenal injuries have not been reported often and as such have not been well documented. It is a rare complication, but can be life threatening if not recognized early and treated. In large series of LC, the reported rate of duodenal injuries has been 0.03–0.2%.[6,7] One of the earliest cases was reported in 1994, a full-thickness necrosis of the duodenal wall with delayed perforation.[8]

The mechanism of duodenal injuries is distinct from those of other bowel injuries during LC. Small bowel injuries are usually due to inadvertent injury by Veress needle or trocars during the initial entry into the abdomen. In contrast, duodenal injuries usually result from thermal damage from energy devices, either contact or conductive.[9] This danger is potentiated by working in compromised conditions like in this case where the operating surgeon had problems with maintaining the pneumoperitoneum. Alternatively, they can arise during separation of duodenum when it is densely adherent to the gallbladder.[10] Duodenal injuries due to improper use of suction-irrigators[10] and compression by titanium clips[11] have also been described.

Only occasionally are duodenal injuries recognized during surgery. Free perforation and egress of duodenal juices into the peritoneal cavity usually occurs hours later. They present early in the post op period or in a delayed manner when the

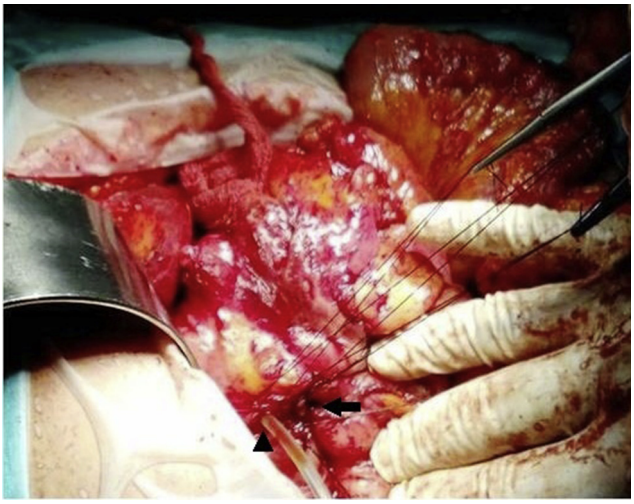

Fig. 2 – Operative photograph showing the larger duodenal fistula (Black arrow) and the smaller fistula (Black arrow head) with a T-tube inserted in to it.