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A Duodenal Ectasia Developed Upstream of a Ladd Adhesion and a Tubular Cholecystoduodenal Fistula : An Unusual Revealing Aspect of an Incomplete Common Mesentery

Author and Affiliation

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Summary:

The incomplete common mesentery results from a 180° rotation stop of the primitive umbilical loop. This rotation defect is most often associated with the emergence of adhesions at the attachment sites, which usually lead to severe neonatal obstructions.
The entire small intestine is supported by the superior mesenteric arterial axis with a very short root, hence the high risk of volvulus and mesenteric infarction.
We report an unprecedented case observed in the General Surgery Department at Moulay Ismail Military Hospital in Meknes, Morocco. The case involves an adult male who was referred for further management of epigastralgia and low-volume hematemesis reported during a repeated vomiting episode. This case will be presented, labeled, and discussed in relation to the literature.

Key words:

incomplete common mesentery; LADD flange; duodenal ectasia; cholecystoduodenal fistula; subhepatic appendix; literature review;

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Main Article

Introduction:

The incomplete common mesentery can lead to dreadful and sometimes fatal complications, especially during the neonatal period, following the sudden onset of volvulus (1). However, in adulthood, its prevalence is only around 0.2% to 0.5%, and it generally remains asymptomatic and incidentally discovered (3).

Our case - unique in its kind - is the first described worldwide, involving a patient who complained solely of chronic and paroxysmal epigastric pain with an ulcer-like appearance. Various biological and radiological examinations revealed a complication never described in the literature focused on the incomplete common mesentery. The findings included duodenal ectasia, developed upstream of a LADD adhesion, and a tubular cholecystoduodenal fistula.

The objective of our publication is to describe and discuss the pathophysiology of this clinical presentation, as well as provide details of the recommended surgical procedure for this patient.

Medical Observation:

Male in his 20s, with no medical-surgical history, admitted to the emergency room for acute epigastric pain typically ulcerative, with jet vomiting with transit preservation.
On admission, the Glasgow score was 15/15, BP 12/6 cmHg, Fc 90 beats/min, and venous glucose 1.12 g/litre.
Clinical examination revealed abdominal bloating with sensitivity of the right hypochondrium.

On biological examination, we can note a hyperleukocytosis at 12,000 elements/mm3, CRP at 34, Hb at 11g/dl, platelets at 327 elements/mm3, and a strictly normal hepatic workup except for the elevation of the alkaline phosphatase level to 2.3 VN.

The TOGD (figure 1) shows a double-bubble appearance with a hydro-aerated level within a duodenal ectasia which is located upstream of a partially traversable stenosis, without any extra-digestive externalization of the opacification product, and without any opacification spark within the biliary tree.

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Echo + CT-scan abdominopelvic (figure 2) finds a cystic mass, intimately adherent to the vesicular siphon. Moreover, no air bubbles were noted within the biliary tree (pneumobilia).

Patient was admitted to the operating room for exploratory laparotomy (figure 3a -3b), which reveals a gastric dilatation, a duodenal ectasia involving the post-bulbar segment, 15 cm long, with an atonic wall, closely adherent to the vesicular siphon, of which the meticulous dissection shows the presence of a tubulated cholecystoduodenal fistula. With presence of a LADD flange.

Thus, the usual procedure previously described in the literature (6) is adopted by sectioning the LADD flange and fixing the cecum in the left iliac fossa. In addition, the inactive cholecystoduodenal fistula was respected and the appendectomy was performed in one time.

The postoperative course was simple and without any particularities with resumption of transit on the third postoperative day.

Discussion:

The concept of congenital flanges is rare, especially when it comes to LADD flanges that develop due to a defect in the rotation of the primary intestinal loop, extending between the cecum and the right posterior abdominal wall (2). Typically, they are associated with neonatal high obstruction or delayed presentation in older individuals, often requiring urgent surgical treatment for bowel volvulus. Several cases have been reported, including one in Brazzaville, Congo, by Miakayizilla P et al (3), another case of subocclusion at the Centre Hospitalier Universitaire (CHU) Joseph Ravoahangy Andrianavalona Antananarivo in Madagascar by M. F. Ralahy et al (5), and a case of volvulus described by Mahamadoun Coulibaly et al in the Department of Visceral Surgery at the Hassan II University Hospital of Fez, Morocco (4).

In contrast, our case in Morocco is unique as it involves an incomplete common mesentery with a LADD flange that resulted in duodenal ectasia and a cholecystoduodenal fistula. Notably, there was a separate case of angiocholitis associated with a complete common mesentery previously reported by Aybars Ozkan et al (6).

Our patient, differs from the previous cases described by M. F. Ralahy et al (5) and Miakayizilla P et al (3) who were neonates, aged no older than one and a half months, and of different genders. The neonatal cases required prompt surgical intervention after hemodynamic stabilization and fluid resuscitation upon admission to pediatric surgical services. In our case, the 18-year-old adolescent with no previous medical history was hospitalized following an exacerbation of occlusive syndrome, presenting with diffuse abdominal pain of rapidly progressive intensity that had persisted for more than

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24 hours, along with incoercible vomiting of food and bile juice. In contrast, our young patient complained only of paroxysmal epigastric pain, mild dyspepsia, and had a single episode of low-volume hematemesis, showing no signs of significant gastrointestinal distress or dehydration.

Stricture caused by flanges, either sub- or supra-vaterial, often leads to bilious or purely alimentary vomiting. In our case, the stricture was supra-vaterial.

In the previously described neonatal occlusion cases, the newborns were often admitted in a critical state of malnutrition and electrolyte imbalance, underscoring the importance of meticulous and adaptable resuscitation to restore hydro-electrolytic and nutritional balance and reduce perioperative and postoperative morbidity and mortality (3,5).

Regarding the case of volvulus with a short mesenteric root, the patient presented in a state of shock upon admission, with a Glasgow score of 12/15, necessitating the use of vasopressor drugs preoperatively, intraoperatively, and postoperatively (4).

Abdominal X-rays without preparation often reveal gastric stasis with a characteristic double bubble effect, particularly when the occlusion is high, as seen in newborns and our patient.

Abdominal ultrasonography is typically more effective in the later stages when signs of gastric stasis are present. However, completing the radiological investigation with an esogastroduodenal transit study helps identify the site of caliber disparity. In our patient, a hydroaerobic level was found within a duodenal ectasia located upstream of a stenosis that could be partially traversed between the D1 and D2 segments of the duodenal framework, Without the contrast material being observed outside the digestive tract (lack of aerobilia and gallbladder stones confirmed by radiological examination), the possibility of a biliary origin due to inflammatory causes is eliminated, suggesting an embryological origin of the fistula. It is hypothesized that the patient's reported hematemesis is indicative of a stagnant ulcer.

The standard surgical procedure involved debridement and fixation of the cecum in the left iliac fossa. However, for our patient, the therapeutic procedure included retrograde resection of the catarrhal appendix and preservation of the cholecystoduodenal fistula, which was initially dissected by portions.

In the case described by Aybars Ozkan et al. from the Department of Pediatric Surgery, University of Duzce, Turkey, the surgical procedure consisted of subtotal removal of the thickened and inflamed gallbladder, followed by meticulous release of the fistula and thorough drainage of the peritoneal cavity.

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In our patient's case, the postoperative course was uneventful, with a resumption of normal bowel function on the third day after surgery.

Conclusion:

Congenital duodenal flanges are rare, and this form of revelation is the only one of its kind and is not a surgical emergency like the other occlusion pictures which are most often correlated with an ineluctable deterioration of the general state, apart from an adequate and untimely medical resuscitation.

Ultrasound and oesogastroduodenal transit are decisive in the diagnosis and highlight the signs of gastric struggle as well as allow objectifying the site of the obstruction, while the discovery of LADD flange is often only done intraoperatively.

Figures, titles and captions:

Figure 1: Esogastroduodenal transit: detects a hydroaerobic level within a duodenal ectasia with double-bubble effect and that sits upstream of a partially crossable stenosis, without externalization of the opacification product.

Figure 2: Axial section image, subtracted from a C- and C+ abdominal-pelvic CT, reveals a slight extravasation of contrast medium within a cystic mass located subhepatically, most probably in continuity with the duodenal framework.

Figures 3a and 3b (images taken intraoperatively): Incidental discovery of an incomplete common mesentery, and a LADD flange responsible for the duodenal ectasia with the cholecystoduodenal fistula at its apex.

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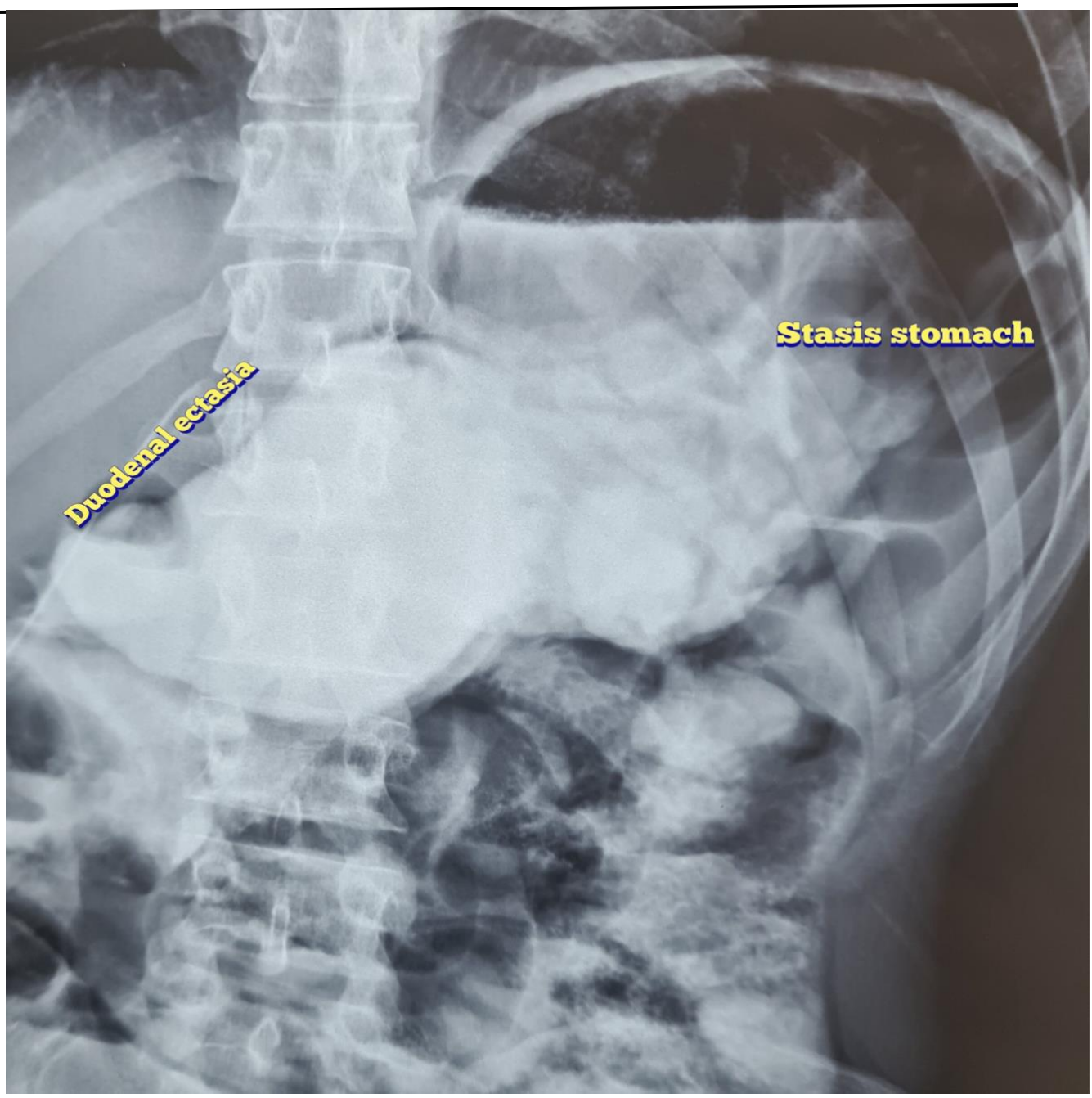

Figure 1

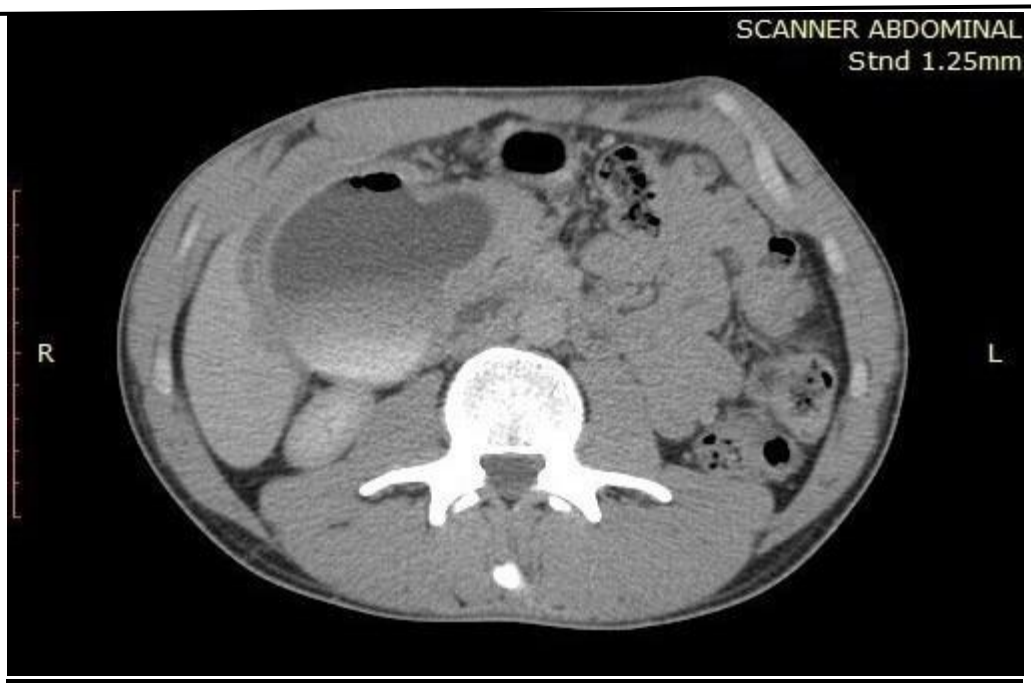

Figure 2

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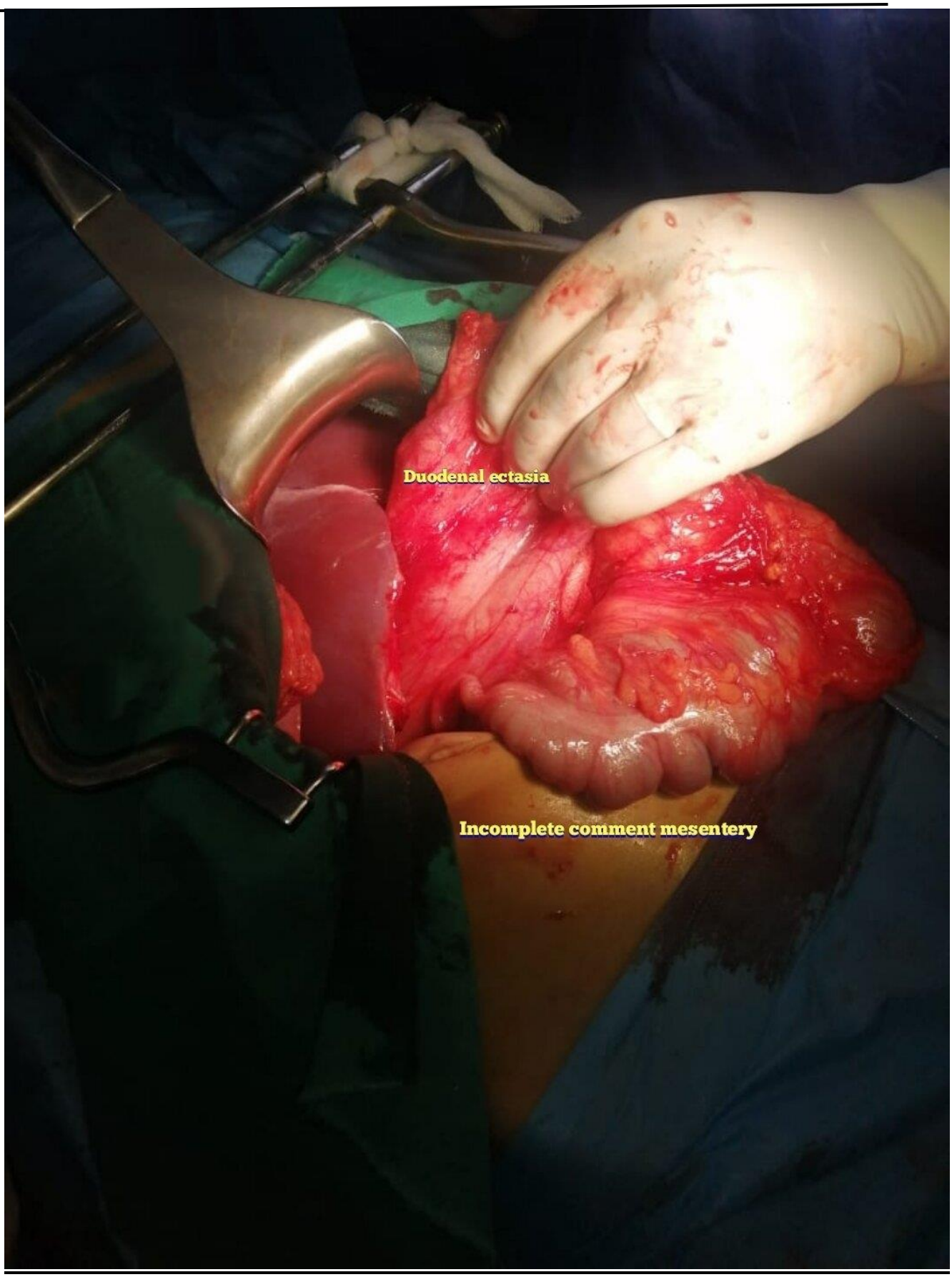

Figure 3a

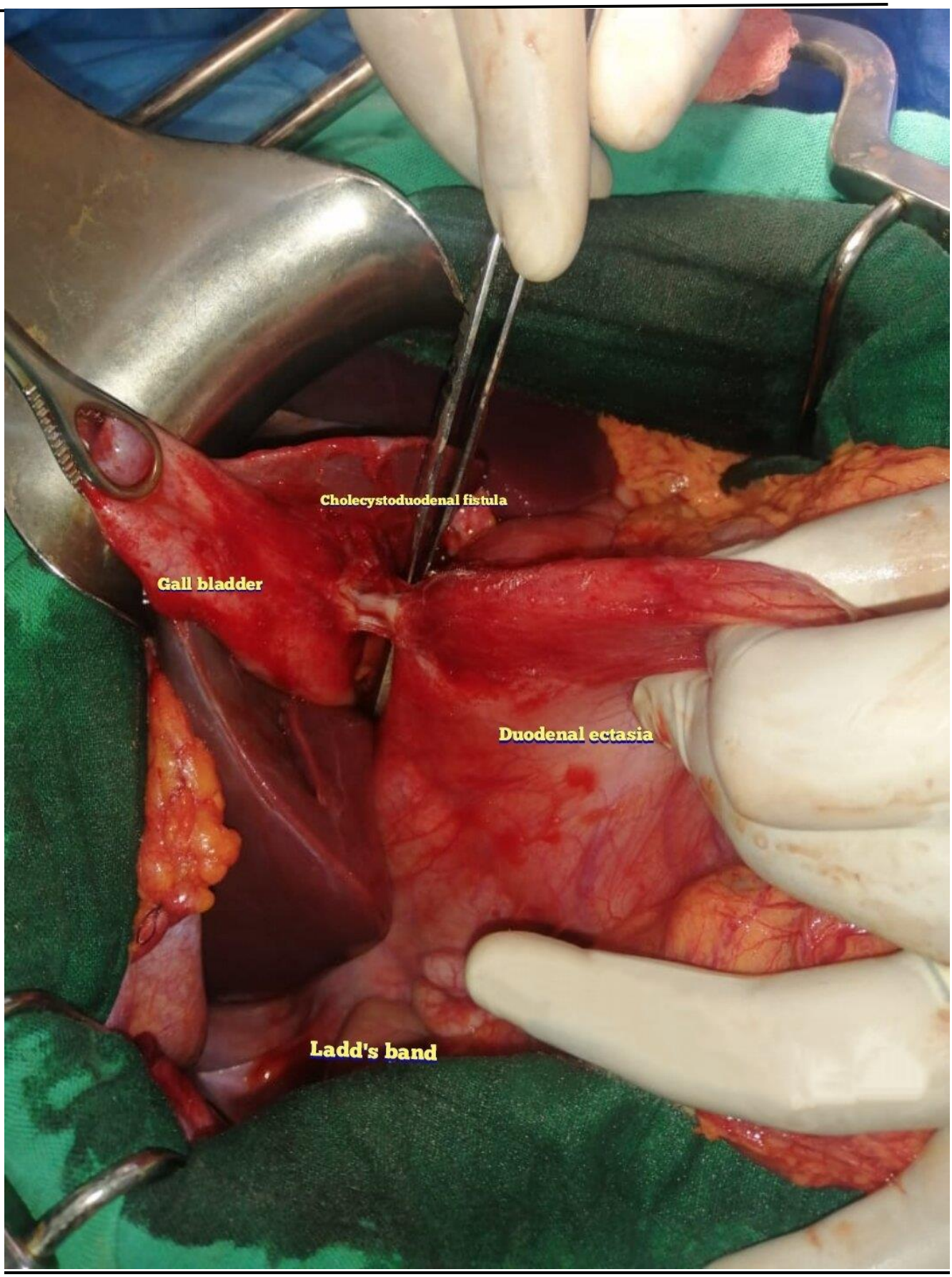
Cholecystoduodenal fistula
Gall bladder
Duodenal ectasia
Ladd's band

Figure 3b

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Abbreviations:

GCS: glasgow score
BP: blood pressure.
HR: heart rate.
CRP: C-reactive protein.
Hb: hemoglobin.
PT: platelet count.
TOGD : transit oesogastroduodenal.
CT : computed tomography.
Echo: ultrasound.

Author contributions :

All authors contributed to the study concept and design, data interpretation, drafting, fnal approval, and accountability for all aspects of the work.

Conflict of interest:

The authors declare that they have no confict of interest.