GALL-BLADDER DUPLICATION – CASE REPORT

BOGUSŁAW KOSZMAN

Department of Surgery, Klaksvik Hospital, Faroe Islands
Kierownik: B. Koszman

Gall-bladder duplication is a rare anatomical variation, which can affect safe performance of cholecystectomy and be a cause of persistent symptoms and a need for reoperation in case of accessory gall-bladder omission.

A case of successfully performed elective laparoscopic cholecystectomy in a patient with duplicated gall-bladder accidentally intraoperatively disclosed is presented.

The identified anomaly was classified according to the Harlaftis Classification of Multiple Gall-bladders. Attention was drawn to the ineffectiveness of ultrasound scanning in multiple gall-bladders preoperative detecting, and presence of other non-biliary anatomical variation in the same individual as well.

Key words: digestive system abnormalities, gall-bladder, cholecystectomy

The gall-bladder duplication, triplication, septated gall-bladder, are rare anatomical variations described about 210 times (1). The incidence of double gall-bladder is 2.5/100 000 (2). The anomaly may become challenging to a surgeon, as it is often undetected with preoperative ultrasound scanning (3, 4). The accessory gall-bladder omission can result in symptoms persistence and a need for reoperation (2, 3, 5). Therefore an accurate preoperative diagnosing is crucial. Currently magnetic resonance cholangiopancreatography seems to be the most efficient imaging study in multiple gall-bladders detection (3).

Harlaftis’ Classification of Multiple Gall-bladders (1977) distinguishes two types of multiplications: type 1 - multiple gall-bladders drain to common bile duct with a single cystic duct, type 2 – multiple gall-bladders drain to common bile duct with their own, separate cystic ducts (6). Classification practical utility is that type 1. is advised to be managed in laparoscopic mode, type 2. in the open mode, as likely loaded with a higher risk of bile duct injury (3).

CASE REPORT

A 62- years-old female admitted to hospital for elective laparoscopic cholecystectomy. Referred by general practitioner because of symptomatic gallstones. Complaining of epigastric pain associated with fatty food for 4 years. There was single episode of biliary colic during last month. Ultrasound scanning was performed and confirmed presence of cystic gallstones. 32 years ago she was diagnosed right ureteral stenose in distal portion, most likely due to anatomical variation of vascularity. Then medical record was completed with the ultimate conclusion: Stenosis ureteris prox. dx. – vas aberrans susp. The diagnose was based mainly upon the intravenous urography. Diagnosing was quitted as she became asymptomatic. Otherwise past medical history consists of hysterectomy 28 years ago, and skin graft on hand from abdomen as a donor place long ago.

Currently treated for arterial hypertension, asthma, depression, psoriasis; medicated with antihypertensive, bronchodilator and antidepressant agents.

In clinical examination she looks well, is found fully ambulant, presents no signs of circulatory and respiratory impairment. Skin naturally coloured, no icterus is noted. Chest is regularly shaped and mobile with no pathological chest sounds. BP 143/82 mm Hg, RR 78/min. regular, BT 37°C. Abdominal wall is levelled with chest, respiratory mobile, soft,
free from pain, no masses. Two post-surgery scars are noted, transverse suprapubic incision for hysterectomy, transverse arc shaped scar in right mid abdomen, where skin graft was taken from. Varicose veins with no skin lesions are noted. Bloods (Hb, leukocytes, platelets, Na, K, creatinine, INR, GGT, ALT, alkaline phosphatase, bilirubin, amylase, glucose, CRP), urinalysis are all within reference range.

Abdominal ultrasound scanning revealed the gall-bladder containing bile, three mobile stones, biggest 2 cm in diameter; thickened wall noted. Homogenic liver, intra-, extrahepatic bile ducts of normal calibre. Pancreas, spleen, left kidney present no abnormalities. Right kidney presents no signs of focal lesions and no kidney stones. Collective system widened to 8 mm. Proximal part of right ureter was not visualized. Urinary bladder moderately filled, unchanged. Hysterectomy noted, remaining pelvic organs present no detectable pathology.

Laparoscopic cholecystectomy under general anesthesia was performed. A capnoperitoneum up to 15 mm Hg intraabdominal pressure following laparocenteis right below the navel was performed. Two 12 mm ports was inserted into the abdominal cavity in the midline, right below the navel, and below the xiphoid process. Two 5 mm ports were inserted in the right upper quadrant. Abdominal cavity inspection reveals omental adhesions attached to the liver. After adhesions dissecting with electrocautery, biliary abnormality was disclosed. Two gall-bladders filled with stones are situated close together, joined by sides of funduses and corpuses. Common bile duct were visually inspected, no abnormality were found, its route looked normal. Calot’s triangle was exposed and explored. One slim cystic ducts and two branches of bifurcated cystic artery were identified. Anatomical relationships in the region were visually reinspected to confirm anatomical variation. Main bile way was checked again and remained intact. Cystic duct was dissected, then clipped and transsected. Branches of bifurcated cystic artery were dissected, then clipped and transsected. Two gall-bladders were dissected from their bed and retrieved as a single specimen via paraumbilical incision. Hemostasis was checked. No bile leakage was identified. Abdominal cavity was desufflated and wounds were sutured.

Macroscopic assessment of retrieved specimen (fig.1-3) discloses both gall-bladders firmly adhering one to another at their bottoms, towards their necks closely adhering with connective tissue. Both contains stones, the largest 4 cm in diameter. Accessory gall-bladder drains with its cystic duct to the neck of the primary one. There is no other communication between gall-bladders. Cystic duct of the primary gall-bladder is clipped. Microscopic assessment reveals inflammation with fibrosis, no malignancy in both gall-bladders.

In postoperative recovery period short lasting nausea, meteorismus, abdominal pain were observed. Acetaminophen, ketoprofen, antiemetics and laxatives agents were given. Discharged three days after surgery, fully ambulant, uncomplaining, normal diet, after bowel
motion. Reviewed 5 days after surgery as outpatient. She was complaining of mild abdominal discomfort and constipation. Non-steroid antiinflammatory drugs and laxatives agents were advised as required. The wounds healed without complications. 4 months after surgery the outpatient was seen by the general practitioner because of bronchitis. No surgery related problems were noted then.

**DISCUSSION**

Incidence of aberrations in anatomical structures of great importance in gall-bladder surgery are in order: cystic artery, cystic duct, right hepatic artery, gall-bladder. Gall-bladder variations present 2% of total number of aberrations, and they are considered in terms of variations of a shape, size, site and number (7).

Harlaftis’ Classification of Multiple Gall-bladders is based on gall-bladder embriology. Multiple gall-bladders of type 1. have single cystic duct, due to arising from a single split gall-bladder primordium. Multiple gall-bladders of type 2. have their own separate cystis ducts, they arised from several primordiums (6). A primordium lack results in gall-bladder agenesia. Gall-bladder disclosed in presented case is to be classified as the type 1.

In terms of histology and function accessory gall-bladder differs from choledochal cyst of type 2 by having tunica muscularis, valve (plica spiralis), and ability to bile concentration (3).

Ultrasound scanning can be not regarded as a definite method of multiple gall-bladders detecting. Especially in case of calculous gall-bladders adhering one to another, mimicing single one – as in presented case. Moreover, ultrasound imaging is not sufficient in cystic duct anatomy disclosing (4). Effectiveness of the method is likely higher in non-calculous multiple gall-bladders detecting.

**CONCLUSIONS**

Duplicated gall-bladder classified as the type 1. according to Harlaftis’ Classification can be laparoscopically removed without difficulty, even not preoperatively detected.

The case confirms that the abdominal ultrasound scanning may be not sufficient in multiple gall-bladders detection.

Anatomical anomaly should be anticipated in scheduled for surgery patients, which was previously diagnosed or suspected of other anatomical variation – as in presented case, aberration of the abdominal vascularization causing ureteral stricture.

**REFERENCES**


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Adress correspondence: Klaksvikar Sygehuset, FO-700 Klaksvik, Faroe Islands
e-mail: koszman@op.pl