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症　　例

Duodenal Obstruction by Gallstone: Case Report of Bouveret's Syndrome

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Abstract

Bouveret's syndrome involves gastric outlet obstruction by gallstone. Herein we describe an unusual case of duodenal bulb obstruction by gallstone. An 80-year-old woman was hospitalized with a fifteen-day history of vomiting. Computed tomography (CT) showed pneumobilia and a round calcified mass in the second portion of the duodenum. Upper gastrointestinal tract series demonstrated the same sized oval radiolucency between the bulbus and the second portion of the duodenum. Endscopic examination revealed a round black mass in the second portion of the duodenum, totally occupying the lumen. Endoscopic removal and destruction of the gallstone was attempted using a dye-laser, but the stone was too hard to crush. Eventually surgical enterolithotomy was successfully performed without cholecystectomy or closure of the fistula.

Improved preoperative systemic management and prompt examination allowed earlier surgical intervention and reduced the morbidity. Surgical approach whethere fistula closure should be per formed remains controversial.

Introduction

Bouveret's syndrome is an uncommon cause of gastric outlet obstruction. Duodenal bulb obstruction was first reported by *Beaussir* in 1770 and *Bouveret* in 1896, and may occur in 1–3% of patients with cholecystoenteric fistulas[1]. Since then, more than 300 case reports have published in the literature to 1993[2]. This syndrome is characterized by abdominal pain, vomiting, dehydration, and a prior history of symptomatic biliary tract disease. The diagnosis is easy using endocsopy[3] and CT[4]. The most common therapy involves laparotomy, but non-invasive alternatives including endoscopic electrohydraulic lithotripsy (EEHL), endoscopic mechanical lithotripsy (EML)[5] and extracorponeal shock wave lithotripsy (ESWL)[6] have been employed recently.

We present a case of Bouveret's syndrome successfully treated by surgical enterolithotomy and discuss the controversial issue whether fustula closure should be performed.

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Case Report

An 80-year-old woman was admitted with a 15-day history of vomiting. She had no history of jaundice, discolored urine or feces. She had been diagnosed as having cholecystolithiasis in 1966, but she had remained asymptomatic, so she was untreated.

On admission, the patient was dehydrated due to the daily loss of more than 700 ml gastric juice through the nasogastric tube. She had no findings on physical examination except for right hypochondrial tenderness. Laboratory evaluation revealed mildly elevated transaminase levels (GOT 67 U/l; GPT 106 U/l), alkaline phosphatase 465 U/l (normal range 80–260 U/l) and gamma glutamyl transpeptidase 164 U/l (normal range 10–110 U/l).

Plain abdominal X-ray revealed a 4.5 × 6.0 cm oval calcification in the right hypochondrium and air in the biliary tree indicating pneumobila. CT also showed pneumobilia and a 4.0 × 4.0 cm round calcified mass in the second portion of the duodenum (Fig. 1). Upper gastrointestinal series and endoscopic examination revealed a round black mass in the second portion of the duodenum, totally occupying the lumen.

First, endoscopic removal of this gallstone was attempted, but the stone was too large to be caught by lithotriptor. Second, an ileal tube was inserted beyond the gallstone and we tried to extract from the pylorus ring using the dilated balloon, but the stone was so large that it could not pass through the pylorus ring. Third, dye-laser was adapted for use through the endoscope to break the gallstone, but the stone was too hard to crush.

Finally laparotomy was performed 4 days after admission. The wall of gallbladder was calcified and very thick. It adhered to duodenal wall so tightly that it was impossible to investigate fistula and

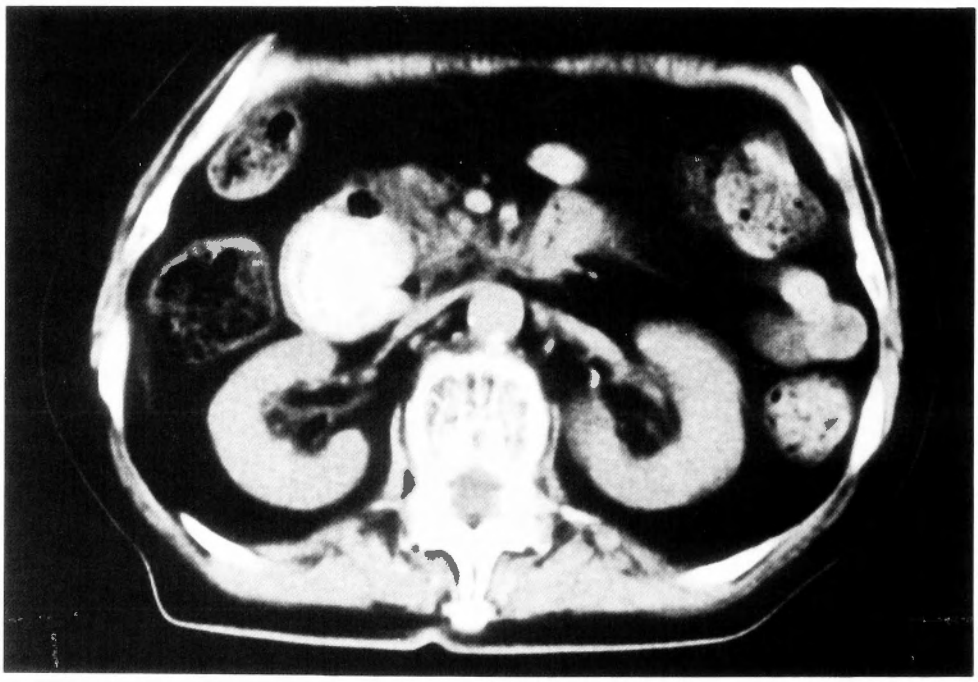

Fig. 1 Computed Tomography showed a 4.0 × 4.0 cm round calcified mass in the second portion of the duodenum.

Fig. 2 Intraoperative findings. A 4.5 × 6.0 cm oval black gallstone was removed through a longitudinal enterotomy.

residual stones. A hard mass was palpable in the transverse portion of the duodenum, but could be moved forcibly through Treitz's ligament to the jejunum. A 4.5 × 6.0 cm oval black gallstone was re moved through a longitudinal enterotomy that was subsequently closed along the transverse axis (Fig. 2). Cholecystectomy and closure of the fistula were not performed, because it seemed very diffi cult to do these procedure in a short time. The postoperative course was uneventful, and the patient was discharged on the 14th postoperative day. Eight months after surgery, she remains asymptomatic.

Discussion

It is generally accepted that gallstone ileus accounts for no more than 2% of all cases of intestinal obstruction, and sometimes causes life threatening complications with a mortality of 8–25%[7]. It is quite uncommon for the gallstone to become impacted in the duodenum, showing clinical and radiological features of Bouveret's syndrome. The incidence of duodenal obstruction is usually 1–3% in patients with gallstone ileus[1].

Clinical manifestations of patients with Bouveret's syndrome include nausea, vomiting, dehydration, and epigastric pain. This syndrome often accompanies a prior history of symptomatic biliary tract disease. Furthermore, patients with gallstone ileus are frequently complicated by cardiovascular disease (50% to 63%) or diabetes mellitus (16% to 50%)[8,9].

The diagnosis of Bouveret's syndrome, which is usually easy, is made by abdominal plain X-ray[10], upper gastrointestinal series with water soluble contrast medium[4], endoscopic examination[3], and computed tomography[4]. Abdominal plain X-ray demonstrates air in the biliary tree. Upper gastrointestinal series reveal filling defect in the duodenum and fistula. Endoscopic examination

often shows a round and rock-hard mass adherent to the duodenal wall, and computed tomography usually demonstrates pneumobilia and a calcified gallstone in the duodenum. In our case, we obtained all of these findings.

The most common therapy involves laparotomy, but recently other non-invasive treatments have been employed. In some cases, gallstone ileus was treated EEHL, EML[5] and ESWL[6]. In our case, although we tried several noninvasive approaches, the stone was so large and hard that laparotomy was eventually required.

Decision regarding fistula closure remains controversial in cases of gallstone ileus. One stage procedure, enterolithotomy with fistula repair and cholecystectomy, has been recommended in a few reports[11,12]. In these reports, enterolithotomy alone will cause biliary disorder, upper gastrointestinal bleeeding, recurrent gallstone ileus, symptomatic cholecystitis, and gallbladder cancer.

However, patients with gallstone ileus are often complicated by cardiovascular disease and diabetes mellitus. Poor preoperative conditions including dehydration and malnutrition occasionally do not permit definitive one stage operation. Furthermore, spontaneouss closure of fistula has been reported in patients with patent cystic duct and no residual stones[7]. Indeed the age of our patient was quite advanced, and preoperative dehydration was very severe, so we chose to perform enterolithotomy alone.

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和文抄録

胆石による十二指腸閉鎖（Bouveret's 症候群の 1 例）

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Bouveret's 症候群は胆石による胃内容排泄障害を主症状とする症候群である．われわれはここに胆石による十二指腸球部閉鎖をきたした症例を報告する．症例は80歳の女性で，15日間持続する嘔吐を主訴に入院した．CT では胆管内空気像と十二指腸下行脚内に球形の石灰化像を認めた．上部消化管透視では十二指腸球部と下行脚の間に同じ大きさの卵円形の陰影欠損を認めた．上部消化管内視鏡では十二指腸下行脚を完全に占める黒色の結石を認めた．

ダイレーザーを用いた内視鏡的破砕を試みたが結石が固すぎて破砕できなかったため，腸管切開により結石を除去した．胆嚢摘出術と瘻孔閉鎖は行わなかった．

術前の全身管理の進歩と迅速な術前検査により本症候群では，早期の外科的治療が可能となり，死亡率は低下した．瘻孔閉鎖を一期的に施行するかどうかは議論の残るところである．