

# Volvulus of the Gallbladder: A Case Report and Review of Literatures

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## ABSTRACT

**Objective:** To report a case of volvulus of the gallbladder, the result of the treatment and a review of the literatures.

**Methods:** Report a case of volvulus of the gallbladder and review literatures.

**Results:** A 81-year-old, Thai-Chinese female presented with several attacks of dyspepsia. On admission, a whole abdominal sonography was done and the report was gallstones with acute obstructive suppurative cholecystitis. Open cholecystectomy was performed, and a volvulus and gangrene gallbladder was found. The patient responded well to the surgical treatment and was discharged without any complication.

**Conclusion:** Volvulus of the gallbladder is a rare but severe condition. Preoperative diagnosis is difficult. Surgery is the gold standard of treatment. Early surgery is life saving.

**Keywords:** Gallbladder, volvulus

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**A** 81-year-old Thai-Chinese female patient presented with signs and symptoms of the gastrointestinal tract imbalance at the Medical Outpatient Unit, Mayo Hospital, in September 1997. Symptomatic treatments were given.

On 12 March 2006, she was seen again with dyspepsia, more abdominal discomfort. She was treated at outpatient clinic with proton pump inhibitor (PPI), increased a bowel motility drug, and digestive drugs.

On 15 March 2006, the symptoms did not improve. Her vital signs were within normal limits. She complained of pain began at the epigastrium and shifted to the right lower quadrant. She showed no sign of anorexia or vomiting except constipation. Physical findings were tender at right side of the abdomen, mild guarding and decreased bowel sound. The initial impression was appendicitis.

The investigation results were:

WBC 10,000 PMN 91% HCT 38% PT/PTT normal  
BUN/Cr 21/0.5 LFT normal Na/K 135/3.9  
CXR: mild cardiomegaly

Plain abdomen upright: Small bowel ileus in mid abdomen.

Whole abdominal sonography: The gallbladder is enlarged, septated and thick wall. Presence of multiple gall stones in the fundus and body with intraluminal fine echoes and tiny echogenic dots in the wall of gallbladder fundus. The common bile duct (CBD) is borderline enlarged,

7 mm in size. No gross fluid in the abdominal and pelvic cavities. Others are unremarkable. Impression: gallstones with acute obstructive suppurative cholecystitis.

The patient was scheduled for operation. Open cholecystectomy was performed on the same day.

Operative findings: An enlarged, distended, gangrenous gallbladder. It was twisted clockwise at the junction of the cystic duct, 360°C. The cystic duct and cystic artery were long. The mesentery was short. The fundus of gallbladder was located in right lower quadrant. Others were unremarkable.

Operative procedures: Right subcostal incision was done. The gangrenous gallbladder was removed through the right subcostal incision and a large clamp was applied proximal to the twisted point. The cystic artery was identified and divided. The cystic duct was identified and divided. The mesentery was divided and the gallbladder was removed. Bleeding points were checked. The cavity was irrigated with warmed saline. A medium size penrose drain was placed and the wound was closed in layers. The patient recovered without any immediate complication.

Gross Description: Specimen consists of a gallbladder, measuring 13 cm in length and 6 cm in diameter. The surface is partly shaggy. The mucosa is dark red. The lumen contains brown fluid and several black stones, measuring from 0.3 to 0.8 cm in diameter.

Microscopy: Sections reveal a gallbladder tissue, showing severe acute inflammation with marked tissue destruction and presence of hemorrhagic necrosis throughout the entire wall. There is no evidence of malignancy.

Diagnosis: Acute gangrenous cholecystitis.

The patient was well and discharged satisfactorily.

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## DISCUSSION

Volvulus of the gallbladder is a rare but very dangerous disease. It is hardly described by commonly read standard textbooks of surgery.<sup>2</sup> Elderly females are most frequently affected. The peak incidence occurs in person age 65-75 years.<sup>5</sup> Misdiagnosis occurs frequently and patients are generally diagnosed as having acute cholecystitis. A delay in the diagnosis and treatment may be life-threatening.

It is defined as the rotation of the gallbladder on its mesentery along the axis of the cystic duct and cystic artery.<sup>5,6</sup> It was first described by Wendel in America, in 1989.<sup>1,2,3</sup> Approximately, 300 cases have been reported.<sup>1,3,5</sup> There were two types of torsion. Incomplete (rotation < 180°) and complete (rotation >180°), are described.<sup>3</sup> Gross suggested that the requirement for volvulus of the gallbladder was a congenital predisposition of a minimally fixed gallbladder coupled with loss of fat and elasticity, leading to visceroptosis and increased mobility of the gallbladder.<sup>8</sup> The higher frequent occurrence in elderly persons may be explained by the loss of fat and the atrophy of the tissues, leaving the gallbladder hanging freely. A constant finding is the presence of the gallbladder occurs on a mobile mesentery (floating gallbladder).<sup>1,6</sup> The initiator of the volvulus would be peristalsis in the transverse colon, duodenum, or gallbladder itself, kyphoscoliosis of the spine, and tortuous atherosclerotic cystic artery.<sup>3</sup> Intense peristalsis by the duodenum has been implicated in clockwise rotation, whereas the transverse colon is implicated in counterclockwise rotation. Volvulus of the gallbladder leads to an occlusive obstruction of the biliary drainage and blood flow. If this condition is unrelieved, gangrene develops.

Diagnosis of the condition is extremely difficult preoperatively because of the absence of specific clinical or imaging signs. Symptoms may be acute, recurrent, or subacute.<sup>1</sup> Gallstones may or may be not present.<sup>2,3</sup> Frequently a provisional diagnosis of acute cholecystitis, acute appendicitis, perforated peptic ulcer, ileus or small

bowel obstruction is made.<sup>2</sup> Whipple et al. have suggested that the lack of apparent toxemia in a patient of acute cholecystitis may be a clue to torsion.<sup>7</sup>

Surgery treatment is technically easy because traction on the mobile gallbladder enables the anatomy of Calot's triangle to be readily identified. With early diagnosis and surgical intervention, the disease maintains a low mortality of approximately 3-5 percent.<sup>1,5</sup>

## CONCLUSION

Volvulus of the gallbladder is a rare and dangerous condition. Preoperative diagnosis is difficult. A high index of clinical suspicion is very important. A delay in the diagnosis and treatment may result in life-threatening.

Cholecystectomy, open or laparoscopic, is the treatment of choice. Open cholecystectomy was carried out on the reported case without any incident. The postoperative course was uneventful.

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## บทตัดย่อ

### ถุงน้ำดีบิดที่ขี้วและขาดเลือดจนเน่า: รายงานผู้ป่วย 1 ราย

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**วัตถุประสงค์:** รายงานผู้ป่วยหญิงสูงอายุ 1 ราย มาโรงพยาบาลด้วยอาการแน่นท้อง วินิจฉัยว่าเป็นถุงน้ำดีบิดตันอักเสบ ผ่าตัดพบถุงน้ำดีบิดที่ขี้วและขาดเลือดจนเน่า รวมทั้งพบท่อนทวารในอตีดที่เกี่ยวกะวะนี้

**วิธีการ:** รายงานรายละเอียดผู้ป่วย 1 ราย และบททวนบทความในอตีด

**ผลการศึกษา:** ผู้ป่วยหญิงอายุ 81 ปี มาโรงพยาบาลหลักครั้งด้วยร้องแน่นท้อง ขณะพักในโรงพยาบาลได้ตรวจอัลตราซาวน์ท้องพบว่ามีน้ำในถุงน้ำดี และถุงน้ำดีบิดตัน อักเสบและเป็นหนอง ได้ผ่าตัดถุงน้ำดีแบบปิด พบรถุงน้ำดีบิดที่ขี้วและขาดเลือดจนเน่า ได้ตัดถุงน้ำดีออก ผู้ป่วยไม่มีปัญหาขยะผ่าตัด และหลังผ่าตัด ผู้ป่วยกลับบ้านอย่างปลอดภัยหลังผ่าตัด 24 ชั่วโมง

**สรุป:** ถุงน้ำดีบิดที่ขี้วและขาดเลือดจนเน่าเป็นภาวะที่พบน้อยมากแต่รุนแรง วินิจฉัยให้ได้ก่อนผ่าตัดลำบาก การผ่าตัดเป็นการรักษาหลัก การผ่าตัดที่รวดเร็วจะเป็นการช่วยชีวิตผู้ป่วย