

## Case Report

# Laparoscopic Pancreaticoduodenectomy for the Treatment of Complicated Choledochal Cyst in Bangkok Hat Yai Hospital



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The Laparoscopic Whipple procedure or Laparoscopic Pancreaticoduodenectomy is the operation for treatment of pancreatic disease such as carcinoma or other benign disease involving the periampullary region or distal common bile duct. The procedure is one of the most complex surgical procedures, especially since it is conducted laparoscopically. There are many techniques to perform laparoscopic pancreaticoduodenectomy. The case report described below details our decision to use laparoscopic surgery in dissection of distal stomach, common bile duct, pancreas and duodenum and the use of small incision to remove specimen and complete anastomosis.

### Case Report

A 39-year-old woman presented with fever, right side abdominal pain which radiated to her back and mild jaundice since 2-3 days. She had history of fever with chills off and on since 2-3 months and had been treated conservatively for a peptic ulcer. Her initial blood tests were normal except for the liver function test.

Bilirubin (Direct)	3.0 mg/dL	(0-1.5)
Bilirubin (Total)	3.7 mg/dL	(0-1.5)
AST (SGOT)	202 U/L	(0-40)
ALT (SGPT)	199 U/L	(0-40)
ALP (alkaline phosphatase)	589 U/L	(39-117)

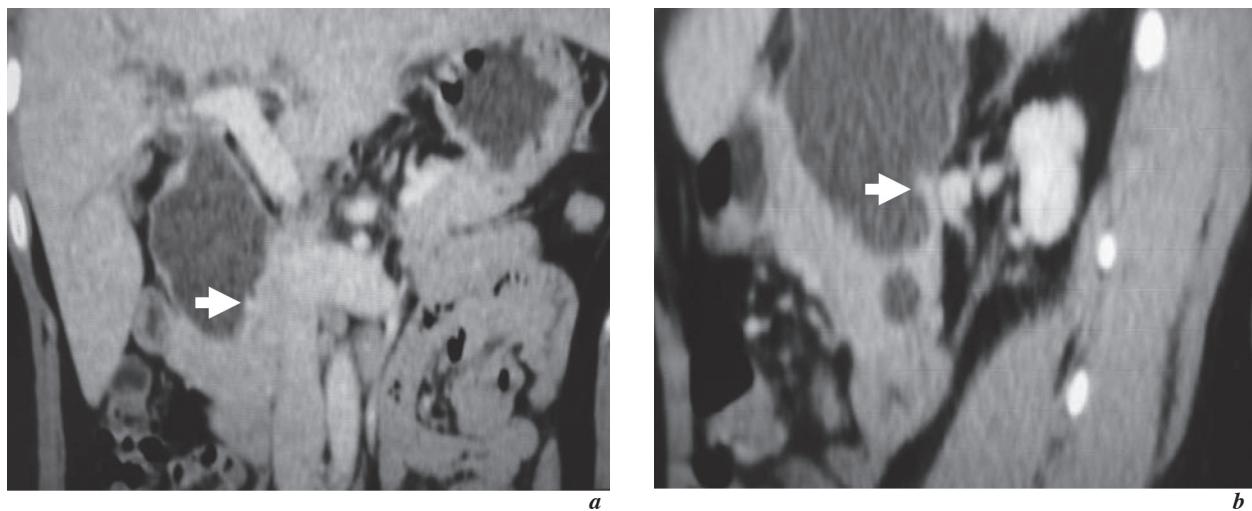
Ultrasound showed cystic mass suspected to be choledochal cyst without biliary stone.

Multi-detector Computerized Tomography (MDCT) scan (Figure 1a-b) showed fusiform dilatation of common bile duct (CBD), type 4 Todani classification<sup>1</sup> with enhancing nodular lesion within the dilated distal bile duct about 0.7 cm in size, just above the ampulla region that could be a tumor, such as adenoma, carcinoma of the ampulla or distal cholangiocarcinoma.

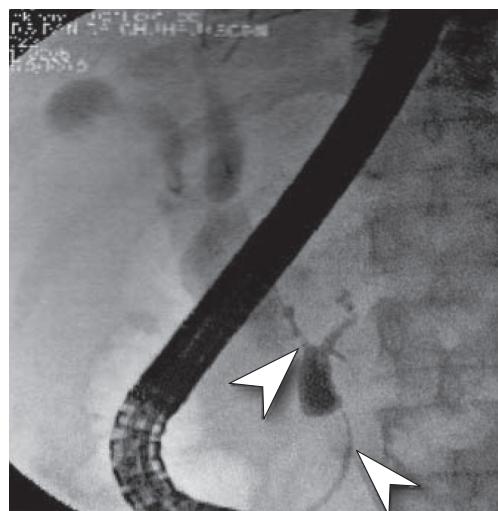
Endoscopic Retrograde Cholangiopancreatography (ERCP) (Figure 2) was performed. Findings included:

1. Type 4 choledochal cyst.
2. Two short segmental strictures 15 and 13 mm in length at distal common bile duct.
3. Anomalous pancreaticobiliary junction (a long common channel found in choledochal cyst).

The treatment consisted of dilated distal CBD, brush biopsy, intraductal biopsy and insertion of biliary stent. The result of cytologic study was negative for malignancy.



**Figure 1 a-b:** MDCT scan shows enhancing nodular lesion within the dilated distal bile duct about 0.7 cm.



**Figure 2:** ERCP shows 2 segments of stricture (white arrow) at distal CBD and anomaly of Pancreatobiliary junction.

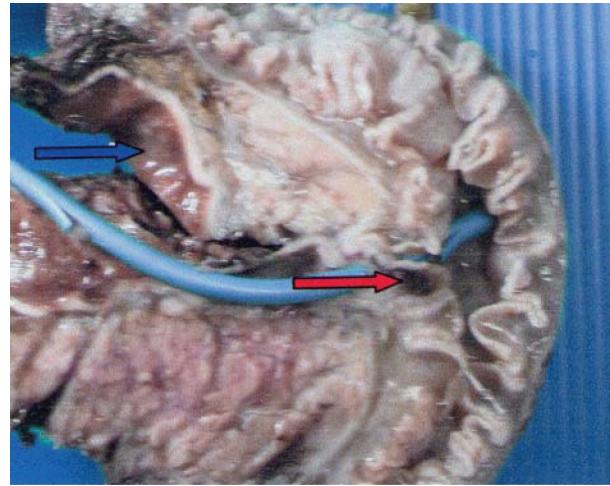
### Treatment plan

The ultrasound, MDCT and ERCP findings showed that the problems were complicated: a multisegmental stricture of distal common bile duct at stricture site where malignancy could not be ruled out, a choledochal cyst involving the head of the pancreas, and anomaly of pancreatobiliary junction.<sup>2-4</sup>

We discussed with our colleagues and the patient's family about the risks and benefits of the various procedures and techniques available to correct the problem. We decided that the laparoscopic technique Whipple procedure was appropriate to handle this complicated problem. This case was the first such surgery performed in our hospital.



**Figure 4:** Post-operative wound.



**Figure 5:** Pathology specimen (stricture site-red arrow); (Choledochal cyst - blue arrow).

**Surgical Procedure:** Laparoscopic pancreaticoduodenectomy was performed in two phases.<sup>5</sup>

#### Phase 1

- Laparoscopic dissection was begun to free the distal stomach and the first part of the duodenum.
- Dissection to free second and third part duodenum and cholecystectomy was performed.
- Dissection inferior border of neck pancreas to free neck of pancreas from superior mesenteric vein.
- Dissection at junction of fourth part duodenum and proximal jejunum.
- Divided distal stomach.
- Divided neck of pancreas and dissect uncinated process and head of pancreas from superior mesenteric root.
- Pulled proximal jejunum beneath superior mesenteric root and divided to prepare anastomosis.
- Dissect and remove choledochal cyst to prepare anastomosis.

#### Phase 2

Small right subcostal incision to remove specimen for biopsy and this incision used to created anastomosis.

- Pancreaticojejunostomy end to side anastomosis done first with catheter stent size 8 Fr. Pancreatic duct was anastomosed with mucosal tube of jejunum by 4 interrupted suture then pancreatic capsule sutured with jejunum serora by polysorb 4-0.
- Hepaticojejunostomy end to side done by creating mucosal tube for anastomosis one layer continuous suture by polysorb 4-0.
- Loop gastrojejunostomy was performed using gastrointestinal anastomosis (GIA) device and one Jackson tube drain was inserted into the subhepatic space.

The operating time was 460 minutes. Estimated blood loss was 1100 cc. Patient was given a transfusion of 2 units of packed red cells.

The patient tolerated the operative procedure well. She was able to ambulate within one hour post operatively. The patient was discharged from hospital on the 7<sup>th</sup> post operative day. She resumed regular activities within three weeks without any complications.

#### Discussion

The Whipple operation was performed to treat the unusual choledochal cyst that presented with 2 segments of common bile duct stricture. We could not rule out malignancy despite the cytology and needle biopsy showing no malignancy, due to the difficulty in obtaining a specimen and with the pancreatobiliary junction anomaly that caused recurrent pancreatitis. In our opinion, a total laparoscopic Whipple operation could have been done but it would have required a longer operative time. Therefore we decided to do laparoscopic dissection in the first phase and do a smaller incision to remove specimen and then create anastomosis.

The Laparoscopic procedure caused less pain and allowed an earlier recovery than the classical whipple operation technique would have done.

Laparoscopic surgery can be used for many different kinds of operation. Actually, the literature states that laparoscopic surgery is unsuitable for the surgical treatment of cancer, but no definite studies have supported that view. In the future, the trend will be to see laparoscopic substituting classical open technique because of advances in surgical instruments and a new, young generation of surgeons that are interested in laparoscopic surgery.

In our practice, laparoscopic surgery needs more operative time in learning period but decreased operative time after experience has been gained.

### **Conclusion**

A case report of choledochal cyst, with abnormality of pancreatobiliary junction, successfully treated in Bangkok Hat Yai Hospital, by laparoscopic pancreaticoduodenectomy, a complex operation in six and a half hours.

### **References**

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