Hepaticojejunostomy After Excision of Choledochal Cyst in Two Children with Previous Biliary Surgery†

SOMCHAI THEPCHAROENNIRUND, M.D., F.R.C.S.T.*

Abstract

Hepaticojejunostomy Roux-en-Y after excision of choledochal cyst is the treatment of choice for children with choledochal cyst, to prevent the risk of postoperative cholangitis, stone formation and malignancy. The author reports two children with previous biliary surgery for choledochal cyst, one with cystojejunostomy without cholecystectomy and the other with cholecystectomy alone. Two children were admitted to the Pediatric Surgical Unit, Ratchaburi Hospital, with the complaint of chronic abdominal pain. After investigation the two children had cyst excision and hepaticojejunostomy Roux-en-Y. After six and one year follow-up the patients remain asymptomatic. The aim of this report was to show the complication of two previous biliary surgeries for choledochal cyst and support total cyst excision combined with hepaticojejunostomy Roux-en-Y being the treatment of choice for choledochal cyst.

Key word : Choledochal Cyst, Hepaticojejunostomy, Children with Previous Biliary Surgery

Choledochal cyst may be defined as an aneurysmal dilation of the common bile duct. The first accurate description of the pathology and symptomatology of choledochal cyst is credited to Douglas in 1852[1,3]. The patient was a 17 year old girl. Death occurred two weeks later. At necropsy "half a gallon of ill-smelling gall in an excessively enlarged choledochus" was found. The first success in the treatment of the condition was reported by Swain[1] who in 1894 carried out a cholecystojejunostomy. Shortly after, Brun and Hartman[1] recorded the successful treatment of a three year old girl who was managed initially by external drainage. Four months later a choledochoenterostomy was performed. Bakes[1,6,7] in 1907 advocated side-to-side choledochocystoduodenostomy as the most appropriate method of treatment. McWhorter[2,8] in 1924 performed the first successful excision of choledochal cyst with hepaticoduodenostomy and cholecystectomy. Twenty-five instances of cancer

* Pediatric Surgical Unit, Department of Surgery, Ratchaburi Hospital, Ratchaburi 70000, Thailand.

† Presented at the 22nd Annual Scientific Meeting of the Royal College of Surgeons of Thailand, 18-21 July 1997, The Royal Cliff Beach Hotel, Pattaya, Thailand.

associated with choledochal cysts have been documented up to 1976[1]. This established an over-all incidence of 2 per cent of patients with choledochal cyst compared with an over-all reported incidence of carcinoma of the biliary tract of 0.041 per cent[1]. The high incidence of carcinoma associated with choledochal cysts has been one of the strongest arguments in favor of excision as the treatment of choice for this condition[1,3,5-8].

The aim of this report was to show the complication of two previous biliary surgeries for choledochal cyst and support total cyst excision combined with hepaticojejunostomy Roux-en-Y to be the treatment of choice for choledochal cyst.

CASE REPORTS

Case 1.

An 8 year old girl was admitted to the Pediatric Surgical Unit, Department of Surgery, Ratchaburi Hospital on April 5, 1991 with the chief complaint of chronic abdominal pain for 3 years. The patient had undergone biliary surgery by an unknown procedure at another provincial hospital when she was 3 months old.

Examination revealed a rather thin girl with a midline surgical scar 10 cm in length, slight tenderness at the right upper abdomen, no jaundice and no intraabdominal mass palpable (Fig. 1). Plain abdominal X-ray showed two opaque stones at the right lateral second thoracic spine. From abdominal ultrasonography, there was one stone in the common bile duct and one stone in a thick wall cystic structure (Fig. 2).

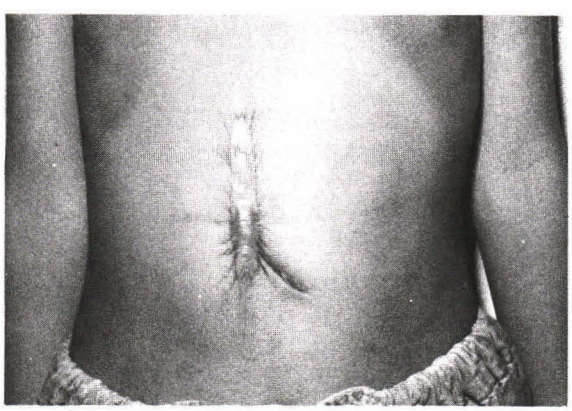

Fig. 1. Midline surgical scar from biliary surgery 8 years previously.

At the operation on April 10, 1991, the abdomen was opened at the midline surgical scar incision. After lysis adhesion revealed choledochocystojejunostomy Roux-en-Y with anastomosis stricture, a cyst 3 cm in diameter with one stone in the cyst and one stone in the gall bladder was found. Total choledochal cyst excision including cholecystectomy combined with hepaticojejunostomy Roux-en-Y was done. Histology of the speci-

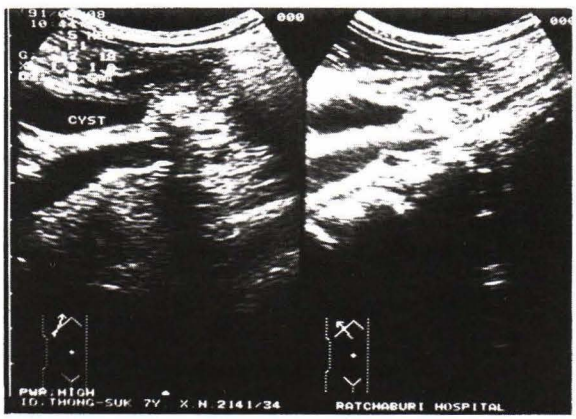

Fig. 2. Abdominal ultrasonography shows one stone in the common bile duct and one stone in a thick wall cystic structure.

Fig. 3. The 8-year-old girl (case 1) before total cyst excision.

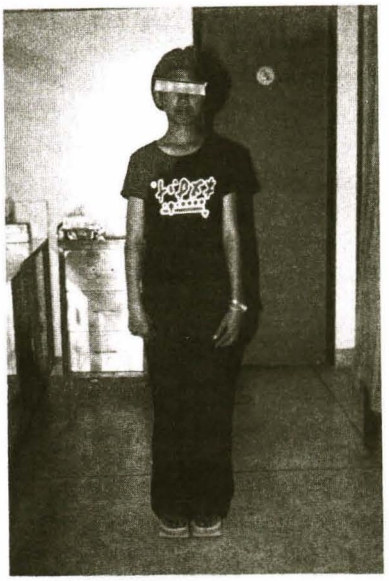

Fig. 4. A 14-year-old girl after total cyst excision 6 years postoperatively.

men confirmed choledochal cyst and chronic cholecystitis. The patient was discharged on the 8th day after the operation. After outpatient follow-up for 6 years, the patient remains asymptomatic (Fig. 3, 4).

Case 2.

An 11 year old girl was admitted to the Pediatric Surgical Unit, Department of Surgery, Ratchaburi Hospital on June 5, 1996 with the chief complaint of chronic abdominal pain for 2 years (Fig. 5). The patient had a gall stone and underwent cholecystectomy at another provincial hospital 2 years ago. Intermittent right upper abdominal pain occurred 2 months postoperatively.

Examination revealed a right subcostal surgical scar 12 cm in length and moderate tenderness at the right upper abdomen. Upper abdominal ultrasonography showed multiple gallstones in the gall bladder (Fig. 6). CT scan of the upper abdomen suggested a choledochal cyst 6 cm in diameter and two opaque stones in the cyst (Fig. 7).

At the operation on June 7, 1996, the abdomen was opened at the right subcostal surgical scar incision. After abdominal exposure, a large choledochal cyst 6 cm in diameter was revealed and there was no gall bladder. Hepaticojejunostomy

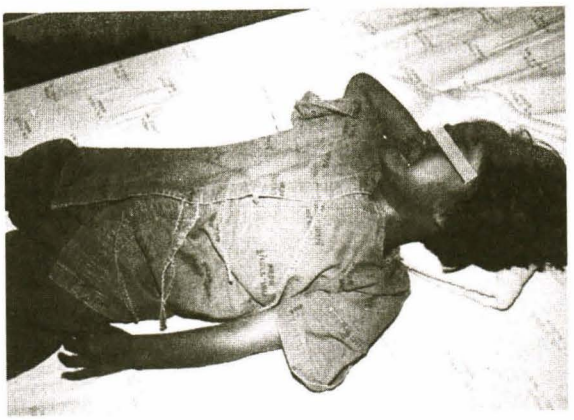

Fig. 5. The 11-year-old girl (case 2) with the complaint of intermittent right upper abdominal pain.

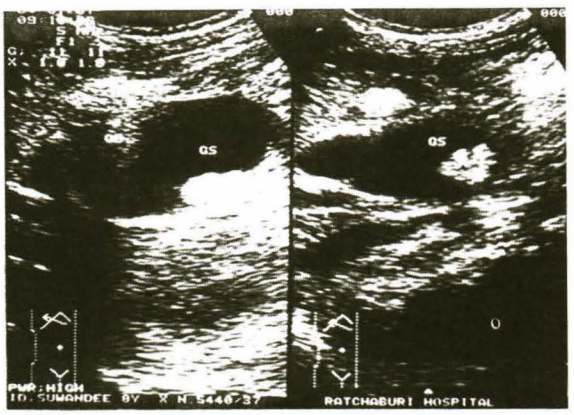

Fig. 6. Abdominal ultrasonography showing multiple gall stones.

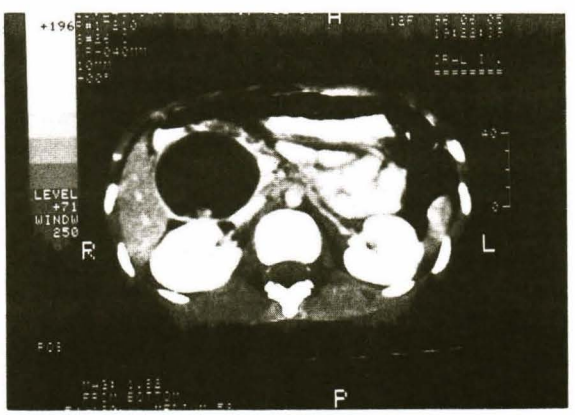

Fig. 7. CT scan showing two stones in a choledochal cyst.

Roux-en-Y was done after total excision of the choledochal cyst. Histology of the specimen confirmed a choledochal cyst. The patient was discharged on the 7th day after the operation. After one year follow-up at the outpatient department the patient remains asymptomatic.

DISCUSSION

Excision of the cyst was first advocated in 1924 by McWhorter. It has been condemned by many as an unnecessarily extensive procedure involving the possibility of injury to adjacent structures and associated with many operative and postoperative complications[1,2]. Miyano[4] in 1996 reported hepaticojejunostomy Roux-en-Y after excision of choledochal cyst in 180 children, with excellent long-term results. The incidence of ascending cholangitis or intrahepatic bile duct stone formation has been very low, and there has been no malignancy.

In the first case of this report, choledochocystojejunostomy Roux- en-Y was performed without cholecystectomy at the age of 3 months. Stone formation in the gall bladder and in a choledochal cyst with anastomosis stricture may have occured 5 year later. Total cyst excision with hepaticojejunostomy Roux- en-Y was performed when the patient was 8 years old after a previous operation, with an excellent long-term result. In the second case, cholecystectomy was performed 2 years before total cyst excision with hepaticojejunostomy Roux-en-Y. The surgeon who managed only cholecystectomy may not have detected the choledochal cyst. The differential diagnosis of choledochal cyst from dilated common bile duct is defined by histology of the specimen. Histopathology of a choledochal cyst consists mainly of dense, collagenous connective tissue with occasional elastic fibers and smooth muscle bundles. An inflammatory reaction is often present. Generally, a complete epithelial lining is absent, but scattered islets of cylindrical or columnar epithelium may be found[1,3,6].

From this report, stone formation is the complication which has been seen in other series[1, 4,5] in the treatment of choledochal cyst by internal drainage without excision of the cyst. Excision as the primary procedure of choice is advocated in most of the reviews on the subject[4,5,9,10]. With the advent of skilled pediatric anesthesia and accurate monitoring of blood loss with careful maintenance of fluid and electrolyte balance and improved surgical technique, operative mortality and morbidity are no greater after excision of choledochal cyst than other operations for this condition.

ACKNOWLEDGEMENT

The author wishes to thank Professor Polpatt Talalak, Professor Phaibul Sutthiwan, Assistant Professor Chana Sathornkich, Division of Pediatric Surgery, Department of Surgery, Faculty of Medicine, Siriraj Hospital, Mahidol University for very useful advice.

(Received for publication on February 23, 1998)

REFERENCES

1. Spitz L. Choledochal cyst. Surg Gynecol & Obstet 1978; 147: 444-52.
2. McWhorter G.L. Congenital cystic dilatation of the common bile duct. Arch Surg 1924; 8: 604-26.
3. O'Neill JA. Choledochal cyst. In : Welch KJ, Randolph JG, Ravitch MM, O'Neill JA, Rowe MI, eds. Pediatric Surgery. 4th ed. Chicago : Year Book Medical Publishers, 1986: 1056-60.
4. Miyano T, Yamataka A, Kato Y, et al. Hepaticoenterostomy after excision of choledochal cyst in children : 30 years experience with 180 cases. J Pediatr Surg 1996; 31: 1417- 21.
5. Kasai M, Asakura Y, Taira Y. Surgical treatment ofcholedochal cyst. Ann Surg 1970; 172: 844-51.
6. Raffensperger JG. Cystic dilatation of the bile ducts. In : Raffensperger JG, ed. Swenson's Pediatric Surgery. 4th ed. New York : Appleton Century Croft, 1980: 614-9.
7. Hays DM. Choledochal cysts. In : Holder TM, Ashcraft KW, eds. Pediatric Surgery. Philadelphia : W.B. Saunder, 1980: 520-4.
8. Cook RCM, Rickham PP. The liver and biliary tract. In : Rickham PP, Lister J, Irving IM, eds. Neonatal Surgery. London : Butterworth & Co (Publishers) Ltd, 1978: 483-97.
9. Todani T, Watanabe Y, Urushihara N, et al. Biliary complications after excisional procedure for choledochal cyst. J Pediatr Surg 1995; 30: 478-81.
10. Ohi R, Yaoita S, Kamiyama T, et al. Surgical treatment of congenital dilatation of the bile duct with special reference to late complications after total excisional operation. J Pediatr Surg 1990; 25: 613-7.

การต่อลำไส้ส่วนเจจูนั่มเข้ากับท่อน้ำดีส่วนเฮปาติกหลังจากเลาะถุงทางเดินน้ำดีที่โป่งพองออกในผู้ป่วยที่ได้รับการผ่าตัดระบบทางเดินน้ำดีมาก่อน 2 ราย

*สมชาย เทพเจริญนิรันดร์, พ.บ.**

การต่อลำไส้ส่วนเจจูนั่มเข้ากับท่อน้ำดีส่วนเฮปาติก หลังจากเลาะถุงทางเดินน้ำดีที่โป่งพองออก เป็นวิธีสำหรับรักษาโรคถุงทางเดินน้ำดีโป่งพอง เพื่อป้องกันการเกิดทางเดินน้ำดีอักเสบ นิ่ว และมะเร็งภายหลังการผ่าตัด ผู้รายงานได้รายงานผู้ป่วยเด็ก 2 รายที่ได้รับการผ่าตัดระบบทางเดินน้ำดีมาก่อน รายแรกได้รับการผ่าตัดต่อลำไส้ส่วนเจจูนั่มเข้ากับถุงทางเดินน้ำดีโป่งพองโดยไม่ได้ตัดถุงน้ำดีออก และรายที่สองได้รับการผ่าตัดเฉพาะถุงน้ำดีออกอย่างเดียว ผู้ป่วยทั้งสองรายเข้ารับการรักษาในแผนกศัลยกรรมเด็ก โรงพยาบาลราชบุรีด้วยอาการปวดท้องเรื้อรัง ภายหลังการชันสูตรผู้ป่วยทั้งสองรายได้รับการผ่าตัดเอาถุงทางเดินน้ำดีโป่งพองออกและต่อลำไส้ส่วนเจจูนั่มเข้ากับท่อน้ำดีส่วนเฮปาติก จากการติดตามผล 6 และ 1 ปีไม่พบผลแทรกซ้อนเกิดขึ้น จุดประสงค์ในการเสนอรายงานนี้เพื่อแสดงภาวะแทรกซ้อนที่เกิดจากการผ่าตัดระบบทางเดินน้ำดีมาก่อนในผู้ป่วยถุงทางเดินน้ำดีโป่งพองและสนับสนุนการผ่าตัดต่อลำไส้ส่วนเจจูนั่มเข้ากับท่อน้ำดีส่วนเฮปาติกหลังจากเลาะถุงทางเดินน้ำดีที่โป่งพองออกเป็นวิธีผ่าตัดสำหรับโรคถุงทางเดินน้ำดีโป่งพอง

คำสำคัญ : ถุงทางเดินน้ำดีที่โป่งพอง, การต่อลำไส้ส่วนเจจูนั่มเข้ากับท่อน้ำดีส่วนเฮปาติก, ผู้ป่วยได้รับการผ่าตัดระบบทางเดินน้ำดีมาก่อน

* แผนกศัลยกรรมเด็ก, กลุ่มงานศัลยกรรม, โรงพยาบาลราชบุรี 70000

† เสนอในที่ประชุมวิชาการประจำปีครั้งที่ 22 ราชวิทยาลัยศัลยแพทย์แห่งประเทศไทย 18-21 กรกฎาคม 2540 โรงแรมรอยัลคลิฟ พัทยา จ.ชลบุรี