

Introduction

Extrahepatic bile duct cancer can be classified according to the primary site into proximal, middle and distal bile duct cancer. The longitudinal extent of proximal bile duct cancer is classified according to a modified Bismuth-Corlette classification into 5 types. Liver resection is now commonly performed for this proximal disease and combined *en bloc* resection of the caudate lobe has become standard practice. However, several questions remain unsolved. One controversy exists regarding the procedure of choice for patients with Bismuth type I or II tumors. The propose of this study was to determine the surgical effect and outcome of the patients with Bismuth type I tumors who underwent extrahepatic bile duct resection without hepatectomy.

Patients and Methods

Between January 2010 and July 2012, 18 patients underwent surgical procedures that were performed for treating hilar cholangiocarcinoma at National Cancer Institute of Thailand. 5 patients underwent palliative surgical bypass due to extensive lymph node metastases, unexpected peritoneal dissemination and liver metastasis. Major hepatectomy, bile duct resection and regional lymph node dissection were performed as our standard protocols in 10 patients. Extrahepatic bile duct resection alone with lymph node dissection (fig.2-4) was selected for the remaining 3 patients because of comorbidity of patients and limited tumor extent. All 3 cases were Bismuth type I tumors without evidence of vascular involvement on preoperative radiologic imaging (fig.1). After surgery, these patients have been followed up every 2 or 3 months at the outpatient clinic by measuring CA19-9 levels and performing a CT scan. A retrospective review was performed via a review of the medical records of these patients.

Results

The profiles of 3 patients underwent bile duct resection alone are summarized in table 1. None of these patients received any adjuvant radiotherapy or chemotherapy. Postoperative hospital stay was prolonged to about 2 weeks because these elderly patients were only discharged after complete recovery. 2 of these 3 patients are doing well with no evidence of tumor recurrence at 20 and 8 months respectively and one is alive after 16 months with lymph node metastasis.

	Case 1	Case 2	Case 3
Clinical			
Sex/Age (y)	Male/ 72	Female/ 83	Female/ 74
Comorbidity	DM, HT	HT	HT
Operation			
Operative time (min)	320	280	380
Blood transfusion	No	No	No
Pathology			
Cell type	Adenocarcinoma	Adenocarcinoma	Adenocarcinoma
Differentiation	Well	Moderate	Moderate
Depth of invasion	Periductal soft tissue	Muscular layer	Periductal soft tissue
Growth pattern	Fungating	Nodular	Fungating
LN metastasis	No	No	No
Lymphovascular invasion	No	No	No
Perineural invasion	Presence	No	No
Bile duct margin			
Proximal	Negative	Negative	Negative
Distal	Negative	Negative	Negative
Radial	Negative	Negative	Positive
Complication	None	None	None
Postoperative hospital stay (d)	12	18	10
Outcome	Alive at 20 months without recurrence	Alive at 16 months with LN metastasis	Alive at 8 months without recurrence

Table 1. Clinicopathological profiles of the 3 patients underwent extrahepatic bile duct resection alone

Conclusions

Extrahepatic bile duct resection seems to be beneficial for achieving R0 resection in some proximal cancer patients. To achieve a cure, the surgeon must obtain histologically negative margins on both the proximal and distal bile ducts and all tumor-bearing nodal tissue must be removed. This approach may be recommended in patients who are judged to be intolerant of hepatectomy.

References

1. Neuhaus P, Jonas S, Bechtel W, et al. Extended resections for hilar cholangiocarcinoma. *Ann Surg* 1999; 230: 808-18.
2. Bismuth H, Nakache R, Diamond T. Management strategies in resection for hilar cholangiocarcinoma. *Ann Surg* 1992; 215:31-8.
3. Jang JY, Kim SW, Park DJ, et al. Actual long-term outcome of extrahepatic bile duct cancer after surgical resection. *Ann Surg* 2005; 241: 77-84.
4. Chamberlain RS, Blumgart LH. Hilar cholangiocarcinoma: a review and commentary. *Ann Surg Oncol* 2000; 7: 55-66.
5. Boerma EJ. Research into the results of resection of hilar bile duct cancer. *Surgery* 1990; 108: 572-80.

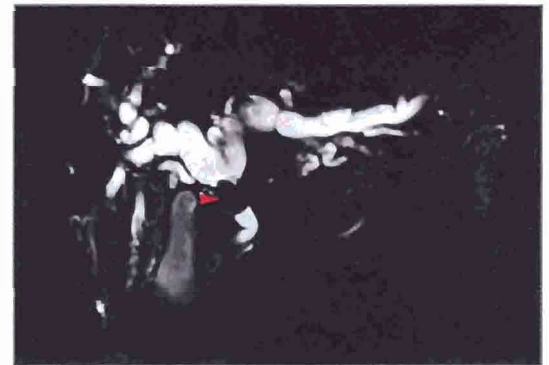


Figure 1. Preoperative MRCP showing the location and extent of proximal bile duct cancer. Arrow indicates the shadow of tumor.

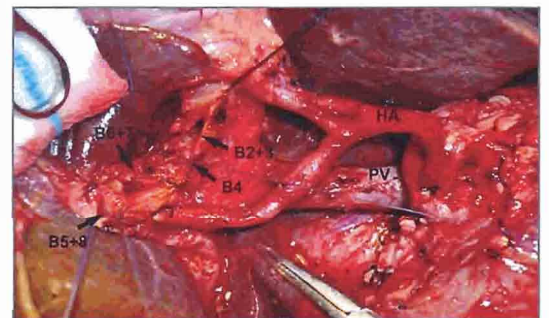


Figure 2. Intraoperative photograph showing extrahepatic bile duct resection and combined regional lymph node dissection.



Figure 3. Intraoperative photograph showing biliointestinal reconstruction.

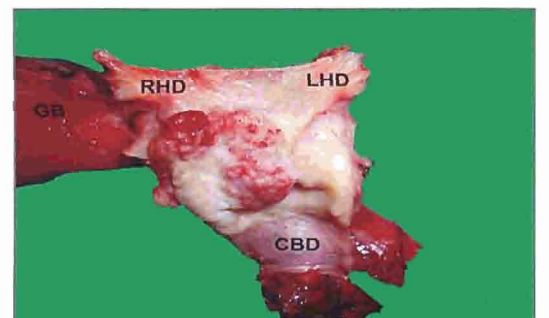


Figure 4. Specimen after extrahepatic bile duct resection for Bismuth type I hilar cholangiocarcinoma. GB, gallbladder; RHD, right hepatic duct; LHD, left hepatic duct; CBD, common bile duct.