

Hepatoduodeno Pancreatectomy for Biliary Tract Cancers: Report of 5 Cases and Review of the Literature

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Abstract

Hepatoduodenopancreatectomy (HDP) is a major intervention and is recommended in surgery for biliary tract cancer. We report 5 observations of patients treated by this technique for cancer.

Observation: These are 3 women and 2 men, with an average age of 45 years (40-49 years) operated for cancer of the gall bladder in 3 cases, cancer of the pancreas associated with cancer of the pancreas and in one case cancer gall bladder associated with the main bile duct. In 3 cases, the gesture was performed in 1 stroke and in the other 2 in 2 stroke. Resection in 5 cases consisted of Cephalicduodeno-pancreatectomy (CDP) associated with IV-V bismectomy and extensive lymphadenectomy. One patient presented with portal vein infiltration. In all 5 patients, it was adenocarcinoma. Three patients had lymphnode infiltration. The postoperative follow-up was straight forward in 4 patients. The 5th patient died of acute pancreatitis. The 4 survivors received adjuvant systemic chemotherapy. Remotely, a patient died at 6 months from a loco regional recurrence, another at 17 months from peritoneal carcinomatosis, the third died at 120 months after having been operated on for a pulmonary metastasis. A patient is currently alive for 90 months with no apparent recurrence.

Conclusion: HDP is an intervention that makes it possible to control certain biliopancreatic cancers provided that the indications are followed. These are: a patient without associated, in good nutritional status and type R0 surgery.

Keywords

Hepatoduodenopancreatectomy; Biliary cancers; Gallbladder cancer; Bile duct cancer; Surgery

Introduction

Hepatoduodenopancreatectomy (HDP) is a major procedure performed for various malignant tumors related to pancreatic, biliary, metastatic or locally advanced hepatic tumors [1]. The HDP which is part of this type of resection is performed in the overwhelming majority of cases for cancer of the bile ducts [2]. Several types of hepatic resection are grouped under this name, from a typical and minor hepatic to right lobectomy, associated with Cephalic Duodeno Pancreatectomy (CDP). It remains a risky surgery and should only be under taken after careful selection of patients [3]. We report in this short series of five cases of HDP performed for cancer of the bile ducts (cancer of the gall bladder and cancer of the main bile duct) with analysis of the immediate post operative results in terms of morbidity and mortality and long-term survival. Hepatoduodenopancreatectomy (HDP) is a major intervention and is recommended in surgery for biliary tract cancer. We report 5 observations of patients treated by this technique for cancer.

Observations

These are 3 women and 2 men, with an average age of 45 years (40-49 years) operated for cancer of the gall bladder in 3 cases, cancer of the pancreas associated with cancer of the pancreas and in one case cancer gall bladder associated with the main bile duct. In 3 cases, the gesture was performed in 1 stroke and in the other 2 in 2 stroke. Resection in 5 cases consisted of Cephalic Duodeno Pancreatectomy (CDP) associated with IV-V bisgmentectomy and extensive lymphadenectomy. One patient presented with portal vein infiltration. In all 5 patients, it was adenocarcinoma. Three patients had lymphnode infiltration. The postoperative follow-up was straight forward in 4 patients. The 5th patient died of acute pancreatitis. The 4 survivors received adjuvant systemic chemotherapy. Remotely, a patient died at 6 months from a loco regional recurrence, another at 17 months from peritoneal carcinomatosis, the third died at 120 months after having been operated on for a pulmonary metastasis. A patient is currently alive for 90 months with no apparent recurrence.

Conclusion

HDP is an intervention that makes it possible to control certain biliopancreatic cancers provided that the indications are followed. These are: a patient without associated, in good nutritional status and type R0 surgery.

Observations

These are four gall bladder cancer and one cancer of the main bile duct associated with gall bladder cancer that we treated in 3 women and 2 men, with an average age of 40 years (40-51 years). The existence of non-insulin dependent diabetes was noted in only one patient. Three patients presented with abdominal pain and 2 with obstructive jaundice secondary to invasion of the main bile duct. Ultrasound and computed tomography were performed in 5 patients while MRI was done in 2 patients (Jaundice patients). The characteristics of the tumors in the 5 patients are reported in (Table 1). In the 5 patients, it is adenocarcinoma with a combination of adenocarcinoma of the gall bladder and the main bile duct in one case (Table 2). All these patients underwent a CDP with restoration of digestive continuity according to Child associated with an IVa-V bisegmentectomy with extensive lymphadenectomy. This surgery was performed in 2 stages in 3 patients. The first step was performed for a first bypass (Case 2), a first exploratory surgery followed by resection after neo-adjuvant chemotherapy (Case 3) and a first CDP followed by an IVa-V bisegmentectomy after a discovery of cancer of the gall bladder on part (box 5) (Table 3). One patient died postoperatively following acute pancreatitis despite resus citation and the 4 others had simple postoperative consequences (Table 4). Three patients received adjuvant therapy. The first received adjuvant chemotherapy combined with external beam radiation therapy (Case 1) and the other two received systemic chemotherapy (Case 2 and 3). Remotely, two patients died at 6 and 17 months (Case 2 and 3). One patient had are current left lung 8 years after surgery and underwent a total pneumonectomy. He died following a new thoracic recurrence at 120 months (Case 1). A patient is currently alive without recurrence at 90 months (Case 5) Figure 1.

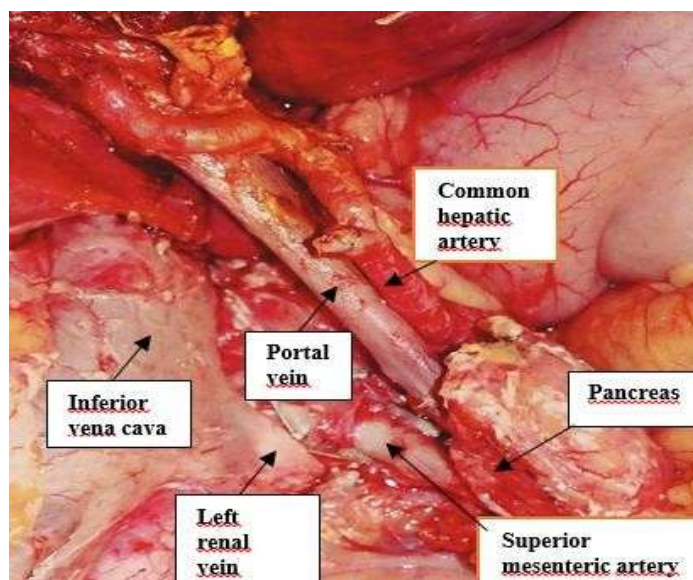


Figure 1: Peroperative view of retroperitoneal area.

Case	Disease	Seat	Macroscopic Aspect	Dimension (mm)	Invaded Viscera
1	Gall bladder Cancer	Neck	Nodule	40	Bile duct + Pancreas
2	Gall bladder Cancer	Fundus	Nodule	10	Liver + bile duct + Pancreas
3	Gall bladder Cancer	Diffuse tumor	Diffuse tumor	90	Liver
4	Gall bladder Cancer	Fundus and body	Polyp	100	Liver + pancreas
5	Gall bladder Cancer	Fundus and body + Bile duct	Double polyp	100	Bile duct

Table 1: Tumors characteristics.

Case	Ca19.9	CEA	Microscopy	Vascularemboli	Perinervous sheath	TNM
1	225,4	17,3	NSADK	-	-	T3N2M0
2	987,66	3,5	MDADK+CM	P	-	T4N2M0
3	4,19	1,2	PDADK	-	-	T3N2M+h
4	527,6	63,2	WDADK	P	P	T4N2M0
5	55,83	2,27	WDADK (1) NSADK (2)	-	P	T3N0M0

Table 2: TNM, microscopy, tumor markers.

Ca19.9: Carbohydrate antigen; **CEA:** Carcinoembryonic antigen; **NSADK:** Not specified adenocarcinoma ; **MDADK :** Middle differentiated adenocarcinoma ; **CPDADK:** Poor differentiated adenocarcinoma ; **WDADK:** Well diferentiated adenocarcinoma; **P:** Present; **MC:** Mucouscolloid-1; Gall bladder cancer-2; Bile duct cancer.

Case	1T out 2T	Surgical gesture at 1T	Surgical at 2T	R	Lymphadenectomy	Nodes number resected
1	1	IV-V + DP	No	R0	Extended lymphadenectomy	8
2	2	Biliary diversion	IV-V + DP	R2	Extendedly mphadenectomy	22
3	2	EL + Neoadjuvant chemotherapy	IV-V + DP	R1	Extended lymphadenectomy	1
4	1	IV-V+DP	No	R0	Extended lymphadenectomy	20
5	2	CX + DP	IV-V +	R0	Extended lymphadenectomy	20

Table 3: Surgical gesture and perioperative treatment.

1T: First treatment time; 2T: Second treatment time; EL: Exploratory laparotomy
 DP: Duodenopancreatectomy; IV-V: Resection of segments IV and V of Liver; R: Resection profile; R0: No residual
 tumor at microscopic exam; R1: Microscopic tumor residue; R2: Macroscopic tumor residue.

Case	Postoperative period	Adjuvant treatment	Follow up
1	Uneventful	12LV5FU2 + CIS + 45grays	Pulmonary metastasis treated by pneumonectomy and chemotherapy. Died of disease at 96 months
2	Uneventful	10LV5FU2 + CIS	Died of disease at 6 months
3	Uneventful	8cycles of neoadjuvant GEMCIS + 4cycles adjuvant GEMCIS	Died of disease at 17 months
4	Acute postoperative pancreatitis	Postoperative death	Postoperative death
5	Uneventful	No treatment	Alive without disease

Table 4: Immediats, long term results, Neoadjuvant and adjuvant therapy.

EMCIS: Gemcitabine and Cisplatin; LV: Folinicacid; 5FU: 5 Fluoro uracil.

Authors	Year	Number	Disease	Country	Morbidity	Mortality	R0	Global 5 Survival
Ogura [6]	1991	150	Biliary tract cancer	Japan	54%	15.30%		14%
Y Zhou [4]	2015	397	Biliary tract cancer	Japan, South Korea, USA	78.90%	10.30%	71.30%	31%
TB Tran [1]	2015	32 sur un total de 480	Biliary tract cancer	USA		6.6 % to 8.3%	-	-
Lim CS	2012	26 between 35 cases	Biliary tract cancer	Brazil	97.40%	34.20%	-	7.70%
Our series	2021	5	Biliary tract cancer	Algeria	0%	20%	60%	20%

Table 5: Results in the literature.

Comments

We performed 5 HDP for biliary tract cancers (cancer of the gall bladder and cancer of the main bile duct) and for all patients a minor hepatic resection such as IVa and V bisegmentectomy was associated with CDP with restoration of continuity according to Child. This procedure is performed in the overwhelming majority of cases for tumors of the bile ducts [4].

To our knowledge, it seems that Warren was the first who, as early as the 1960s, advocated right lobectomy associated with CDP for gall bladder cancer with the aim of controlling neoplastic disease with its lymph node extension [5]. For this author, this intervention performs the most complete excision both for hepatic tumor foci and for any infiltrated lymphnodes of the pedicle and of the duodeno pancreatic block. Japanese authors have developed this excisional surgery for tumors of the bile ducts and have the most experience of it. Ogura et al. reported in 1991 [6] the results of a survey of a series of 150 patients who underwent HDP for a bile duct tumor. It was retained as indications, a lymph node infiltration of the duodenopancreatic block and a direct infiltration of the duodenum. This investigation revealed a high postoperative mortality which was linked to the importance of the liver sacrifice, a morbidity of 54% of morbidity and 5-year survival of 14%. Nakamura [7] reported 7 personal cases with zero mortality, morbidity of 71.4% and a median survival of 12 months. In front of a tumor of the main bile duct, this major surgery is retained in front of diffuse infiltration of the bile duct, lympho-lymphnode infiltration or an association of tumor of the main bile duct with a cancer of the gall bladder as in our case. 5. For cancer of the gall bladder, the indication for hepatectomy with its variants and its importance is mainly under pinned by possible microscopic foci of the IVa and V segments of the liver, macroscopic infiltration or obvious hepatic metastases and infiltration of the bile duct at the level of hishilum. The indication for CDP is retained in the presence of duodenal or pancreatic invasion, but most

often it is performed for lymphadenectomy [8]. For the main bile duct, the indication for this major resection is mainly represented by a low-extending tumor in the bile duct or diffuse adenocarcinoma [9]. All of the authors stress the importance of sacrificing the liver parenchyma. Thus, when the latter is major or extreme (more than 3 segments and a maximum of 5), the risk of developing postoperative complications is major in terms of hepatocellular failure in particular. To reduce the risks of this complication, Ebata et al. [10] saw the hepatocellular failure rate drop from 56% to 14% after performing portal embolization in their series. The major risk of duodeno-cephalic resection are the same each time and in particular those associated with pancreatic ojejunal or pancreatogastric anastomosis. On the other hand, patients with jaundice may also benefit from pre-operative drainage before this procedure [11].

These cumulative risks when a right lobectomy is planned prompted Miyagawa et al. [12] to perform pancreatic ojejunal anastomosis only 3 months after resection so as not to have to manage hepatocellular insufficiency associated with release of the pancreatic ojejunal anastomosis [12]. The postoperative risks of this major resection made us retain the following decision elements, namely: a maximum age of 70 years, a patient without major defect and a good nutritional state. This is what were suspected in our 5 patients. One of our patients (Case 4) presented with acute postoperative pancreatitis. This complication led to death despite the resuscitation undertaken. As reported, we performed only one minor hepatectomy in our 5 patients.

Does this resection result in a survival benefit? We obtained 2 survivals beyond 5 years in our series and this seems interesting to us. In the literature, better 5-year survival has been reported for cancer of the main bile duct [13]. In one of our patients, the resection was of type R2 (macroscopic residue) and which cannot be strictly speaking an indication of this therapeutic method (it should be specified that the tumor residue was not possible in this patient preoperatively). Our cases are similar to those reported by Sasaki et al. [14] for both disease stages and long-term survival. In the literature, interesting survivals have also been reported and it seems to us that we must go further in this direction and especially in the selection of patients [15]. Conclusion: HDP is an intervention to be considered for biliary tract cancers. The decision-making elements to retain the indication for this major intervention are: an age less than 70 years (relative contraindication), a correct nutritional state, the absence of major visceral defect, a healthy liver (preoperative biliary drainage if obstructive jaundice associated portal embolization if major hepatectomy is planned) and R0 type resection. Our small series shows that both immediate and distant results can be interesting even if we only performed a minor hepatectomy. These results encourage us to continue in this direction provided that we select the patients well, even when a major hepatectomy is considered in combination with CDP.

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