

## Surgical Approach to Perihilar Cholangiocarcinoma

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### ABSTRACT

Cholangiocarcinoma represents a diverse group of epithelial cancers united by late diagnosis and poor outcomes, includes a cluster of highly heterogeneous biliary malignant tumours that can arise at any point of the biliary tree. Global incidence is increasing. Surgical resection is the only potentially curative treatment for patients with cholangiocarcinoma. Due to the incidence of this type of cancer, as well as its associated mortality, a timely diagnosis is necessary, but even more so, to be familiar with the surgical technique, since it is the only potentially curative option for patients suffering from this pathology.

### ARTICLE DETAILS

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### INTRODUCTION

Cholangiocarcinoma represents a diverse group of epithelial cancers united by late diagnosis and poor outcomes, includes a cluster of highly heterogeneous biliary malignant tumours that can arise at any point of the biliary tree.<sup>1 2</sup> Global incidence is increasing, accounting for ~15% of all primary liver cancers. Silent presentation combined with their aggressive nature and refractoriness to chemotherapy contribute to their alarming mortality.<sup>2</sup> According to the most recent classifications, CCA can be subdivided into intrahepatic (iCCA) and extrahepatic (eCCA) which include perihilar (pCCA) and distal (dCCA) CCA. CCA are usually identified at advanced stages.<sup>3 4</sup> Surgical resection is the only potentially curative treatment for patients with cholangiocarcinoma.<sup>5</sup> For both perihilar cholangiocarcinoma (pCCA) and intrahepatic cholangiocarcinoma (iCCA), 5-year overall survival of about 30% has been reported in large series.<sup>5,6</sup> The role of routine lymphadenectomy in the surgical treatment of ICC remains controversial, with some centers considering it standard whereas other surgeons perform lymphadenectomy only as a selective indication.<sup>7</sup> Data supports adjuvant therapy in BTC, particularly in a high risk subset of patients with margin and node positive disease. Further prospective studies are required to determine the optimal therapeutic regimens.<sup>8</sup>

### SURGICAL APPROACH

Majority of patients with pCCA require an (extended) hemihepatectomy with resection of the extrahepatic bile duct.

Right trisectionectomy has the advantage of a greater length of the left hepatic duct (2-3 cm) as opposed to the right duct (<1 cm). En-bloc resection of the caudate lobe is recommended because the tumour typically extends into the caudate lobe via small branches draining into the right or left hepatic ducts or the biliary confluence. For Bismuth IIIB tumours, a left hepatectomy or trisectionectomy extended to second-order biliary radicals is needed, often requiring reconstruction of multiple right-sided ducts. dCCA (ie, located in the intrapancreatic bile duct), is treated with a pancreatoduodenectomy. Resection of only the extrahepatic bile duct may be considered for Bismuth I pCCA, especially in frail patients. However, in a study of patients with Bismuth I or II tumours, 5-year survival was 30% with extrahepatic bile duct resection alone vs 50% with en-bloc liver resection.<sup>4,6</sup> Lymphadenectomy of locoregional lymph nodes in the hepatoduodenal ligament is recommended, but has a bigger impact on staging than on improving survival.<sup>6</sup>

Portal vein resection and reconstruction may be required and may improve resection rates, R0 resection rates and survival. Hepatic artery resection and reconstruction has also been reported, though morbidity and mortality rates can be high and survival with main or unilateral hepatic artery involvement is poor. A staging laparoscopy to rule out undetected liver or peritoneal metastases is recommended with a yield above 20% in many studies.<sup>5,0</sup> Results of minimal-invasive resection for pCCA have been mostly disappointing.<sup>6</sup>

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Outcomes for patients with resectable pCCA depend on three factors:

Tumour characteristics: local extent of the tumour, tumour differentiation, lymphovascular, perineural and/or microvascular invasion, lymph node involvement and the presence of distant metastasis.

Whether or not a patient is considered for resection at a multidisciplinary meeting including experienced hepatobiliary surgeons.

The surgical approach aiming at a radical (R0) resection, and perioperative morbidity and mortality.

When a patient is not eligible for surgery, systemic therapy is usually recommended. The current guidelines of the European Society of Medical Oncology and the National Comprehensive Cancer Network recommend the use of cisplatin and gemcitabine alone or in combination. In the absence of distant metastatic disease, several locoregional treatment options can be considered.<sup>6</sup>

## CONCLUSION

Due to the incidence of this type of cancer, as well as its associated mortality, a timely diagnosis is necessary, but even more so, to be familiar with the surgical technique, since it is the only potentially curative option for patients suffering from this pathology.

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