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Isolated caudate lobectomy: Left-sided approach. Case reports



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ABSTRACT

INTRODUCTION: The caudate lobe is a distinct liver lobe and surgical resection requires expertise and precise anatomic knowledge. Left-sided approach was described for resection of small tumors originated in the Spiegel lobe but now the procedure has been performed even for tumors more than five centimeters. The aim of this study is to present three cases of tumor of caudate lobe underwent isolated lobectomy by left-sided approach.

PRESENTATION OF CASE: Three patients with metastasis of colorectal cancer, carcinoma hepatocellular and metastasis of neuroendocrine tumor underwent resection. After modified Makuuchi incision, early control of short hepatic e short portal veins before hepatectomy was performed. The operative time was 200, 270 and 230 min respectively. No blood transfusion was used and no postoperative complications were observed. The length of stay was 7, 11 and 5 days respectively.

DISCUSSION: Some approaches have been described to access and resect tumors of the caudate lobe, including the left-sided approach, right-sided approach, combined left- and right-sided approach and the anterior transhepatic approach. For liver resection in patients with malignant disease, parenchymal preservation is important in order to avoid postoperative liver failure or due to the risk of second hepatectomy. In these patients isolated caudate lobectomy is a safe option.

CONCLUSION: Isolated caudate lobectomy is a feasible procedure. Left-sided approach can be performed even for tumors larger than 5 cm.

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1. Introduction

The caudate lobe is a distinct liver lobe located beneath the confluence of hepatic veins with its vascularization and biliary drainage independent from those of both major lobes. According to Kumon, the caudate lobe consists of three parts: the Spiegel lobe, the paracaval portion and the caudate process. Caudate lobe has the same incidence of developing malignant neoplasms as others segments of the liver. However the rate of caudate lobectomy remains low due to the unique anatomic location and the difficulty of vascular control [1–3].

Isolated caudate lobectomy is the resection of either part or total caudate lobe. First described by Lerut et al. in 1990, resection of caudate lobe is a challenging procedure and requires expertise in liver resections, precise anatomic knowledge and safe vascular control. Left-sided approach was described for resection of small tumors that originated in the Spiegel lobe [3,4].

The aims of this study are to present three cases of tumor of caudate lobe underwent isolated lobectomy by left-sided approach

and describe the technique for performing the procedure. This work is in line with the SCARE criteria [11].

2. Surgical technique

Modified Makuuchi incision is carried out and left lobe is fully mobilized. Intraoperative ultrasonography is performed to exclude others tumors. The round, falciform, left triangular and left coronary ligaments are separated. The venous ligament (Arantius) and vena cava ligaments are ligated and divided to free the upper surface of the caudate lobe (Fig. 1). The roots of the right and middle-left hepatic veins are dissected, exposed and prepared for clamping in case of bleeding from the branches of the hepatic veins at the site of parenchymal dissection. Early control of short hepatic e short portal veins before hepatectomy reduces the technical difficulty of caudate lobectomy (Fig. 2).

The hepatoduodenal ligament is isolated and drawing rightward to expose the Spiegel lobe. At the base of the umbilical fissure the blood supply from the portal vein and hepatic artery are dissected and divided. At this time, the caudate hepatic ducts are separated.

The left lateral lobe is rotated rightward and anteriorly. To create a free posterior surface of the caudate lobe, the tumor is elevated from the retrohepatic inferior vena cava to expose all short hep-

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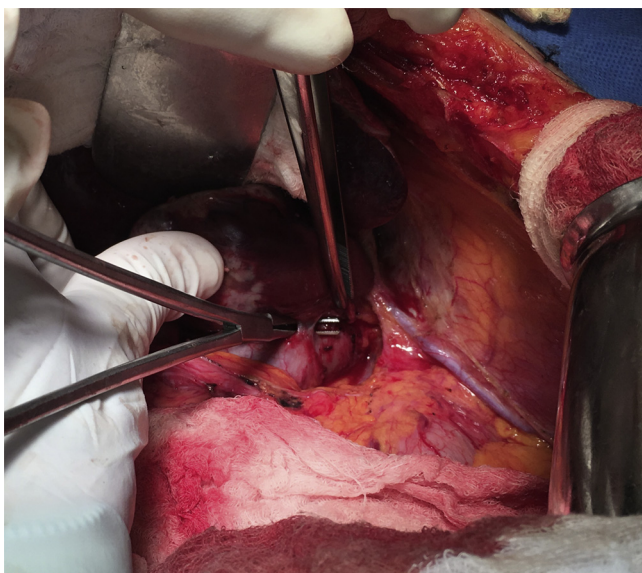


Fig. 1. Vena cava ligaments are ligated and divided.

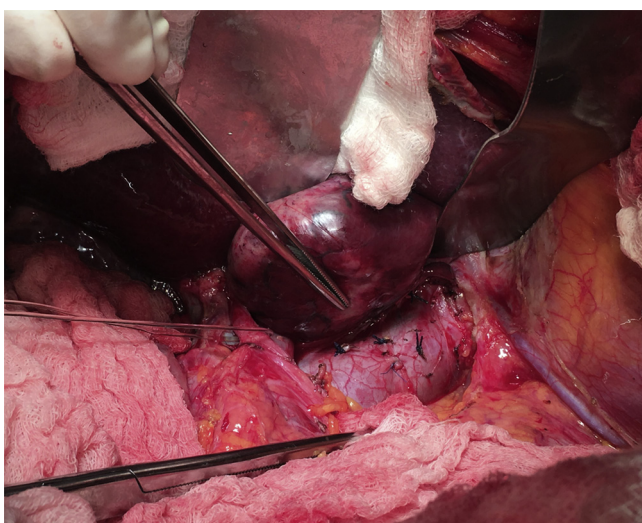


Fig. 2. Early control of short hepatic veins.

atic veins to direct view and they are ligated and divided. Next, the caudate is drawing downward in order to dissect the upper pole of the tumor from the middle and the left hepatic veins. After the dissection is completed, the caudate lobe with the tumor is transected from the bridge to right lobe (Fig. 3).

3. Case report

The characteristics of the patients are presented in Table 1.

3.1. Case 1

A 70-year-old male patient with history of left colectomy due to adenocarcinoma of descending colon presented with isolated liver metastasis in caudate lobe, six months after left colectomy.

3.2. Case 2

A 69-year-old female patient with history of cirrhosis due to hepatitis B virus. The liver function was sufficient (Child-Pugh A, MELD 8), and serum α -fetoprotein level was 240 ng/mL. Con-

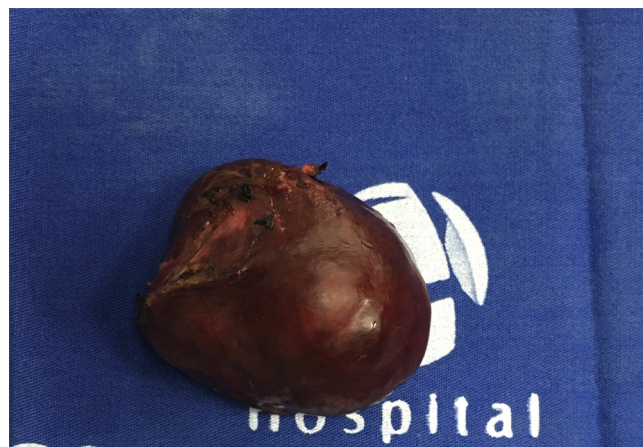


Fig. 3. Specimen with caudate lobe and tumor.

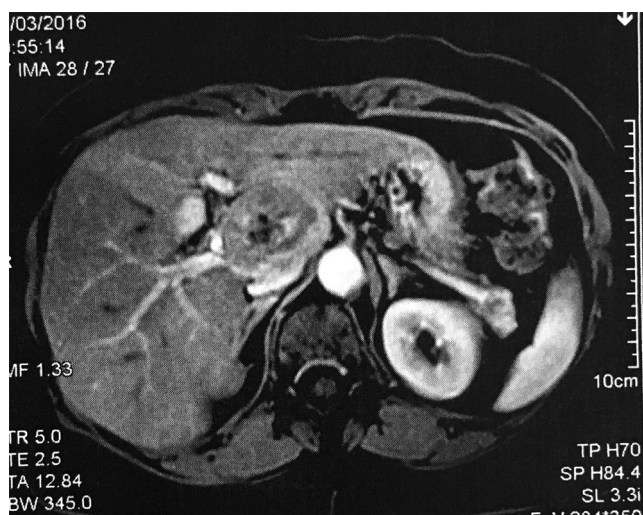


Fig. 4. Computed Tomography showing hepatocellular carcinoma closely attached to the vena cava.

trast computed tomography observed a mass of 4.8 × 4.6 cm in the caudate lobe, compatible with hepatocellular carcinoma (Fig. 4). The patient was not indicated for transarterial chemoembolization (TACE) and refused liver transplantation.

3.3. Case 3

A 54 year-old female underwent left colectomy due to neuroendocrine tumor of rectum four months before. She underwent treatment with octreotide for two months. A computed tomography of the abdomen revealed 4 centimeters metastasis in caudate lobe (Fig. 5).

All patients had a drain placed on the transection area. Liver function in patient two remained good and postoperative ascites was not observed. The postoperative course of all patients was uneventful, and they were discharged on the 5th, 7th and 11th postoperative days. After six months, contrast computed tomography of the abdomen was performed showing no recurrence.

4. Discussion

Caudate lobectomy is classified as an isolated or combined resection. Isolated caudate lobectomy is a procedure that required knowledge of liver anatomy, experience in liver resection and safe management of vascular structures. It is the most technically

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