

Video Article

Comparative surgical resection of ligamentum teres hepatis both in cadaveric model and ovarian cancer patient

Selçuk et al. Comparative resection of ligamentum teres hepatis

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Abstract

Resection of all tumor implants with the aim of maximal cytoreduction is the main predictor of overall survival in ovarian carcinoma. However, there are high risk sites of tumor recurrence, and perihepatic region especially the point where ligamentum teres hepatis enters the liver parenchyma under the hepatic bridge (pont hepaticque) is one of them. This video demonstrates the resection of ligamentum teres hepatis both in a cadaveric model and ovarian cancer patient. (J Turk Ger Gynecol Assoc 2019; 20: xxxxx)

Keywords: Pont hepaticque, umbilical ligament, liver, ovarian cancer, cytoreduction

Introduction

The falciforme ligament divides the liver into right and left lobes on the antero-superior part of portoumbilical fissure in which ligamentum teres hepatis (umbilical ligament of liver/round ligament of liver) attaches to the visceral surface. Due to the distribution pattern of portal vein and hepatic veins, the liver is divided into eight functional segments(1). Between the liver segments III and IVb the umbilical fissure exists, and umbilical ligament lies there. The liver parenchyma over this structure varies in thickness, and in some patients the umbilical ligament will totally be in sight which lets a broad exposure until its entrance into the liver. Paul Sugarbaker defined this parenchyma surrounding the umbilical ligament as 'Pont hepaticque/hepatic bridge' which creates a tunnel(2, 3).

Mucinous ovarian or gastrointestinal carcinoma, appendiceal carcinoma, mesothelioma or a serous ovarian cancer will have a widely disseminated recurrence on the peritoneal surfaces. The complicated surgical anatomy of liver and perihepatic tissues will limit the easy detection of tumor implants, eventually a good exposure of the abdominal cavity is needed to excise all the visible tumor implants especially on high risk fields like the end part of ligamentum teres hepatis under the hepatic bridge(4).

During cutting the hepatic bridge, there is no risk of injuring a structure. However; if the ligament is deeply attached to the bottom of the liver parenchyma, while dissecting the end point, care should be taken not to damage the left hepatic artery or the left hepatic duct over the hepatoduodenal ligament which is covered by the peritoneal lining of lesser sac(3, 5). Routine resection of ligamentum teres hepatis may increase the morbidity(6), however in patients with peritoneal carcinomatosis the base of the ligamentum teres hepatis should be observed under the hepatic bridge since it is the continuation of peritoneal tissue.

This video consists of a cadaveric surgical demonstration of ligamentum teres hepatis resection over the portoumbilical fissure and a live patient video of 56 years-old woman who had a recurrent high grade serous ovarian cancer with widespread peritoneal implants. At the perihepatic region on the umbilical ligament there were tumor implants, which were resected.

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References

1. Skandalakis JE, Skandalakis LJ, Skandalakis PN, Mirilas P. Hepatic surgical anatomy. Surg Clin North Am 2004; 84: 413-35, viii.
2. Sugarbaker PH. Pont hepatic (hepatic bridge), an important anatomic structure in cytoreductive surgery. J Surg Oncol 2010; 101: 251-2.
3. Sugarbaker PH. The hepatic bridge. Eur J Surg Oncol 2018; 44: 1083-6.
4. Sugarbaker PH, Bijelic L. The porta hepatis as a site of recurrence of mucinous appendiceal neoplasms treated by cytoreductive surgery and perioperative intraperitoneal chemotherapy. Tumori 2008; 94: 694-700.
5. Veerapong J, Solomon H, Helm CW. Division of the pont hepatic of the liver in cytoreductive surgery for peritoneal malignancy. Gynecol Oncol 2013; 128: 133.
6. Halkia E, Kopanakis N, Valavanis C, Nikolaou G, Zouridis A, Vafias E, et al. Is cholecystectomy and removal of the round ligament of the liver a necessary step in cytoreductive surgery and HIPEC, for peritoneal carcinomatosis? Ann Ital Chir 2015; 86: 323-6.

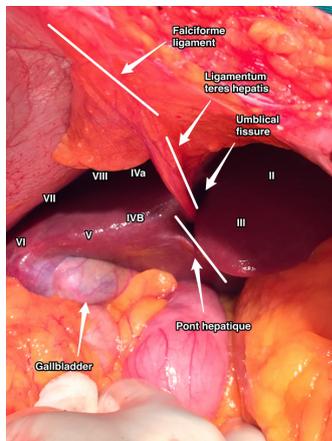


Figure 1. Localization of pont hepatic and hepatic segmentation with the anatomic structures of falciforme ligament and ligamentum teres hepatis

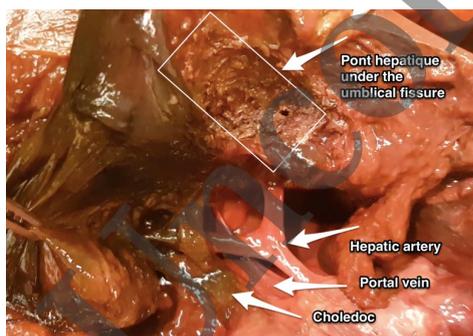


Figure 2. Cut end of ligamentum teres hepatis over the liver parenchyma superior to hepatoduodenal ligament (choledoc, portal vein and hepatic artery)

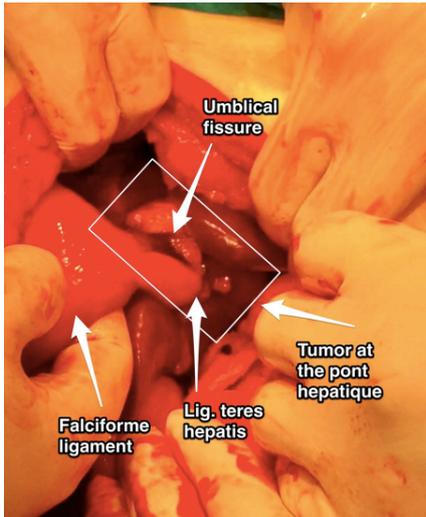


Figure 3. Tumor implants at ligamentum teres hepatis and pont hepaticus

Uncorrected Proof