

Ectopic Liver Tissue in the Left Hypochondrium: A Case Report and a Literature Review

Tejido Hepático Ectópico en el Hipocondrio Izquierdo:
Reporte de un Caso y Revisión de la Literatura

Marjeta Tanka¹; Anila Kristo² & Nikollaq Leka²

TANKA, M.; KRISTO, A. & LEKA, N. Ectopic liver tissue in the left hypocondrium: A case report and a literature review. *Int. J. Morphol.*, 38(1):35-37, 2020.

SUMMARY: Ectopic liver tissue is a rare developmental abnormality. It is often asymptomatic and is commonly found incidentally, during surgery or autopsy. It has been reported in various abdominal and extra-abdominal sites, most often in the gall bladder. We are reporting an incidentally found mass in the left subdiafragmatic region, diagnosed as ectopic liver in abdominal CT and intraoperatively. We aim to assess the importance of imaging examinations in the differential diagnosis of intraabdominal masses ranging from benign to malignant entities and to point out that despite the low incidence of ectopic liver, it is necessary to be aware of this diagnostic possibility.

KEY WORDS: Ectopic liver; Left hypocondrium; Abdominal CT.

INTRODUCTION

Ectopic liver is a rare congenital developmental abnormality of the position of liver tissue with an estimated incidence of 0.24–0.48 % and a prevalence rate of 0.47 % (Martinez *et al.*, 2013). There are two forms of abnormal position of liver tissue: ectopic liver with no connection with the mother liver and accessory lobe of ectopic liver, where the connection exists. Collan *et al.* (1978) classified four categories of ectopic livers: the first category is ectopic liver tissue that is not connected to the main liver and is typically attached to the gallbladder or intra-abdominal ligaments; the second is microscopic ectopic liver found mostly in the gallbladder wall; the third is a large accessory liver lobe attached to the main liver by a stalk; and the fourth is a small accessory liver lobe attached to the main liver. In a laparoscopic series of 1060 cases, the incidences of ectopic liver with no connection and accessory lobe of the liver were 0.47 % and 0.09 %, respectively (Watanabe *et al.*, 1989).

Ectopic livers are generally small in diameter and do not often cause clinical symptoms. For these reasons the diagnosis of ectopic liver in the majority of cases is made incidentally during surgery, laparoscopy or autopsy. It may be localized in the majority of cases in the walls of gallbladder but also in other sites in the abdominal cavity or in thoracic cavity (Caygill & Gatenby, 2004; Chen *et al.*,

2014). In this case report we want to assess the importance of CT examination in the preoperative diagnose of an ectopic liver localized in the left hypocondrium, attached to the serosa of stomach, as a differential diagnose among other benign and malign condition in this region.

CASE REPORT

A 70-year-old patient presented at the Radiology department of UHC “Mother Tereza” with complaints of abdominal pain. Previous medical history included the intervention for a tumor of ascending colon performed some years ago. The patient had undergone a CT Scanner examination for further evaluation. The patient was diagnosed with postoperative adhesive ileus and was referred to the surgery department. During the CT scanner examination a mass was detected in the left subdiafragmatic region. It was attached to the serosa of stomach near the fundus, and the most probable suspected diagnosis was a tumor of the stomach wall. The examination of upper digestive endoscopy resulted normal. During the CT examination it was noticed that the formation had similar structure with the mother liver and was connected to it by a stalk.

¹ Service of Imagery. University Hospital Center “Mother Tereza” Tirana, Albania.

² Department of Morphology, Faculty of Medicine. University of Medicine, Tirana, Albania.

The patient underwent surgery for adhesive ileus and the presence of ectopic liver was confirmed intra-operatively, classified according Collan classification as type three, because it was presented as a large accessory liver lobe attached to the main liver by a stalk. (Fig. 1).

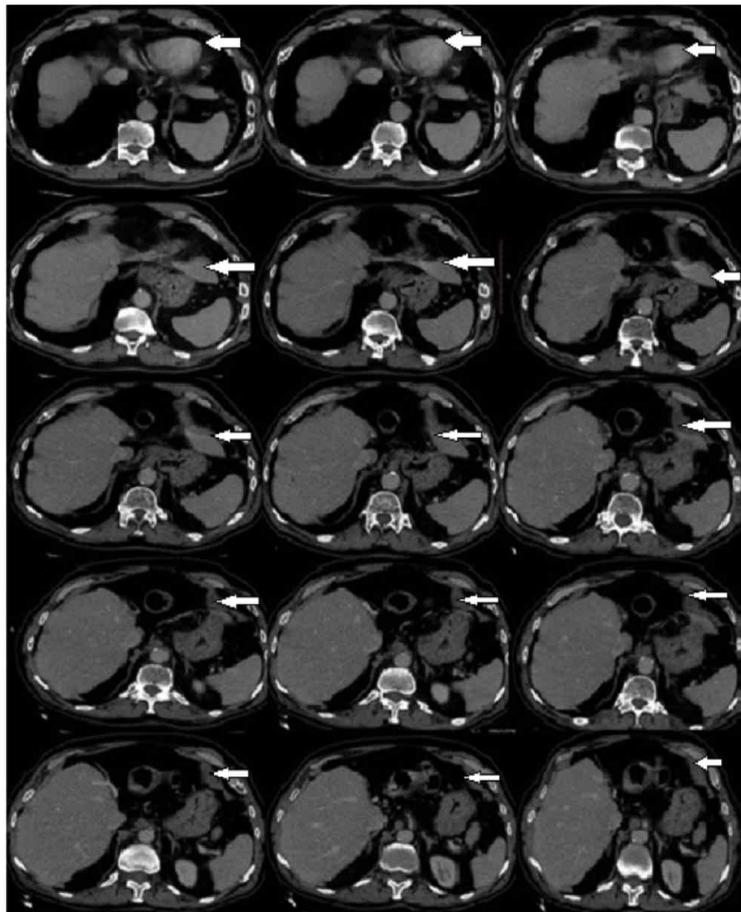


Fig. 1. Abdominal CT: A left subdiaphragmal mass next to the lateral wall of stomach (white arrow) connected to the mother liver by a stalk.

DISCUSSION

The liver develops from the hepatic diverticulum in the fourth week of gestation. It derives from an endodermal bud from the most caudal part of foregut and projects into the septum transversum (Hamilton *et al.*, 1972). The hepatic diverticulum differentiates into cranial or pars hepatica portion from which will derive the future liver and caudal or pars cystica portion from which the future gallbladder and cystic duct will derive (Tejada & Danielson, 1989). Most researchers believe that the cause of ectopic liver is an aberrant migration during the embryologic development of the liver (Tejada & Danielson; Watanabe *et al.*; Martinez *et al.*). Hepatocytes in an ectopic liver behave like normal hepatocytes therefore they share the same risk factors for fatty changes, haemosiderosis, cholestasis or cirrhosis as hepatocytes

in the mother liver. It is important to assess the fact that they may demonstrate an increased risk of carcinogenesis likely secondary to incomplete anatomic architecture and metabolic derangement (Arakawa *et al.*, 1999).

Different sites of locations intrathoracic and intraabdominal have been reported. The majority of the intrathoracic ectopic or accessory liver lobes were connected to the orthotopic liver by means of a small pedicle that pierced the diaphragm or passed through a small hiatus (Chen *et al.*). From intra abdominal sites the most frequent site where are found the majority of ectopic livers is the gallbladder (Tejada & Danielson; Arakawa *et al.*; Sakarya *et al.*, 2002; Acar *et al.*, 2002; Catani *et al.*, 2011; Martinez *et al.*; Bal *et al.*, 2015; Yahya *et al.*, 2016; Karaca *et al.*, 2016). Occasionally ectopic liver have been found in other organs like stomach (Huang *et al.*, 2015; Barazza *et al.*, 2016), in the upper pole of the spleen (Zonca *et al.*, 2013), in the ligamentum hepato-umbilicalis (Lara-Díaz *et al.*, 2011; Vaideeswar *et al.*, 2011; Zonca *et al.*), in the pancreas (Li *et al.*, 2017), kidney (Merve & Scheimberg 2014), left adrenal gland (Hashimoto *et al.*, 1997) or have been found as intracaval floating mass (Morris *et al.*, 2012; Rafiei *et al.*, 2012). From the review of the literature a few cases of ectopic liver have been reported in the walls of stomach as submucosal tumors (Huang *et al.*) or attached to serosa of stomach (Barazza *et al.*). To our knowledge, only one case attached to serosa of stomach (Barazza *et al.*) has been reported as a subdiaphragmatic mass adjunct to the fundus of stomach, similarly to our case which confirms the fact that this location of ectopic liver is very rare.

The differential diagnosis of a mass localized or attached to stomach wall is broad and includes both benign and neoplastic formations like leiomyoma, schwannoma, neurofibroma, GIST, lymphoma, and carcinoid or metastases and CT examinations are very important for the diagnosis, especially of unusual gastric tumors and tumor-like lesions (Lin *et al.*, 2017). In our case the mass had the characteristics of an ectopic liver because of the similar structure with the mother liver and the presence of the stalk which connected it with the left lobe of the liver and which contains the blood vessels. Furthermore this diagnosis was confirmed intraoperatively during surgery.

CONCLUSION

In summary, ectopic liver is a rare and commonly incidentally discovered developmental abnormality, especially those in the left hypocondrium attached to the stomach wall. Imaging examinations are of great importance in the differential diagnosis and despite the low incidence of ectopic liver radiologist should be aware of this entity.

TANKA, M.; KRISTO, A. & LEKA, N. Tejido hepático ectópico en el hipocondrio izquierdo: reporte de un caso y revisión de la literatura. *Int. J. Morphol.*, 38(1):35-37, 2020.

RESUMEN: El tejido hepático ectópico es una rara anomalía del desarrollo. A menudo es asintomático y generalmente se encuentra de manera incidental, durante la cirugía o la autopsia. Se ha informado en varios sitios abdominales y extraabdominales, con mayor frecuencia en la vesícula biliar. Reportamos el caso de una masa encontrada en la región subdiafragmática izquierda, diagnosticada como hígado ectópico en la TC abdominal e intraoperatoriamente. Nuestro objetivo fue evaluar la importancia de los exámenes por imágenes en el diagnóstico diferencial de masas intraabdominales que incluyen masas benignas como también malignas, y señalar que a pesar de la baja incidencia de hígado ectópico, es necesario tener en cuenta esta posibilidad en el diagnóstico.

PALABRAS CLAVE: Hígado ectópico; Hipocondrio izquierdo; TC abdominal.

REFERENCES

- Acar, T.; Taçyıldız, R. & Karakayali, S. Ectopic liver tissue attached to the gallbladder. *Acta Chir. Belg.*, 102(3):210-1, 2002.
- Arakawa, M.; Kimura, Y.; Sakata, K.; Kubo, Y.; Fukushima, T. & Okuda, K. Propensity of ectopic liver to hepatocarcinogenesis: case reports and a review of the literature. *Hepatology*, 29(1):57-61, 1999.
- Bal, A.; Yilmaz, S.; Yavas, B. D.; Ozdemir, C.; Ozsoy, M.; Akici, M.; Kalkan, M.; Ersen, O.; Saripinar, B. & Arikan, Y. A rare condition: Ectopic liver tissue with its unique blood supply encountered during laparoscopic cholecystectomy. *Int. J. Surg. Case Rep.*, 9:47-50, 2015.
- Barazza, G.; Adler, D. G. & Factor, R. E. An unexpected diagnosis of ectopic liver diagnosed by fine needle aspiration. *Cytojournal*, 13:29, 2016.
- Catani, M.; De Milito, R.; Romagnoli, F.; Mingazzini, P.; Silvestri, V.; Usai, V.; Romeo, V. & Modini, C. Ectopic liver nodules: a rare finding during cholecystectomy. *G. Chir.*, 32(5):255-8, 2011.
- Caygill, C. P. & Gatenby, P. A. Ectopic liver and hepatocarcinogenesis. *Eur. J. Gastroenterol. Hepatol.*, 16(8):727-9, 2004.
- Chen, Y. Y.; Huang, T. W.; Chang, H.; Hsu, H. H. & Lee, S. C. Intrathoracic caudate lobe of the liver: a case report and literature review. *World J. Gastroenterol.*, 20(17):5147-52, 2014.
- Collan, Y.; Hakkiluoto, A. & Hästbacka, J. Ectopic liver. *Ann. Chir. Gynaecol.*, 67(1):27-9, 1978.
- Hamilton, W. J.; Mossman, H. W. & Boyd, J. D. *Hamilton, Boyd and Mossman's human embryology : prenatal development of form and function*. 4th ed. London, Macmillan Press, 1972. pp.291-376.
- Hashimoto, M.; Oomachi, K. & Watarai, J. Accessory lobe of the liver mimicking a mass in the left adrenal gland. A case report. *Acta Radiol.*, 38(2):309-10, 1997.
- Huang, W.; Xu, X.; Li, T.; Zhang, H.; Chen, Y. & Li, S. Ectopic liver tissue in stomach paries: a case report. *Int. J. Clin. Exp. Pathol.*, 8(9):11704-7, 2015.
- Karaca, G.; Özden, H.; Pehlivanlı, F.; Pekcici, M. R. & Yıldırım, Y. Ectopic liver tissue on the gallbladder: an incidental mass in laparoscopy. *Arch. Iran. Med.*, 19(1):78-9, 2016.
- Lara-Díaz, V. J.; Garza-Bulnes, R.; Garza-Garza, R. & Durand, M. Ectopic liver within the umbilical cord in a very preterm infant from a multiple gestation. *Pediatr. Dev. Pathol.*, 14(5):422-5, 2011.
- Li, Z.; Wu, X.; Wen, T.; Li, C. & Peng, W. Multiple ectopic hepatocellular carcinomas in the pancreas: A case report. *Medicine (Baltimore)*, 96(30):e6747, 2017.
- Lin, Y. M.; Chiu, N. C.; Li, A. F.; Liu, C. A.; Chou, Y. H. & Chiou, Y. Y. Unusual gastric tumors and tumor-like lesions: Radiological with pathological correlation and literature review. *World J. Gastroenterol.*, 23(14):2493-504, 2017.
- Martinez, C. A.; de Resende, H. C. Jr.; Rodrigues, M. R.; Sato, D. T.; Brunialti, C. V. & Palma, R. T. Gallbladder-associated ectopic liver: A rare finding during a laparoscopic cholecystectomy. *Int. J. Surg. Case Rep.*, 4(3):312-5, 2013.
- Merve, A. & Scheimberg, I. Ectopic liver tissue in the kidney: case report and literature review. *Pediatr. Dev. Pathol.*, 17(5):382-5, 2014.
- Morris, M. W. Jr.; Helling, T. S.; Creswell, L. L.; Jordan, B. & Mitchell, M. E. Ectopic liver masquerading as a floating intracaval mass. *J. Vasc. Surg.*, 55(6):1759-61, 2012.
- Rafiei, P.; Sebastian, S.; Patel, R. B. & Roda, M. S. Ectopic intracaval liver. *Clin. Imaging*, 36(6):869-72, 2012.
- Sakarya, A.; Erhan, Y.; Aydede, H.; Kara, E.; Ilkgül, O. & Ciftdogan, C. Ectopic liver (choristoma) associated with the gallbladder encountered during laparoscopic cholecystectomy: a case report. *Surg. Endosc.*, 16(7):1106, 2002.
- Tejada, E. & Danielson, C. Ectopic or heterotopic liver (choristoma) associated with the gallbladder. *Arch. Pathol. Lab. Med.*, 113(8):950-2, 1989.
- Vaideswar, P.; Yewatkar, D.; Nanavati, R. & Bhuiyan, P. Ectopic liver tissue in umbilical cord. *J. Postgrad. Med.*, 57(3):229-30, 2011.
- Watanabe, M.; Matsura, T.; Takatori, Y.; Ueki, K.; Kobatake, T.; Hidaka, M.; Hirakawa, H.; Fukukmoto, S. & Shimada, Y. Five cases of ectopic liver and a case of accessory lobe of the liver. *Endoscopy*, 21(1):39-42, 1989.
- Yahya, A. I.; Ehtewish, M. & Endash, S. Choristoma (heterotopic liver is it of concern). *Ann. Surg. Perioper. Care*, 1(1):1005, 2016.
- Zonca, P.; Martinek, L.; Ihnat, P. & Fleege, J. Ectopic liver: different manifestations, one solution. *World J. Gastroenterol.*, 19(38):6485-9, 2013.

Corresponding author:
Anila Kristo
Department of Morphology
Faculty of Medicine
University of Medicine
Tirana
ALBANIA

Email: anilashukaus@yahoo.com

Received: 17-07-2019
Accepted: 20-08-2019