Multidetector Computed Tomography for Evaluation of Accessory Liver Lobe: Case Report

Aksesuar Karaciğer Lobu Değerlendirilmesinde Çok Kesitli Bilgisayarlı Tomografi

Melike Ruşen METİN,[a]
Nurdan ÇAY,[b]
Evrim ÖZMEN,[a]
Hüseyin ÇETİN,[a]
Mustafa KARAOĞLANOĞLU[a]

[a]Clinic of Radiology,
Atatürk Training and Research Hospital,
[b]Department of Radiology,
Yıldırım Beyazıt University
Faculty of Medicine, Ankara

Geliş Tarihi/*Received:* 07.07.2013
Kabul Tarihi/*Accepted:* 28.10.2013

Yazışma Adresi/*Correspondence:*
Nurdan CAY
Yıldırım Beyazıt University
Faculty of Medicine,
Clinic of Radiology, Ankara,
TÜRKİYE/TURKEY
nurdancay@yahoo.com

ABSTRACT Anomalies of hepatic morphology are rare unlike the anatomical variations. They are usually asymptomatic and are found incidentally at surgery or autopsy. In etiopathogenesis, the ectopic liver tissue was believed to be an incomplete atrophy or it could be a result of regression of liver lobes during embryologic development. Multidetector computed tomography (MDCT) with multiplanar reconstruction is useful in determining parenchymal structure and size of accessory lobe, exclusion of malignancy, patency of the venous system, variant hepatic arterial anatomy, accessory hepatic veins. Here in we presented an accessory hepatic lob case mimicking an intraabdominal mass in terms of the MDCT images.

Key Words: Liver; multidetector computed tomography

ÖZET Çoğu anatomik varyasyonların aksine hepatik şekil anormallikleri nadirdir.Genellikle asemptomatik olurlar ve tesadüfen cerrahi ya da otopsi sırasında saptanırlar. Etyopatogenezinde ektopik karaciğer dokusunun tamamlanmamış atrofik olduğu ya da embriyolojik gelişim sırasında karaciğer loblarında regresyonun sonucu geliştiği düşünülür. Çok kesitli bilgisayarlı tomografi (ÇKBT) ile birlikte multiplanar rekonstrüksiyon aksesuar lobun boyutu ve parankimal yapısını tanımlamada, malignite dışlamada, venöz sistem devamlılığı, hepatik arter anatomik varyantları ve aksesuar hepatik venleri göstermede yararlıdır. Biz bu yazıda intraabdominal kitleyi taklit eden aksesuar hepatik lobun incelenmesinde ÇKBT'nin önemini vurgulamak istedik.

Anahtar Kelimeler: Karaciğer; çok kesitli bilgisayarlı tomografi

Turkiye Klinikleri J Gastroenterohepatol 2013;20(2):71-3

The incidence of an accessory hepatic lobe is rare.[1] They are usually asymptomatic and are found incidentally at surgery or autopsy.[2] Occasionally, accessory lobe of the liver may present with diagnostic problems, but there were relatively few reports of this anomaly in the radiological literature. Although surgery is often unnecessary for this condition, the reported cases were almost always undergone to accessory lobectomy since it could be misdiagnosed.[3] Multiplanar reconstruction (MPR) and three-dimensional (3D) and maximum intensity projections (MIPs) created by MDCT may help to make the diagnosis before the histological confirmation.[4,5]

CASE REPORT

A 69-year-old man complaining of abdominal bloating, nausea and vomiting especially after eating with a history of 10 days was admitted to our hospital. There was not any known systemic disease or operation history.

Laboratory examinations revealed decrease of platelet ($88x10^3$/dl) and decrease of albumin levels (2.9 g/dl). Hepatitis B surface antigen and hepatitis C antibody were negative.

Ultrasonography showed splenomegaly that measured approximately 150 mm in its long axis and irregular contour of the liver. The diameters of the splenic and portal vein were normal. There was free fluid in the areas of perihepatic, perisplenic, between the intestinal segments and pelvis.

Conventional computed tomography (CT) revealed a 74x73 mm mass draining to the portal venous system between the upper part of the spleen and posterior gastric corpus. Density of the mass was hypointense to the splenic parenchyma.

Abdominal MDCT was performed to the patient for characterization of the mass mentioned above. MDCT examination demonstrated that the mass seen in subdiaphragmatic place at the upper quadrant was a hepatic segment since it had hepatic vascularization (Figure 1). The hepatic segment was connected to the right lobe of liver by a thin parenchymal band with an 8.5 mm diameter. The described findings were evaluated as chronic liver disease and accessory liver lobe. Besides, there were some hyperintense millimetric regeneration nodules in liver and in accessory liver lobe which was enhanced with contrast material at the arterial phase and was continuing to keep the contrast at the venous phase.

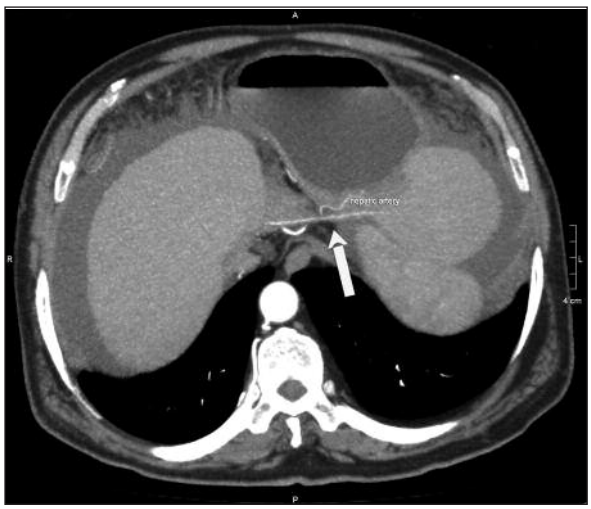

FIGURE 1: MDCT examination demonstrates the hepatic vascularization of the the mass seen in subdiaphragmatic place at the left upper quadrant.

DISCUSSION

Anomalies of hepatic morphology are rare unlike the anatomical variations. In etiopathogenesis, the ectopic liver tissue was believed to be an incomplete atrophy or it could be a result of regression of liver lobes during embryologic development. These accessory lobes could be attached to the liver by parenchyma or by a mesenteric band. In attachment by a mesenteric band it contains hepatic artery, hepatic vein, portal vein and a bile duct in order to function.[6]

The importance of this entity is that it could be misdiagnosed as an intra-abdominal mass. It can be presented with acute abdominally pain secondary to pedicular torsion resulting in necrosis. Bleeding, malignant degeneration and trauma are also described.[7]

Radiological examinations are crucial for the diagnosis of an accessory liver lobe. Plain films of the abdomen are not helpful. CT/Magnetic resonance imaging of the abdomen and ultrasonography may or may not show a separate mass. Both hepatic angiography and HIDA imaging depend on free flow of blood tissues.[8] In torsions of the liver, the hepatic vasculature may be pressed and therefore neither angiography nor HIDA can demonstrate viable tissue. However, the lack of visualization might indicate an infarction.[9]

Positron emission tomography (PET) could be a useful technique in measuring regional blood flow, perfusion, metabolic and tissue metabolism. The F2DG could be valuable in locating and characterizing liver metabolism based on an increase in 18 F2DG.[10]

A review of all the previous cases suggests that radiologic examinations are usually inadequate to make the preoperative diagnosis and accessory lobe of the liver is usually diagnosed by laparotomy or laparoscopy with histologic comfirmation.[10]

Finally, MDCT is useful in determining clinically relevant information including parenchymal structure and size of accessory lobe, exclusion of malignancy, patency of the venous system, variant hepatic arterial anatomy, and accessory hepatic veins.[11]

In this case, the lesion seemed as an abdominal mass located in the left upper quadrant. The MPR and MIP images (Figure 2) showed a mass located left subdiaphragmatic region and connected to the 4th segment by a vascular pedicle arising from the porta hepatis. These findings made us to think the accessory liver lobe in differential diagnosis and the diagnosis was confirmed by demonstrating the hepatic artery, hepatic vein and portal vein of accessory liver lobe with MDCT.

In conclusion, the radiologist should be aware of this entity before reporting a liver mass. Although the radiologic imaging techniques are not adequate all the time, multiplanar reconstructions created by modalities such as MDCT can be pathfinder for clinicians before planning an operation.

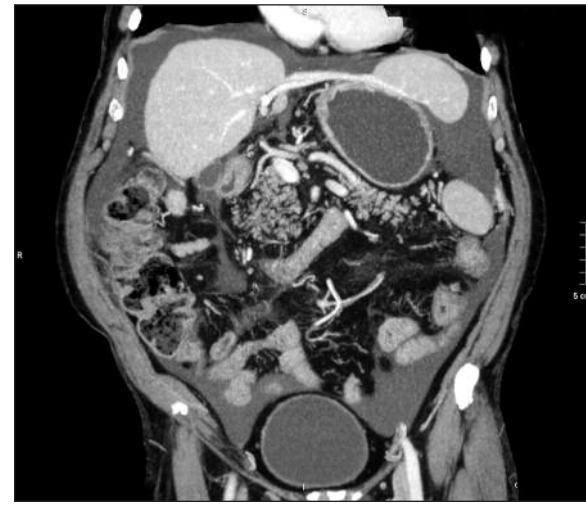

FIGURE 2: The coronal MPR image showing a mass located at the left subdiaphragmatic region and connected to the liver by a vascular pedicle arising from the porta hepatis.

REFERENCES

1. Parke WW, Settles HE, Bunger PC, Van Demark RE. Malformations of the liver: some prenatal and postnatal developmental aspects. Clin Anat 1996;9(5):309-16.
2. Cullen TS. Accessory lobes of the liver: an accessory hepatic lobe springing from the surface of the gallbladder. Arch Surg 1925;11(5): 718-64.
3. Wang Y, Junlin L, Zhang WG, Chen JH, He Y, Chen JM. Accessory lobe of right liver mimicking a pulmonary tumor in an adult male. Ann Thorac Surg 2010;89(2):e9-e10.
4. Massaro M, Valencia MP, Guzman M, Mejia J. Accessory hepatic lobe mimicking an intra-abdominal tumor. J Comput Assist Tomogr 2007;31(4):572-3.
5. Mihmanlı İ, Olgun DÇ, Kantarcı F, Öğüt G. [Radiological approach to liver masses]. Turkiye Klinikleri J Int Med Sci 2007;3(34):42-8.
6. Fraser CG. Accessory lobes of the liver. Ann Surg 1952;135(1):127-9.
7. Garba ES, Ameh EA. Isolated rupture of an accessory liver from blunt abdominal trauma in childhood. Pediatr Surg Int 2002;18(1):62-3.
8. Flannigan BD, Gomes AS, Stambuk EC, Lois JF, Pais SO. Intra-arterial digital subtraction angiography: comparison with conventional hepatic arteriography. Radiology 1983;148(1): 17-21.
9. Hashimoto M, Oomachi K, Watarai J. Accessory lobe of the liver mimicking a mass in the left adrenal gland. A case report. Acta Radiol 1997;38(2):309-10.
10. Khan AM, Hundal R, Manzoor K, Dhuper S, Korsten MA. Accessory liver lobes: a diagnostic and therapeutic challenge of their torsions. Scand J Gastroenterol 2006;41(2): 125-30.
11. Smith PA, Klein AS, Heath DG, Chavin K, Fishman EK. Dual-phase spiral CT angiography with volumetric 3D rendering for preoperative liver transplant evaluation: preliminary observations. J Comput Assist Tomogr 1998; 22(6):868-74.