Liver hamartoma causing painless abdominal distention and failure to thrive

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Section: Paediatric radiology
Area of Interest: Liver
Procedure: Diagnostic procedure
Imaging Technique: MR
Imaging Technique: Ultrasound
Imaging Technique: CT
Special Focus: Neoplasia Case Type: Clinical Cases
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Patient: 14 months, male

Clinical History:

A 14-month-old boy (born at term) was referred to our hospital with failure to thrive and hepatomegaly but no other relevant findings on physical examination. High liver enzymes (AST and ALT) and moderate elevation of serum AFP (300 ng/ml) were found.

Imaging Findings:

Abdominal ultrasound showed a 12x7x5 cm well-defined echogenic hypovascular mass in the left liver lobe, alternating solid with cystic components. Abdominal CT showed a hypo-attenuating tumour in the surrounding liver, with faint enhancement and no calcification. MRI confirmed a well-defined complex mass hypointense in the liver on non-enhanced T1-weighted images with cystic serous areas on T2-weighted images, one with fluid level and haemorrhagic content. Vascular hepatic hilar structures were not involved and there was no lymphadenopathy. Hepatic resection confirmed a mesenchymal liver hamartoma.

Discussion:

Hepatic tumours include lesions that are unique to the paediatric age group, and are mostly malignant. Mesenchymal hamartoma, considered a developmental malformation is rare, but is the second most common benign hepatic tumour in younger children [1, 5]. Characteristic clinical presentation is a child younger than 2 years [1, 3] presenting with hepatomegaly and with mild elevation of serum AFP levels [4, 5]. The spectrum of features ranges from a multiseptated macrocystic mass to a solid mass [4]. The typical imaging appearance is of a large solitary well marginated hypovascular mass, and it can have predominantly cystic avascular areas or predominantly solid component with few small cysts [1].

In this age group hepatoblastoma is the main diagnostic differential. Difficulty in diagnosis results from overlap of serum AFP levels, similar imaging features and misleading biopsy results [1, 2]. Usually hepatoblastoma presents with marked elevation of serum AFP level and has a solid appearance with foci of calcifications and these features suggest the diagnosis [2]. Infantile haemangioendothelioma with myxoid change of the stroma can mimic also mesenchymal hamartoma but the enlarged vessels and the early intense peripheral nodular enhancement with centripetal fill-in are not seen in hamartoma and are typical of infantile haemangioendothelioma [1]. Undifferentiated Embryonal Sarcoma shares histopathologic and imaging features with hamartoma but is rare under the age of 5 years and has a unique appearance when imaging methods are combined; typically it is predominantly solid at
ultrasound and predominantly cystic at CT and MRI due to the high water content of myxoid stroma [2].

Surgery is mandatory and sometimes is the only way to solve the diagnosis [1]. Imaging can offer an appropriate differential diagnosis and can be helpful in planning the surgery. Combining imaging techniques is the rule, but nowadays MRI is advantageous compared to other imaging modalities for characterising soft tissue and delineating the overall anatomy, with the additional benefit of avoiding ionising radiation [4]. Tumour resection preserving the right liver lobe and hilar structures confirmed a mesenchymal liver hamartoma.

**Differential Diagnosis List:** Mesenchymal liver hamartoma, Hepatoblastoma, Infantile haemangioendothelioma with myxoid change

**Final Diagnosis:** Mesenchymal liver hamartoma

**References:**


Description: Abdominal ultrasound shows a complex hepatic mass in left liver. The mass measures 12x7.5 cm; it is well-defined echogenic hypovascular, predominantly solid with cystic components.

Origin: Hospital Pediátrico Coimbra, Department of Radiology, Centro Hospital e Universitário de Coimbra
**Description:** Enhanced abdominal CT shows the tumour with faint enhancement to surrounding liver.

**Origin:** Hospital Pediátrico de Coimbra, Department of radiology, Centro Hospitalar e Universitário de Coimbra, Coimbra, Portugal
Description: MRI confirmed a well defined complex mass hypointense to the liver on non-enhanced T1 weighted images (WI). It has cystic areas one with fluid level and haemorrhagic content. Origin: Department of Radiology
Description: MRI confirmed a well defined complex mass slightly hyperintense to the liver on non-enhanced T2 weighted images (WI) with cystic serous areas. Origin: Department of Radiology
Description: Coronal non-enhanced T2 weighted images (WI) shows a very large left lobe complex hepatic mass with cystic serous areas on T2 WI. Origin: Department of Radiology
Description: Vascular hepatic hylar structures were not involved and there was no lymphadenopathy in axial T2 fat supression weighted images. Origin: Department Radiology