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Case Report

Segment VIII-Dependent Intrathoracic Accessory Liver

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ABSTRACT

Abnormally positioned liver tissues are usually incidental findings diagnosed during imaging studies or surgical procedures. Most of the cases described are of congenital origin. We present a case corresponding to a 21-year-old young man with this entity.

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Introduction

Abnormally positioned liver tissues are of low prevalence and are usually incidental findings diagnosed during imaging studies or surgical procedures [1]. Typically, they are located in the abdominal cavity, close to the orthotopic liver, and a supradiaphragmatic location is extremely rare [2-6]. Although an acquired aetiology is considered a possibility, especially following trauma or surgery, most of the cases described are of congenital origin, associated with defects in transverse septum development [3, 6].

Case Report

We present the case of a 21-year-old patient with no relevant past history who presents to the emergency room with episodes of mild chest pressure during physical exertion. A diagnostic study is performed, with the significant finding of a space-occupying lesion in the right lower mediastinum on the chest X-ray. To clarify the diagnosis, a thoraco-abdominal CT with contrast is requested, revealing a mass at the level of the lower right mediastinum compatible with accessory liver tissue dependent on segment VIII. It is associated with the presence of a diaphragmatic defect in the right parasternal space (Figure 1).

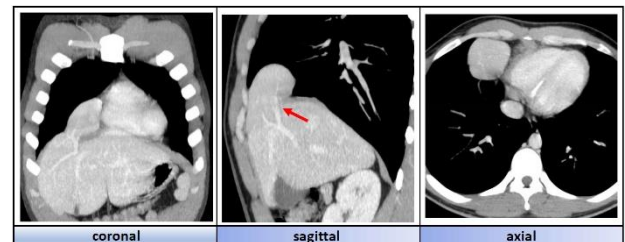


Figure 1: Tomography images of the different sectional planes in which we appreciate an intrathoracic accessory liver lobe dependant on segment VIII. Its vascular pedicle can be visualised (red arrow).

Given the patient's symptoms and the above-mentioned findings, a surgical procedure was proposed, using a laparoscopic approach. Firstly, the accessory hepatic lobe is reduced into the abdominal cavity (Figure 2). To achieve this, it is necessary to divide loose adhesions joining the heterotopic liver to the diaphragm (Figure 3). Subsequently a diaphragmatic defect measuring 50 x 33 mm could be visualised (Figure 3). A monofilament polypropylene mesh with an absorbable hydrogel barrier was used for the repair. This was attached to the surrounding diaphragm with non-absorbable polyester stitches and helical staples (Figure 4). The postoperative period was uneventful, and he was discharged 24 hours after the procedure. In the check-ups carried out over the following months, the patient felt fully recovered, leading a

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normal life and the symptoms prior to the intervention had disappeared. A control chest X-ray showed no hernia recurrence.

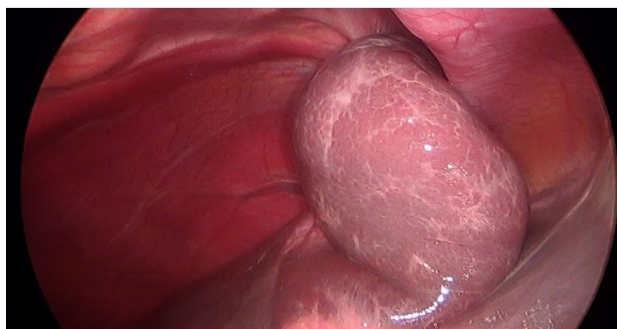


Figure 2: The heterotopic liver once reduced into the abdominal cavity.

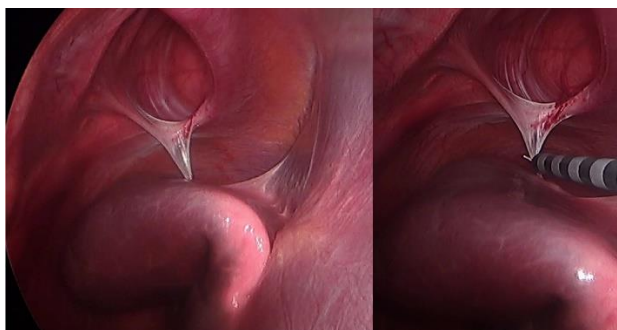


Figure 3: Soft adhesion joining the heterotopic liver to the diaphragm.

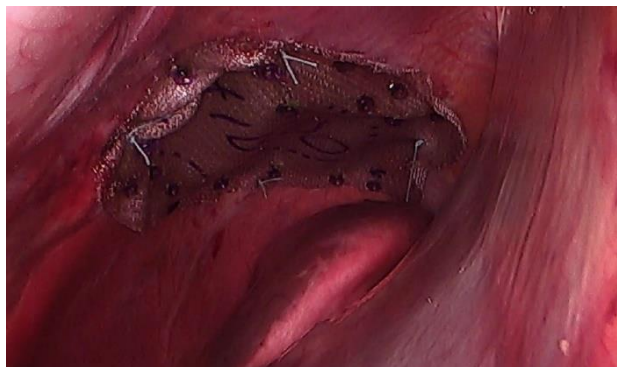


Figure 4: Polipropylene mesh attached to diaphragmatic ring.

Discussion

In terms of terminology, an accessory hepatic lobe is considered as one that is attached to the liver by at least one vascular pedicle. By comparison, an ectopic liver is one that is separated from the main liver without any connection to it [7]. With reference to these concepts, Mehmet *et al.* propose a classification of intra thoracic accessory liver tissue based upon its location and its relationship with the orthotopic liver, as set out below (Figure 5) [2]:

Type I: Direct extension of liver tissue into the thoracic cavity through a diaphragmatic defect. The case presented in this article corresponds to this type.

Type II: Accessory liver within the thoracic cavity connected to the orthotopic liver via a vascular pedicle that perforates the diaphragm or passes through one of its natural anatomical hiatuses.

Type III: Liver tissue in the thoracic cavity independent of the intra-abdominal liver (ectopic liver).

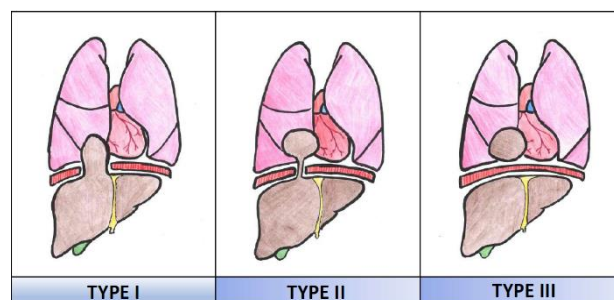


Figure 5: Intrathoracic accessory liver tissue classification. *Figure adapted from Adin ME *et al.* [2].

Although some cases have been associated with chest pain, dry cough or haemoptysis, it is accepted that the presence of liver tissue in the thoracic cavity rarely has a clinical impact [5, 8]. However, it can be prone to the same pathological events as the abdominal liver and there are even authors who suggest a greater probability of hepatocellular carcinoma, hepatitis or cirrhosis than in the same [2, 6]. Alternatively, the presence of a vascular pedicle can lead to the occurrence of ischaemic lesions due to its torsion, a condition previously described in intraabdominal accessory lobes [2, 9, 10]. Regarding the moment of diagnosis, most cases correspond to intraoperative findings during procedures performed for suspicion of a thoracic tumor of a different origin. [3, 5, 6]. However, thanks to radiological advances, more and more cases are being diagnosed preoperatively [1, 2]. Supradiaphragmatic liver tissue can mimic any space-occupying lesion found at this site, such as tumors, bronchopulmonary sequestration, or hydatid cysts [5, 6, 8]. For this reason, it is vitally important to choose the correct imaging technique, namely CT Angiography or MRI Angiography, to reach the correct diagnosis. With these imaging techniques, a mass will be detected with a radiological density similar to that of liver parenchyma and, if present, a vascular pedicle that connects it to the orthotopic liver will also be visible [2, 5].

Regarding treatment, given the scarcity of cases in the literature, it is difficult to establish a management protocol and hence treatment should be individualized in each case. Most authors recommend surgical resection to prevent complications, such as hepatic ischaemia caused by pedicle torsion or a malignant degeneration [1, 5, 6]. Although most cases reported in the literature were treated via the thoracic route, in our case we opted for a laparoscopic approach. This decision was based on the fact that the defect to be treated affected a liver segment easily accessible via this route. Similarly, surveillance without surgical treatment has been described and shown to result in a good clinical evolution. Although a more powerful imaging technique will be necessary for initial diagnosis, follow-up using ultrasound is a safe option [2].

In conclusion, we consider essential to integrate the presence of accessory liver tissue into the differential diagnosis of supradiaphragmatic lesions, in order to facilitate a correct therapeutic approach. The decision between the options of vigilance or surgery, with or without liver resection, should be individually based according to the criteria of anatomy, clinical symptoms, surgical risk, and the probability of developing complications.

Conflicts of Interest

None.

Funding

None.

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