

Case Report

Ectopic liver tissue in stomach paries: a case report

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Abstract: Ectopic liver (EL) tissue is a rare entity which is reported to occur in several organs such as the gallbladder, pancreas and some other places. The EL tissue is usually detected incidentally during laparoscopy or autopsy, and several potential mechanisms may explain the development of liver ectopia. Although ectopic liver tissue is usually asymptomatic, it develops the same pathologic conditions as orthotopic liver. Although incidental ectopic livers rarely existing and do not have clinical importance, they should be looked for during electron microscope scan and histopathological examination should be carried out to rule out pathological changes since development of hepatocellular carcinoma is a possible issue. In this article, we presented an EL tissue in stomach of which only two cases were reported previously and this is the first reported case of a laparoscopically treated EL which lies to the bottom submucosal of the stomach. It would seem sensible to resect the ectopic tissue under endoscopic and the patient was well when seen for follow-up three months later.

Keywords: Ectopic liver tissue, stomach, resect the ectopic tissue

Introduction

Ectopic livers have been reported to be rare developmental errors which may be found incidentally during laparoscopy, laparotomy or autopsy [1, 2]. One reason they can hardly be found is that they are usually small in diameter, and do not generally cause a clinical problem [2, 3]. On the other hand, the ectopic livers and the accessory liver lobes are of big difference that the EL lacks connection between mother liver and ectopic liver [3]. In this article the case is reported of an incidental ectopic liver mass in stomach, and preoperative diagnosis suggested that it was a gastrointestinal stromal tumor. Laparoscopic resection was performed, and the final pathologic result confirmed that it was an EL. The patient's postoperative course was unremarkable and laparoscopic resection was found to be safe and reliable in this case. The EL in stomach has been described just two cases previously and this is the first reported case of a laparoscopically treated EL which lies to the bottom submucosal of the stomach.

Case presentation

A 44-year-old woman with a 2-month history of abdominal pain and an episode of the bottom of the stomach neoplasm (**Figure 1**) was suggested for surgery. A previous abdominal ultrasound scan showed chronic cholecystitis without evidence of the stomach placeholder. The patient underwent mass resection under the electron microscope. During the operation, a smooth fragment of reddish-brown tissue was seen under the mucosal of the stomach. The mass was removed under the endoscopic observation. Macroscopic examination showed a soft and well-circumscribed tissue mass measured 3 mm × 2 mm × 1 mm. On section, the tumor is grey or yellow to brown. The microscopic examination confirmed that it has histological similarity as those of normal liver proper, including regular lobules, a central vein, and normal portal spaces (**Figure 2**). Hepatocyte staining shows the cytoplasm of the hepatocytes are positive (**Figure 3**), CK7 staining shows the normal liver bile duct (**Figure 4**) and PAS staining shows intracellular Glycogen (**Figure 5**) and sil-

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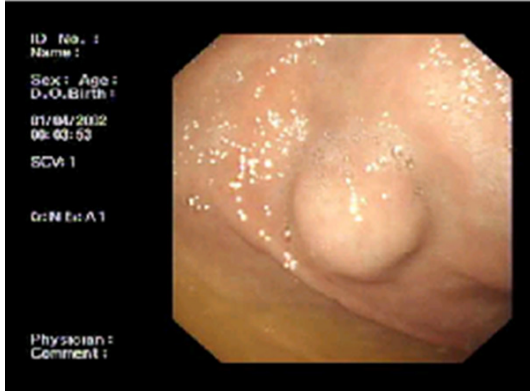


Figure 1. Endoscopic scan showing a soft tissue mass under the mucosa of the stomach.

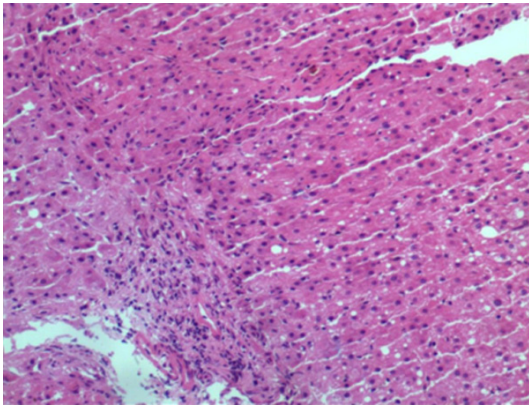


Figure 2. Microscopic examination revealing the arrangement similar to normal liver proper.

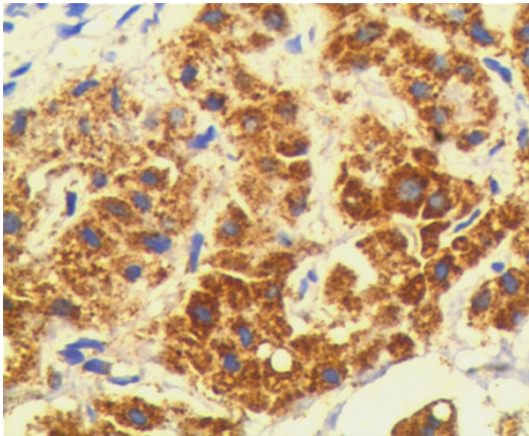


Figure 3. Hepatocyte staining showing the cytoplasm of the hepatocytes positively.

ver staining displays the structure of liver plate in the EL tissue (**Figure 6**). The patient had an uneventful postoperative course and was dis-

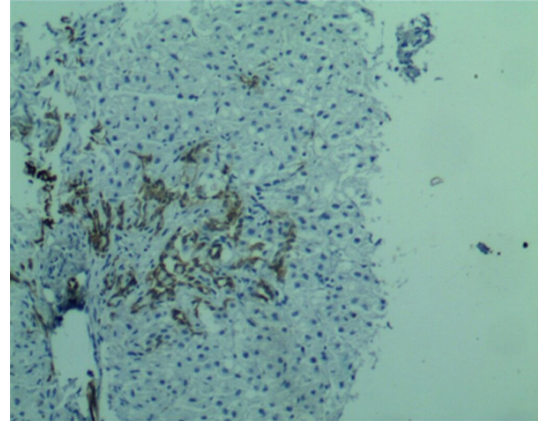


Figure 4. CK7 staining showing the bile duct in portal area.

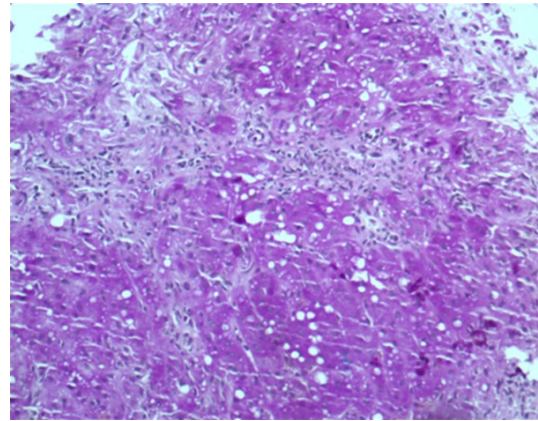


Figure 5. PAS staining showing Glycogen in cytoplasm of the hepatocytes.

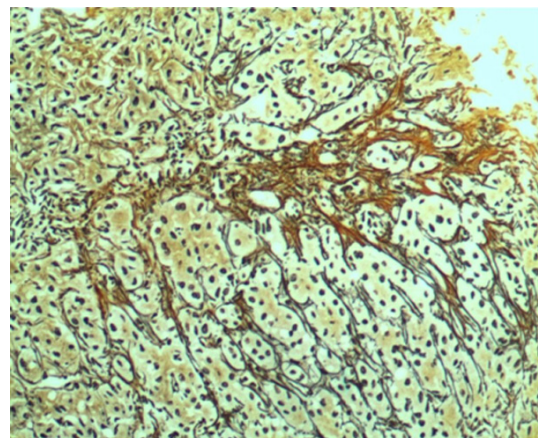


Figure 6. Silver staining displaying the framework of the hepatocytes.

charged post operation. She recovered when seen for follow-up three months later.

Discussion

Ectopic livers are rarely seen intra-abdominal lesions. In 1940, in a review of 5500 autopsies, only 0.05% had EL [4]. EL reported in stomach just two cases before and both have developed into hepatocellular carcinoma [5, 6].

EL has no connection to the main liver and the liver develops from an endodermal bud from the most caudal part of the foregut around the fourth week of gestation. There are several theories proposed to explain the occurrence of ectopic liver at different sites: the development of an accessory hepatic lobe that has lost its connection to the main liver [7]; migration or displacement of a portion of the cranial part of the liver bud to other sites [8]; dorsal budding of hepatic tissue before closing of the pleuro-peritoneal canals [9]; trapping of hepatocyte-destined mesenchyme in different areas [10], or entrapment of nests of cells in the region of the foregut following closure of the diaphragm [11].

Due to the small size of most ELs, the lack of awareness of this unusual condition among radiologists, difficulty interpreting the image and the frequent lack of symptoms, it is difficult to detect EL tissue before surgical intervention or autopsies. Occasionally, ectopic liver may cause clinical symptoms like abdominal pain due to recurrent torsion, compression of adjacent organs, intraperitoneal bleeding, and obstruction of the esophagus or the portal vein but usually, these symptoms remain silent [12-14]. All above told us that the diagnosis should be considered when a soft-tissue mass is seen to arise from the stomach on gastric endoscopic scan.

The ectopic liver has been associated with malignancies more often than with benign lesions. Many authors have pointed out that ectopic liver tissue is more predisposed to malignancy than normal liver tissue [15]. Ectopic livers have completely functional architecture, but may be metabolically handicapped; this may facilitate carcinogenesis. Ectopic liver tissue also has increased neoplastic potential compared to orthotopic liver tissue. This may have given rise to the hypothesis that ectopic livers are particularly predisposed to the development of hepatocellular cancer. Arakawa et al [16] found that ectopic tissue is more suscep-

tible to the development of malignancy because it does not have a complete vasculature or ductal system like a normal liver, and is perhaps functionally impaired. This altered hepatic function may lead to chronic inflammation or cirrhosis, which increases the possibility of developing HCC. Though the possible presence of steatosis and areas of malignant transformation, we could not find any evidence of malignant degeneration in the patient in this report. The histopathological examination confirms the EL tissue is similar to the normal liver which includes portal areas and a central vein. Resection of the EL with the submucosal is necessary since the perceived risk of malignant degeneration in EL exist.

In conclusion, ectopic liver tissues in stomach are very rare and they should be looked for during gastric biopsy. Microscopic examination should be carried out to rule out pathological changes since development of hepatocellular carcinoma is a possible issue. It seems sensible to resect the ectopic tissue, the patient have not had uncomfortable postoperation and follow-up is necessary.

Disclosure of conflict of interest

None.

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