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Case of Mature Cystic Teratoma of Liver

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Abstract: ***Teratomas are nonseminomatous germ cell tumors that arise from abnormal development of pluripotent and embryonal germ cells[1]. There are very limited cases of hepatic teratoma in the literature documented as for now. In that limited number the number of adult cases are still less. Hepatic teratoma are most commonly seen in females in their first decade. Hepatic teratomas are most commonly located in the right lobe of liver. In this case we present a 45 year old female undergoing CT scan for chronic epigastric pain under investigation. The pathogenesis, the modalities used in diagnosis are discussed under.***

1. Introduction

Teratomas are defined as congenital neoplasms which arise from ectopic pleuripotentgerm cells due to faulty migration during embryogenesis and contains components of all three germ cell layers. They occur most commonly in ovaries or testis.

During fetal development germ cells follow a midline path along the urogenital ridge and descend into the pelvis as ovarian or testicular cells, hence their common midline and paramedian locations. During the first week of life, the failure of germ cells to migrate along this path and into the pelvis leads to teratomas developing in extragonadal locations [3,4] . Liver is an extremely rare site for teratoma, constituting less than 1% of all teratomas[5].

Teratomas have distinct morphological and radiological characteristics which makes the identification easy. However definitive diagnosis is made by histopathological study.

2. Case Report

A 45-year-old obese female presents to the emergency room after experiencing epigastric pain which is dull, intermittent, chronic pain which is not relived by proton pump inhibitors an muscle relaxants.

Her past medical history is not significant. She is not under any treatment for longterm ailments.

On physical examination she was afebrile with mild hypertension. Her abdomen was soft, non-distended, with fullness and mild tenderness to palpation in the epigastric region.

The patient is taken up for diagnostic workup for chronic epigastric pain, subsequently underwent USG, CT scan of the abdomen and pelviswith oral and intravenous contrast to evaluate abdominal pain.

In USG there is a well defined hypoechoic lesion with evidence of echogenic foci with post acoustic shadow and minimal peripheral vascularity noted in segment VIII of right lobe of liver.

In CT there is a well-defined non-enhancing hypodense lesion with evidence of calcification foci with 1000 Hounsfield units (HU) density lesions in it and with few fat density areas noted in it involving segment VIII within the right lobe of liver measuring (4.1x4.6x4.9)cm^3 (APxMLxSI) dimensions, respectively. The lesion had a thin peripheral rim.

A diagnosis of primary dermoid in the liver was made. She was admitted to the hospital at this time for further workup of the liver lesion. Ultrasound guided biopsy was taken from the lesion and the final histopathological diagnosis was mature cystic teratoma of liver.

3. Discussion

The name Teratoma is derived from the Greek word “teratos” which literally means “monster”. The ending “-oma” denotes a neoplasm.

Teratomas develop from pleuripotent germ cells which are not native to the organ in which they are found.

There are three different theories for formation of teratomas The first theory, which is most commonly cited in the literature, suggests that primary dermoids originate from displaced germ cells that arrested along the migration path from the allantois hingut to the gonads during the first week of life. The second theory suggests that they develop from supernumerary ovaries. Lastly, they are theorized to be secondary to auto-implantation of an ovarian dermoid and reimplantation of it into an extragonadal site.

Dermoid and teratomas are used synonymously vise versa in daily medical practice. As per literature dermoid is a type of teratoma which contains ectodermal tissue components predominantly like skin, sebaceous material, hair and teeth[2].

Types of teratomas[7] include mature cystic type, immature cystic type, mondermal type. Mature cystic type is benign cystic predominantly though can underego malignant transformation. Immature teratoma is malignant, predominantly solid in nature which shows immature embryonal components in histopathological tests. Monodermal contain only the components derived from single germ cell layer.

They are most commonly seen in gonads of males and females but can also be seen in mediastinum, retroperitoneum, intracranial, sacro-coccygeal region, liver.Liver is an extremely rare site for teratoma, constituting less than 1% of all teratomas[2].

Most hepatic teratomas are encountered in patients less than 3 years of age. In pediatric patients, teratomas account for

less than 1% of all hepatic neoplasms [5].in this case the patient is 40 year old.
Hepatic teratomas have been reported more commonly in female patients and involve right lobe of liver in many cases [4] which is same in this case.

The majority of mature cystic teratomas are asymptomatic unless obstructive symptoms develop and, hence, are usually found incidentally on CT scan.in this case our patient presented with vague complaints of epigastric pain since 6 months which is dull, intermittent in type not relieved on taking proton pump inhibitors and smooth muscle relaxants. There are no symptoms of obstruction like jaundice in our patient.

Ultrasonography (USG) of teratoma shows hypo- or anechoic component representing cystic portion and hyperechoic foci denoting calcifications or macroscopic fat[8]. Fat-fluid levels, due to presence of sebum, are considered pathognomonic of teratoma . In CT the lesion presents as hypodense lesion representing cystic component with hyperdense foci with HU of teeth and bone that is 1000 HU and few fat density lesions.

Though rare complications include torsion, rupture further causing peritonitis, communication with biliary system causing jaundice like symptoms and the most dreaded complication is malignant transformation mostly into squamous cell carcinoma. [1,2,7]

CT characterizes teratomas in a unique manner but histopathological diagnosis is the final diagnosis. If better characterization of soft tissue is needed MRI can be advised[9]

4. Cases

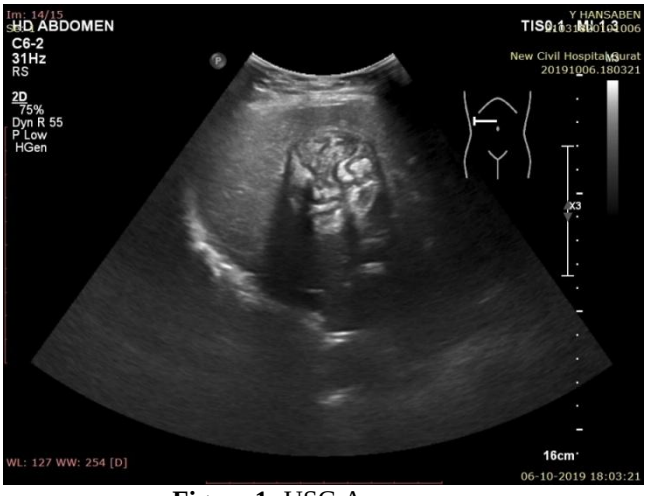

Figure 1: USG Appearance

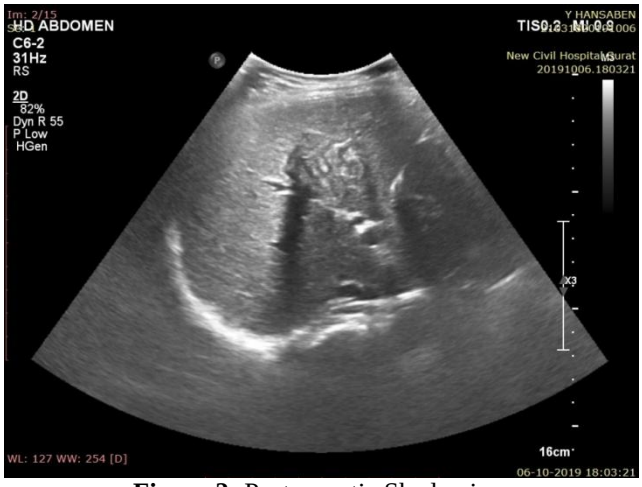

Figure 2: Postacoustic Shadowing

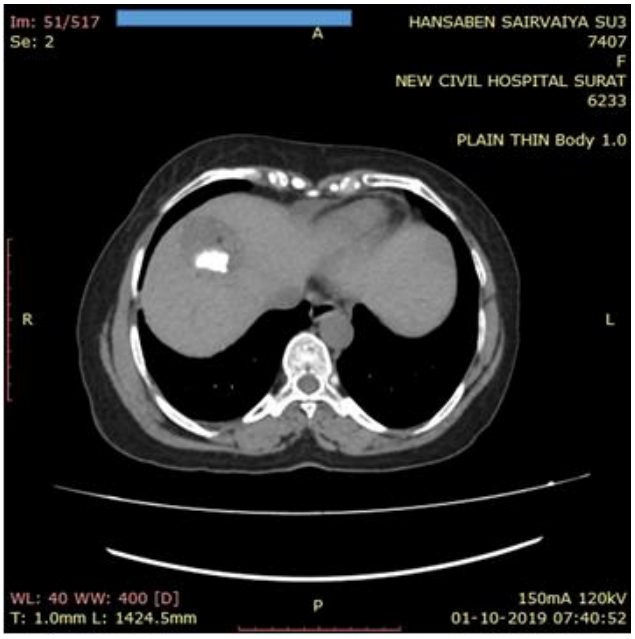

Figure 3: Plain CT

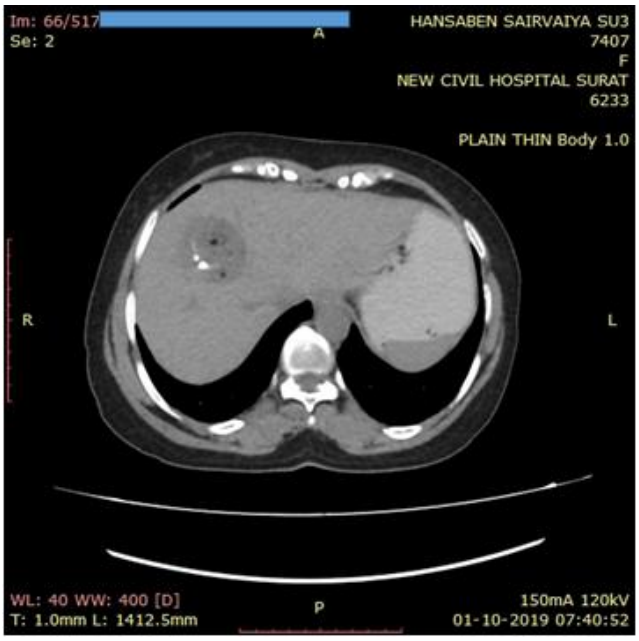

Figure 4: Plain CT

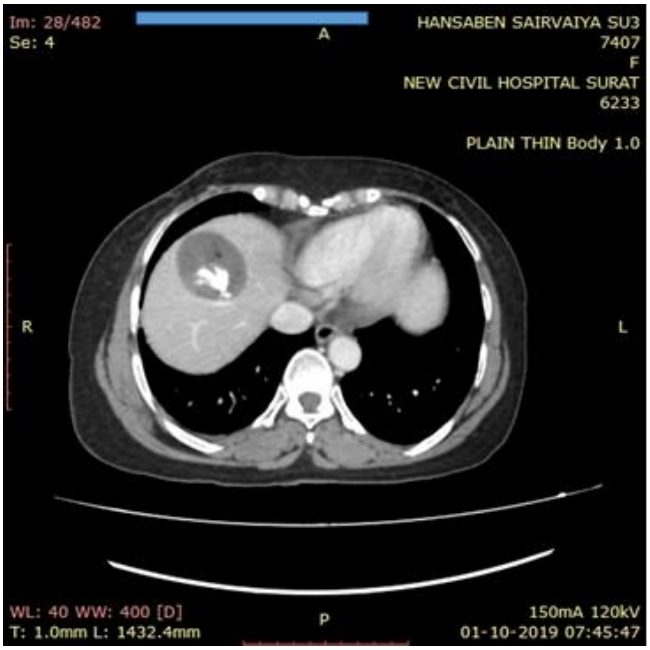

Figure 5: Arterial Phase

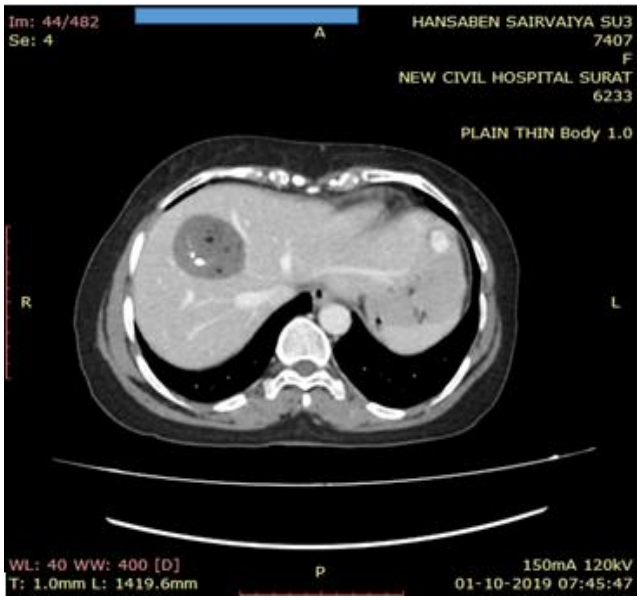

Figure 6: Venous Phase

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