An Unusual Morphology of the Human Liver – A Case Report
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Abstract:
Introduction: The liver is the largest abdominal viscera, occupying a substantial portion of the upper abdominal cavity. Knowledge of normal & an unusual morphology is required for accurate diagnosis. Aim: To enlighten an unusual morphology of the human liver its pathology reports. Materials & methods: During routine dissection in the Department of Anatomy, Shimoga Institute of Medical Sciences, Shimoga, we got a specimen of liver with an unusual morphology. Results: on gross examination of liver- Left lobe was represented by a tongue like projection. Surface is nodular. Posteroinferior surface shows tumourous protrusion Absence of quadrate lobe. Microscopy shows- fatty change, features of early cirrhosis. Rest of details will be discussed at presentation. Conclusion: Our case report may be a guide for radiologists for proper interpretations of liver images. It is also important for the surgeons to know about unusual morphology of liver for their easy diagnosis and management purposes.

1. INTRODUCTION

The liver is a wedge shaped organ and is the largest gland in the human body. Anatomically it is divided into right, left, caudate and quadrate lobes based on the attachments of its peritoneal ligaments.1

The congenital abnormalities of human liver are rare 1 and these are rarer than almost any organ in the body 2. Congenital abnormalities of the liver like agenesis of its lobes, absence of its segments, deformed lobes, decrease in the size of the lobes, lobar atrophy, hypoplastic lobes, and transposition of the gall bladder and Riedel’s lobe have been reported by various authors. In patients with liver cancer, resection of a primary or metastatic tumour is viable method of treatment. It is very important to know the segmentation of the liver for surgeons. Using the Couinaud nomenclature, the liver is divided into eight segments. The caudate lobe alone represents segment I. Segment II is the superior portion of lateral segment of the left hepatic lobe. Segment III is the inferior portion of lateral segment of the left hepatic lobe. Segment IV occupies the entire medial segment of the left hepatic lobe. Segment V is the inferior portion of the anterior segment of the right hepatic lobe. Segment VI is the inferior portion of the posterior segment of the right hepatic lobe. Segment VII is the superior portion of the posterior segment of the right hepatic lobe. Segment VIII is the superior portion of anterior segment [3]. During surgery, to know the differentiation of these segments is very important.

In the present study, we report a case of hypoplasia of the left lobe of the liver in a cadaver during routine cadaveric dissections for undergraduate medical students in the Department of Anatomy, Shimoga Institute of Medical Sciences, Shimoga, and Karnataka.

2. CASE REPORT

During routine dissection for undergraduate medical students in the Department of Anatomy, Shimoga Institute of Medical sciences Shimoga , we found a specimen of liver unusual morphology in an adult male cadaver of about age 55yrs.
The dissection of the abdomen was carried out according to the description & guidance by C J Romanes, Cunningham’s manual. Prior to dissection abdomen showed no scar or any evidence of previous surgical procedures. Left lobe was represented by a tongue like projection. Surface showed micro nodular appearance.

Posteroinferior surface showed tumourous protrusion. Quadrate lobe was absent. Hence segment III and IV absent. Gall bladder was slightly towards left side. Fissure for ligamentum teres and falciform ligament was normal. There was no fissure for ligamentum venosum. Structures at portahepatis were found normal. In the present case the diaphragm was observed for any signs of hernia. Microscopy shows- fatty change, features of early cirrhosis.

3. DISCUSSION

Hypoplasia and absence of hepatic lobe are rare congenital anomalies liver. Absence of right and left hepatic lobes is generally asymptomatic. It is noted incidentally at autopsy, surgery, or during cadaveric dissection. Congenital agenesis of a liver lobe affects left lobe more than the right liver lobe. The embryological basis of the anomalies of the liver morphology occurring in the course of organogenesis remains to be elucidated. The anomalies of liver can be divided into two categories, anomalies due to defective development and those due to excessive development. These anomalies are sometimes associated with malformations of other organs like diaphragm and suspensory apparatus of the liver. Gastric volvulus is usually associated
with defective development of the left lobe of liver. In contrast, defective development of the right lobe can remain clinically latent or progress to portal hypertension. The anomalies related to excessive development of the liver lead to formation of accessory lobes of the liver which may carry the risk.\textsuperscript{10}

In the present study left lobe was hypoplastic but it was not associated with either diaphragmatic hernia or gastric volvulus. Microscopic study shows fatty changes and feature of early cirrhosis. Postnecrotic cirrhosis, malnutrition, biliary obstruction, and venoocclusive disease have been associated with atrophy or hypoplasia of a hepatic lobe or segment. As it was observed in the cadaver, history is not available, no history of evidence of abnormal liver functions. The hypoplastic left lobe of the liver in the present study can be due to fatty changes and feature of early cirrhosis. According to some authors the hepatic lobe malformation is not always congenital, and diagnosis of this variant requires evidence if liver dysfunction.\textsuperscript{11,12}

It is important to keep in mind these liver anomalies in the correct preoperative diagnosis, because it will be helpful for the surgeon in planning biliary surgery or a portosystemic anatomicis. Whenever there is any such variant of the liver, it is better to examine the other organs as defective liver could be associated with conditions such as gastric volvulus, diaphragmatic hernia, and portal hypertension.

Thus knowledge of such variations may be important to anatomists and morphologists for new variant, embryologists for new developmental defect, surgeons for planning surgery involving liver and radiologists for avoiding misinterpretation of CT and MRI.

4. REFERENCES


