

An Additional (Accessory) Lobe of Liver and its Clinical Significance: Cadaveric Study

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Abstract

Aim: Cadaveric study of an accessory lobe of liver and its clinical significance

Methods: This observational study was carried out in the Department of Anatomy, Anugrah Narayan Magadh Medical College, Gaya, Bihar, India for 1 year. 60 adult human livers were obtained from donated embalmed cadavers (50 male & 10 female) in the Department of Anatomy. All of them were found between 64 to 74 years of age. Only cadavers, whose clinical history excluded liver diseases, were used for the study.

Results: We observed an accessory lobe in 6 livers. They were situated in the posterior part of the fissure for ligamentum teres, close to the porta hepatis. The lobes were triangular in shape and about one inch in width. They were attached to the left anatomical lobe of the liver through a vascular pedicle which contained the branches of hepatic artery, portal vein and hepatic duct. Microscopic structure of the accessory lobe showed normal liver architecture.

Conclusion: Knowledge of the presence of a small accessory lobe of the liver near the porta hepatis is useful for surgeons and radiologists in diagnosing, surgical planning and avoiding iatrogenic injuries of the accessory lobe.

Keywords: Accessory Lobe, Liver, Cadaver.

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Introduction

The liver is wedge shaped, largest gland of the body. It is situated under the right dome of diaphragm and mainly occupies the right hypochondrium and epigastric region. It is divided into anatomical right and left lobe by the attachment of falciform ligament, fissure for ligamentum venosum and fissure for ligamentum teres. The caudate and quadrate lobes are parts

of the right lobe of liver. The gall bladder fossa is situated on the inferior surface of right lobe and fundus of the gall bladder is situated beyond the inferior border of the liver [1].

It has caudate and quadrate lobes as the parts of the right anatomical lobe. The fossa for the gall bladder is situated on the inferior surface of right lobe of the liver

and gall bladder is situated in it. The fundus of the gall bladder usually projects beyond the inferior border of the liver [1].

The liver has four lobes or eight segments depending on whether it is defined by its gross anatomical appearance or by its internal architecture. Knowledge of variation in liver anatomy is required for good surgical outcome, diagnostic imaging and minimally invasive surgical procedures. Morphological variations of the liver are common like one or more accessory lobe, liver cyst, atrophy of liver and absence of one of the lobes [2].

A sound knowledge of the normal and variant liver anatomy is a prerequisite to having a favorable surgical outcome and commonly occurring variations assume even more significance in the era of diagnostic imaging and minimally invasive surgical approaches. Morphological variations of the liver are irregularities in the form, occurrence of one or more accessory lobes or presence of cyst; less common abnormalities are, atrophy or complete absence of one of the lobes [2]. Accessory lobes can occur in numerous places. The exact reason for the origin of accessory lobe of liver in man is still unknown. In most cases, the accessory lobe is found in the infra-hepatic position.

Riedel's lobe is the best-known example of a sessile accessory lobe. Accessory lobes may also trigger tumour [2].

Material and methods:

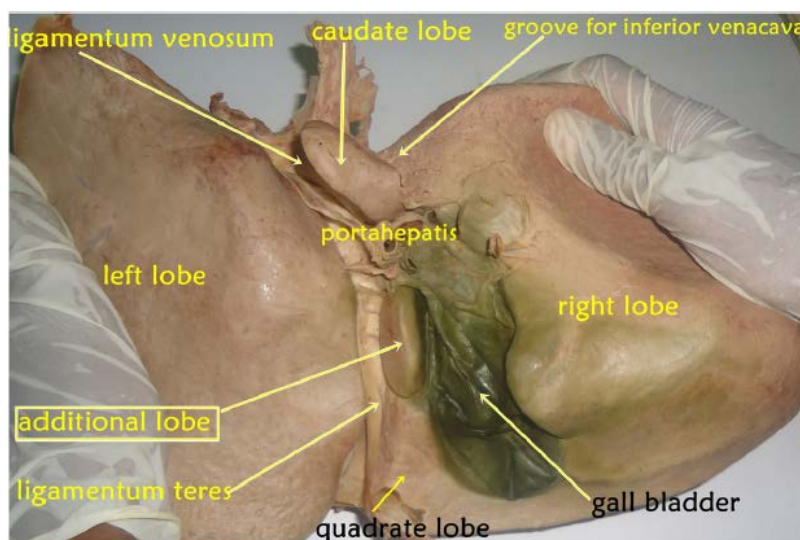
This prospective observational study was carried out in the Department of Anatomy, Anugrah Narayan Magadh Medical College, Gaya, Bihar, India for 1 year.

Methodology

60 adult human livers were obtained from donated embalmed cadavers (50 male & 10 female) in the Department of Anatomy. All of them were found between 64 to 74 years of age. Only cadavers, whose clinical history excluded liver diseases, were used for the study.

Results:

We observed an accessory lobe in 6 livers. They were situated in the posterior part of the fissure for ligamentum teres, close to the porta hepatis. The lobes were triangular in shape and about one inch in width. They were attached to the left anatomical lobe of the liver through a vascular pedicle which contained the branches of hepatic artery, portal vein and hepatic duct. Microscopic structure of the accessory lobe showed normal liver architecture.



Discussion:

The presence of accessory liver lobes is one of the rarest variations. As gleaned from literature among the accessory lobes, Reidel's lobe is the commonly occurring variation [3]. Riedel lobe of the liver is a simple anatomical variation, a downward tongue-like projection of the anterior edge of the right lobe of the liver to the right of the gallbladder and it rarely produces any symptoms [4].

According to Caygill and Gatenby, there are four main types of abnormally positioned livers Type I - a liver which is not connected to the main liver and, which is usually, attached to the gallbladder or the intra-abdominal ligaments; Type II - a microscopic ectopic liver which is found in the gallbladder wall; Type III - a large accessory liver lobe which is attached to the main liver by a stalk, and Type VI - a small accessory liver lobe (10–30 g in weight) which is attached to the main liver [3].

The accessory lobe which was documented in present study belonged to Type VI. The accessory lobes can also be classified into three types, based on the biliary drainage pattern. Type I - the duct of the accessory lobe drains into an intra-hepatic bile duct of the normal liver; Type II - the duct of the accessory lobe drains into an extra-hepatic bile duct of the normal liver, and Type III - the accessory lobe and the normal liver have a common capsule and the bile duct of the accessory lobe drains into an extra-hepatic duct [5].

In the present study the duct of all the accessory lobes of 6 specimens drain into an intra-hepatic bile duct hence it belonged to Type I. The accessory lobe which is being reported here is surgically and radiologically very important due to its small size and the presence of a vascular pedicle. Due to the small size, it might be mistaken for a lymph node. It might be accidentally removed during the surgeries in and around the porta hepatis. Damage to the lobe or its vascular pedicle

might result in bleeding into the abdominal cavity. Accessory lobes need attention when there is torsion of the vascular pedicle or metastasis occurring in them. Torsion of the accessory lobes is a surgical emergency [6,7]. An accessory lobe could be formed by the displacement of the primitive rudiment of the organ, or by persistence of the mesodermal septa during its proliferation [8]. Its presence occurs due to an error in the formation of the endodermal caudal foregut and segmentation of the hepatic bud in the third month of the intrauterine life [9].

Conclusion:

Knowledge of the presence of a small accessory lobe of the liver near the porta hepatis is useful for surgeons and radiologists in diagnosing, surgical planning and avoiding iatrogenic injuries of the accessory lobe.

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