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Anomalous Right Lobe of a Liver with Accessory Caudate Lobe

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Abstract: *During routine dissection, a liver from a cadaver of a female aged about 20 years who died in the peuriperial period was observed to have an anomalous right lobe; the shape, size and location of which differentiates it from Reidel's lobe. On posterior surface, an accessory caudate lobe was present to the left of main caudate lobe. It was separated by well-defined fissure from caudate lobe. The fissure for ligamentum venosum was present to the left of accessory caudate lobe. Porta hepatis was present below the new lobe. Prominent papillary process continued with caudate process which in turn is fused with right lobe of the liver. These developmental anomalies of liver may cause confusion during procedures like biopsy, transplantation, and lobectomies. This knowledge may be of immense use to clinicians for the diagnosis and management of hepatic diseases, morphologists and anatomists for new variant, and to embryologists for new developmental defect.*

Keywords: *Accessory caudate lobe, Anomalous hepatic lobe, Caudate lobe, Liver.*

I. Introduction

Liver is the largest wedge-shaped gland of the body. It is situated under the right dome of the diaphragm and mainly occupies the right hypochondriac and epigastric regions. It is divided into anatomical right and left lobes by the line of attachment of falciform ligament, fissure for ligamentum venosum and fissure for ligamentum teres [Fig. 1, 2]. It has caudate and quadrate lobes as the parts of right anatomical lobe. The hilum of the liver or porta hepatis is situated on its visceral surface and it transmits the blood vessels and nerves of the liver. The fossa for gall bladder is situated on the inferior surface of the right lobe of the liver and the gall bladder is situated in it. The fundus of the gall bladder usually projects beyond the inferior border of the liver [1].

Fig. 1 showing the anterosuperior view of liver

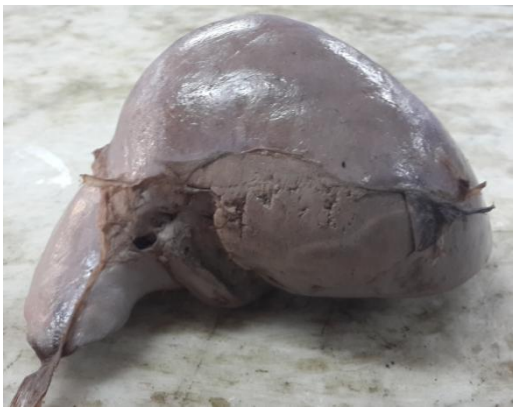

Fig. 2 showing the superior view of liver

The congenital abnormalities of human liver are rare [2] and these are rarer than almost any other organ of the body [3]. Various congenital abnormalities of the liver as agenesis of its lobes, absence of its segments, deformed lobes, decrease in size of lobes, lobar atrophy, hypoplastic lobes, and transposition of the gall bladder and Riedel's lobe have been reported by various authors. It is important to keep in mind the anomalies of liver during the preoperative diagnosis because it will be helpful for the surgeon in planning biliary surgery or a portosystemic anastomosis [2]. Accessory lobe has been described in the vicinity of gallbladder fossa or isolated lobe connected with liver by pedicle or mesentery containing vascular supply. Accessory lobe arising from superior surface [4] and inferior surface [5] has also been reported. The new accessory caudate lobe (Fig. 3) is situated in the right of the left lobe and to the left of caudate lobe of the liver under present study. There was an anomalous right lobe; the shape, size and location of which differentiates it from Reidel's lobe. But the configuration, location, shape, and size of this anomalous lobe, which is being reported, are altogether different from what has already been reported in the literature. These developmental anomalies of liver may cause confusion to clinician during procedures like biopsy, transplantation, and lobectomies. So finding of this new variant under unique configuration of this lobe assumes more importance to anatomists including morphologists, and its knowledge may be of immense use to clinicians in the diagnosis and management of hepatic diseases and to embryologists for new developmental defect. Therefore, it is worth reporting as a new variant.

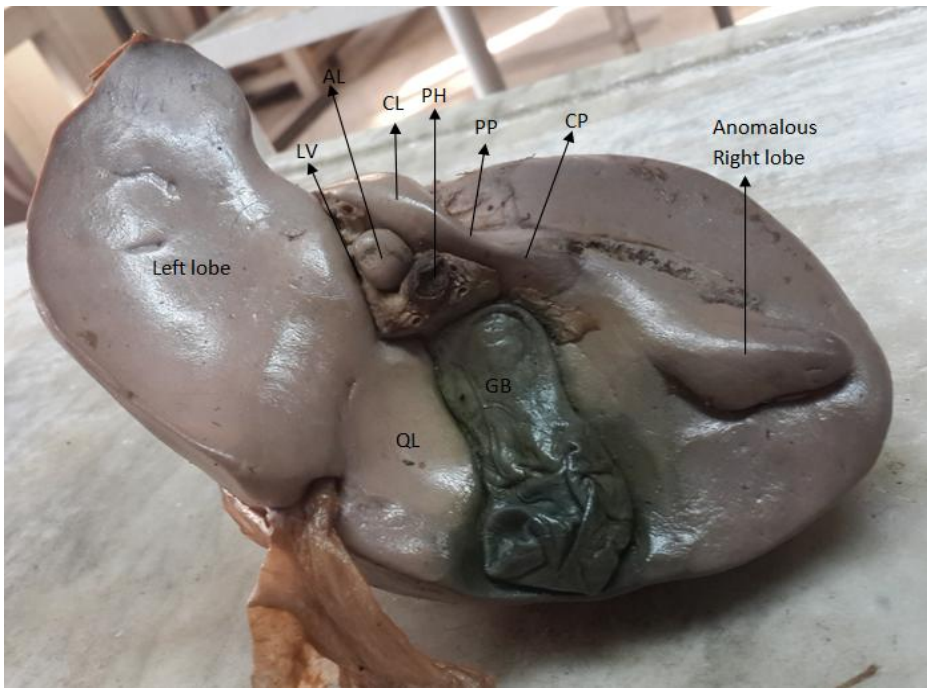

Fig. 3 showing posteroinferior view of liver. CL: Caudate lobe, AL: Accessory caudate lobe, PP: Papillary process, CP: Caudate process, QL: Quadrate lobe, GB: Gallbladder, LV: Fissure for ligamentum venosum, PH: Porta hepatis

II. Case Report

During routine cadaveric dissection in the Anatomy Department of SCB Medical College, Cuttack, a cadaver of a female aged about 20 years who died in the peuriperial period was observed having accessory caudate lobe (Fig. 3). This lobe was found to be positioned inferolateral to the main caudate lobe separated from it by a deep fissure. The fissure for ligamentum venosum was right to the left lobe and to the left of accessory lobe. There was an anomalous right lobe; the shape, size and location of which differentiates it from Reidel's lobe. Porta hepatis was found inferior to the accessory lobe. As far as our knowledge, this was a very unique configuration of this accessory caudate lobe.

The dimensions: length, width and depth of the accessory caudate lobe were 15 mm, 15 mm, and 8 mm, respectively. There was a very prominent papillary process (Fig. 3) continuing with the caudate process as a border indicating overdevelopment of this part of liver. These variations of the liver were associated with anomalous right lobe of the liver. The anomalous right lobe measured 45 mm from the root of attachment and 30 mm was its maximum breadth. A finger could be insinuated below the extreme right end. The observation of diaphragm in cadaver did not show any signs of hernia. Falciform ligament (Fig. 1) was attached at its normal site. The position and size of the gall bladder were found normal. No other abnormality was observed in this liver.

III. Discussion And Conclusion

Most of the liver anomalies are congenital. These anomalies cause malformations in the liver. These congenital malformations of the liver include agenesis of the lobes, absence of segments, deformed lobes, decrease in lobe size, atrophy of the lobes, and hypoplastic lobes [6]. Besides these anomalies, multifarious accessory lobes have also been reported by various authors arising from superior and inferior surface of the liver [4, 5]. Accessory caudate lobe observed in the current study was well delineated by fissure from the main caudate lobe and by fissure of ligamentum venosum and porta hepatis. . The anomalous right lobe is altogether a new finding not reported so far in the literature. Since the malformations were observed in female cadaver of 20 years age, the clinical history was not available. But the size of the uterus and the fresh stitch of Caeserian section suggested that the patient died in the peuriperial state. Therefore, whether the condition is associated with liver dysfunction or any other clinical condition is not known. The accessory lobe described by various authors is sometimes associated with malformations of other organs like diaphragm and suspensory apparatus of the liver [6]. But in our study, no such malformations were seen. But such accessory lobes may create confusion in interpretation of CT and MRI.

The embryological basis of the anomalies of liver morphology occurring in the course of organogenesis remains to be elucidated [7]. Dodds et al. gave a hypothesis to explain the formation of caudate liver. According to them during second trimester the ductus venosus rotates rightward as the liver enlarges, so that a small portion of the liver becomes inserted behind the mesentery for the ductus venosus. This part of liver gives rise to caudate lobe of liver [8]. During the formation of caudate lobe, a small portion of caudate lobe may have become separated from it and included in mesentery of ductus venosus to form the accessory lobe.

According to some authors the hepatic lobe malformation is not always congenital, and diagnosis of this variant requires evidence of liver dysfunction [9, 10]. 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 anastomosis. Whenever there is any such variant of the liver, it is better to examine the other organs as the defective liver could be associated with conditions such as gastric volvulus, diaphragmatic hernia, and portal hypertension. Thus, the 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 imagery specialists for avoiding misinterpretation of CT and MRI.

References

[1]. Susan Standring. Gray's Anatomy, The Anatomical Basis of Clinical Practice, 40th edition Churchil Livingstone; 2008

[2]. Z. A. Aktan, R. Savas, Y. Pinar, and O. Arslan, "Lobe and segment anomalies of the liver," Journal of the Anatomical Society of India, vol. 50, no. 1, pp. 15–16, 2001.

[3]. P. A. Wakefield, "Congenital malformation of the liver- absence of the lobus spigelii, rudimentary quadrate and left lobes with enlargement of the right lobe," Journal of Anatomy and Physiology, vol. 33, no. 1, pp. 50–53, 1898.

[4]. P. S. Friedman, L. Solis-Cohen, and S. Levine, "Accessory lobe of the liver and its significance in roentgen diagnosis," American Journal of Roentgenology, vol. 57, pp. 601–603, 1947.

[5]. [5]C. G. Fraser, "Accessory lobes of the liver," Annals of surgery, vol. 135, no. 1, pp. 127–129, 1952.

[6]. G. B. Daver, G. D. Bakhshi, A. Patil, S. Ellur, M. Jain, and N. G. Daver, "Bifid liver in a patient with diaphragmatic hernia," Indian Journal of Gastroenterology, vol. 24, no. 1, pp. 27–28, 2005.

[7]. J. Champetier, R. Yver, J. Letoublon, and B. Vigneau, "A general review of anomalies of hepatic morphology and their clinical implications," Anatomia Clinica, vol. 7, no. 4, pp. 285–299, 1985.

[8]. W. J. Dodds, S. J. Erickson, A. J. Taylor, T. L. Lawson, and E. T. Stewart, "Caudate lobe of the liver: anatomy, embryology, and pathology," American Journal of Roentgenology, vol. 154, no. 1, pp. 87–93, 1990.

[9]. Y. Kakitsubata, R. Nakamura, H. Mitsuo, Y. Suzuki, S. Kakitsubata, and K. Watanabe, "Absence of the left lobe of the liver: US and CT appearance," Gastrointestinal Radiology, vol. 16, no. 4, pp. 323–325, 1991.

[10]. S. Yamamoto, K. Kojoh, I. Saito et al., "Computer tomography of congenital absence of the left lobe of the liver," Journal of Computer Assisted Tomography, vol. 12, no. 2, pp. 206–208, 1988.