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MORPHOLOGICAL VARIATION IN HUMAN CADAVERIC LIVER

Anatomy

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ABSTRACT

Observation- Liver is the largest of abdominal viscera located in right hypochondrium, epigastrium and left hypochondrium in upper abdominal cavity. Different variations in lobes, fissures and accessory lobes, decrease in size of lobes, lobar atrophy, ligamentum teres, ligamentum falciform and any other variations as grooves on the surface of the livers were observed **Materials and Methods:** Present morphological study was conducted on 75 formalin-fixed livers which were observed for the study in the Department of Anatomy **Results:** Total 75 cadaveric livers were studied. Out of which 31 (41.4%) livers were normal and 44 (58.6%) were abnormal. Out of 44, Absence of quadrate lobe 3 (6.8%)Accessory fissure in caudate lobe 6 (13.6%),Accessory fissure in quadrate lobe 4 (9%),Accessory lobes 9 (20.4%),Incomplete fissure for ligamentum teres 4(9%),Absence for fossa for gallbladder 2(4.5%) small left lobe 2(4.5%),elongated upward left lobe in 4 (9%),absence of fissure for ligamentum teres 2(4.5%) and incomplete prominent caudate process in 2(4.5%) and deep diaphragmatic groove were observed in 6(9%). **Conclusion:** this study will be helpful for surgeons and radiologists to avoid possible errors in interpretations and subsequent misdiagnosis, and to assist in planning appropriate surgical approaches in liver transplants and other procedures.

KEYWORDS

Accessory lobe, ligamentum teres, quadrate lobe, variations.

INTRODUCTION

The liver is wedge shaped, largest gland of the body. 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]. Liver size and shape vary with age, size and body weight. In foetus liver weight is 5% of the body weight and it decreases upto 2% in adulthood [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. Morphologically variations of liver are very common but these conditions are rarely noticed as these are asymptomatic. These changes are noticed on surface of the liver [2]. A sound knowledge of the normal and variant liver anatomy is a prerequisite to having a favourable 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

MATERIALS AND METHODS

This present observational study was conducted on normal 75 human livers in the museum which are preserved in 10% of formalin and routine dissection of under graduate medical students at the Department of Anatomy, Medical College, Haldwani and Saraswati medical college Unnao from year 2013 to 2018, and then. The lobes of the liver, right lobe, left lobe, caudate lobe and quadrate lobe fissures and ligaments were noticed. The specimens were photographed.

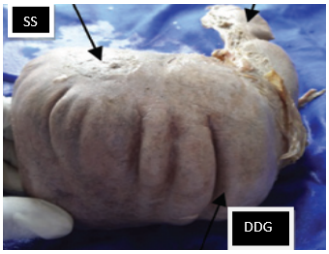

Figure-1-superior Surface (SS) Of Large Right Lobe And Hypoplastic Left Lobe And Deep Diaphragamtic Grooves (ddg) Are Present

OBSERVATIONS AND RESULTS

Among 75 formalin fixed specimen of human liver only 44 (58.6) have variations. Types of variation is seen in table no. 1 and all the figures shows different types of variation which we have seen in our study.

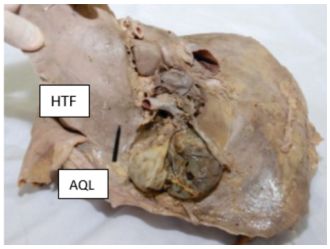

Figure 2- Absence Of Quadrate Lobe (AQL), Absence Of Position Of Ligamentum Teres And Abnormal Horizontal Fissure In Left Lobe(HTF)

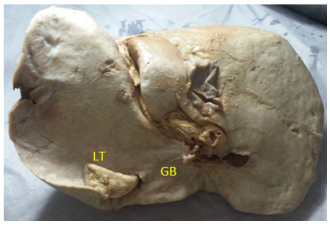

Figure-3- Incomplete Fissure For Ligamentumentum Teres (LT), Absecce Of Fossa For Gall Bladder (GB), Not A Clear Demarcation Of All Viscera In Inferior Surface

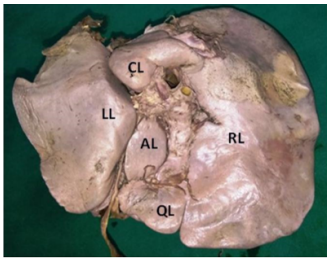

Figure-4- Accessory Lobe (AL), Right Lobe (RL), Leftlobe (ll), Quadrate Lobe (QL), Caudate LobE (CL).

Figure-5- Long Process Of Left Lobe (LP).

Figure-6 Accessory Fissure (AF) On Caudate Lobe.

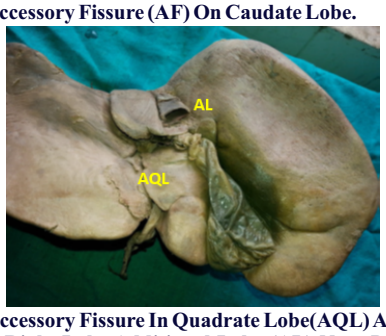

Figure-7 Accessory Fissure In Quadrate Lobe(AQL) And Inferior Surface Of Right Lobe Additional Lobe (AL) Near Portahepatis Above The Gall Bladder.

Table 1- VARIATION AMONG HUMAN LIVER

S.N.	VARIATIONS	NUMBER OF SPECIMEN	PERCENTAGE
1	Deep diaphragamatic groove on superior surface	6	13.6%
2	Absence of quadrate lobe	3	6.8%
3	Accessory fissure in caudate lobe	6	13.6%
4	Accessory fissure in quadrate lobe	4	9%
5	Elongated upward process of left lobe	4	9%
6	Accessory lobes	9	20.4%
7	Incomplete fissure for ligamentum teres	4	9%
8	Absence for fossa for gallbladder	2	4.5%
9	absence of fissure for ligamentum teres	2	4.5%
10	incomplete prominent caudate process in	2	4.5%
11	Small left lobe	2	4.5%

DISCUSSION

The organ is divided into lobes by peritoneal folds .The variation in the fissure like accessory fissure maybe present commonly antero-posterior surface [3]. Most common morphological variations of liver are irregular in shape ,presence of number of accessory lobes ,accessory fissure ,ligaments . The exact origin of accessory lobe of liver in human is not unknown and it may stimulate tumors [4]. Sharmila Aristotle observed out of 60 livers studied anomalies were found in 41%, i.e 25 specimens. The variations present were accessory fissure in 8 cases (13.3%), absence of fissure in 1 case (1.6%) and incomplete fissure in 3 cases (5%) which correlates our study (5). Ascessory lobe 12 %, accessory fissure 10%, Diaphragmatic grooves on superior surface of the liver 4% was observed by Khajuria [6]. Abhilasha et.al also found variation of liver lobes, morphological variation was present (44%), accessory lobe present (16%), accessory fissure and grooves (20%), upward left lobe process process of left lobe (4%) [7]. According to Joshi, Athavale in 2009 prominent diaphragmatic grooves on the anterosuperior surface of liver were found in 6% of the cases .Higher incidences of such grooves were observed by Macchi,Feltrin,Parenti et.al in 2003.They suggested that diaphragmatic groove represent a useful land mark for surface projection of portal fissure and hepatic veins and their tributaries [8].

CONCLUSION

This study highlights some of the variations in the lobes and fissures of the liver are very important for anatomist, hepatobiliary surgeons and radiologist for planning surgeries. Most of the anomalies of liver are usually asymptomatic but if such type of anomalies present, proper imaging is recommended for proper diagnosis and management to avoid possible errors in interpretations and subsequent misdiagnosis, and to assist in planning appropriate surgical approaches related to liver pathology. The present study findings may be helpful for the surgeons and radiologist for proper interpretation of correct diagnosis and surgical Procedures.

References

1. Standring S. Gray's Anatomy: The anatomical basis of clinical practice 401] th ed. New York: Churchill Livingstone 2008; 3441-46.
2. Joshi SD, Joshi SS, Athavale S A. Some interestin observations on the surface features of liver and their clinical implications, Singapore Med J 2009;50(7):715-19.
3. [3]. Maachi, V; Feltrin; Parenti, A & De Caro, R. Diaphragmaticsulci and portal fissures. J. Anat., 2003;202(Pt3):303-8.
4. [4]. Auh Yh, Lim Jh, Kim Kw, Lee Dh, Lee Mg And Cho Ks. Localized fluid collections in hepatic fissures and recesses CT appearances and potential pit falls. Radiographics 1994;14:52940P Mid:8066268.http:/ /dx.doi.org/10.1148/ radiographics.14.3.8066268.
5. [5]. Sharmila Aristotle, Morphological Study of Anomalies of Lobes and Segments of Human Liver.Int J Pharm Bio Sci 2016 Oct;7(4):810-815.
6. [6] Khajuria S R, Agarwal RK, Saini H,study of morphological variations in human cadaveric Livers. Int J Anat Res 2018, 6(2.1):5072-75
7. [7]. Abhilasha et al. Normal morphological variations of liver lobes:A study on adult human cadaveric liver in vidarbha region; international journal of science and research (IJSR).
8. [8]. Macchi V, Kuwano H, Fujimaki N, Makuuchi,M. Relationamong portal segmentation, proper hepatic vein and external notch of the caudate lobe in the human liver .Annals of surgery 2000;231:223-8.