WWW.IJRPR.COM

**International Journal of Research Publication and Reviews**

Journal homepage: www.ijrpr.com ISSN 2582-7421

# A new Insight into the morphological study of quadrate lobe of liver from human cadavers in Jawaharlal Nehru Medical College, Belagavi.

***Mrs. Sangeetha A.R [1] , Dr. Sheetal V. Pattanshetti[2]****

[1]Postgraduate in M.Sc. Medical Anatomy, Department of Anatomy, Jawaharlal Nehru Medical College, Belagavi 590010
[2]Professor and HOD of Department of Anatomy, Jawaharlal Nehru Medical College, Belagavi 590010
* Mrs. Sangeetha A.R. Tel.:7204395537
* Dr. Sheetal V. Pattanshetti Tel.: 9886841968
E-mail address: sangeethapratheek87@gmail.com
E-mail address: sheetalpattanshetti@gmail.com

**A B S T R A C T :**

**Introduction-**

Liver is a large organ in the body. It is essential to know normal anatomy and variations of quadrate lobes, to help in clinical and surgical interventions. Required parameters were documented in this descriptive observational study.

**Aims:** To study the morphology and variations of quadrate lobe of liver from human cadavers.

**Objective-**

The study was done on morphology of quadrate lobes of liver and to study any morphological variations of quadrate lobes.

**Materials and methods-**

In the present study 105 cadaveric liver specimens were dissected as per the guidelines according to the "Cunninghams manual of anatomy". Morphology and anatomical variations of quadrate lobes of liver were studied.

**Result-**

Out of 38 liver specimens, morphological study reveals majority of quadrate lobes were having the quadrangular shape (50%), followed by irregular (29%), square (11%) and triangular (5%), rectangular (5%). Other variations found in QL are, left lobe connected to quadrate lobe (23.68%), transverse fissures (26.31%), accessory lobes (5.26%), horizontal fissure (5.26%), absence of QL (2.63%).

**Conclusion-**

Majority of livers showed variations in the morphology of quadrate lobe of liver. It is highly significant to know the detailed understanding of the morphology & variations of quadrate lobe of liver as it is important for radiologists and to surgeons performing surgical procedures and liver transplant.

**Keywords**: Quadrate lobe; Morphology; Liver.

## 1.INTRODUCTION-

The liver is a large visceral organ in the abdomen and it extends into left hypochondrium from

its primary location in the right hypochondrium and epigastrium. It is divided into right lobe and left lobe. The liver's right lobe includes the quadrate and caudate lobes.[1]

The liver contains four lobes, its peritoneal and ligamentous attachments, have separated its surface into right, left, caudate and quadrate lobes based on its gross anatomical appearance.[2] On the liver's visceral surface is the hilum, also known as the porta hepatis, which transmits the liver's blood vessels and nerves.[3]

Defective development and excessive development are the two categories into which liver abnormalities fall. In order to see normal quadrate lobe morphology and its morphological variations, it is necessary to examine normal morphology and numerous morphological variants in human cadaveric livers. Thus, the knowledge of understanding the morphology of lobes is very essential for better surgical approach and outcome.[4,5]

## 2. MATERIALS AND METHODS-

The material consists of 105 human cadaveric livers from both male and female sexes available in Department of Anatomy, KAHER's Jawaharlal Nehru Medical College, Belagavi, during study period.

Study Design: Descriptive observational study.

Sample Size: 105 liver specimens were taken during routine dissection.

Inclusion Criteria: Normal livers.

Exclusion Criteria**:** Liver specimens having any pathological conditions and damaged livers.

Dissection of liver was done as per the guidelines mentioned in the "Cunningham Manual of Dissection".[6]

The following morphological features were studied:

1. Various shapes of quadrate lobe of liver.
2. Any morphological variations of quadrate lobes were noted.

**Shapes of quadrate lobe:**





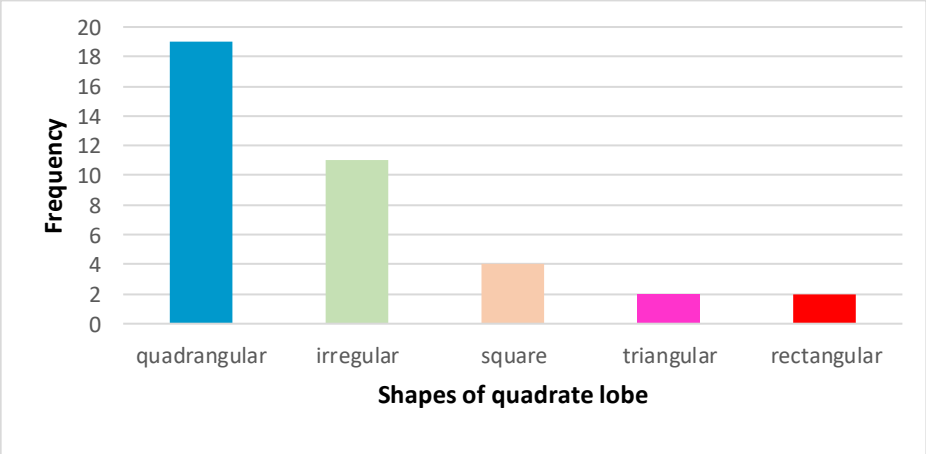
## 3.RESULTS-

**Shapes of quadrate lobe:** Morphological study reveals majority of quadrate lobes were having the quadrangular shape (50%), followed by irregular (29%), square (11%) and triangular (5%), rectangular (5%).

| Sl. No. | Various shapes of quadrate lobe | Number or frequency | Percentage (%) |
|---|---|---|---|
| 1 | Quadrangular | 19 | 50% |
| 2 | Irregular | 11 | 29% |
| 3 | Square | 4 | 11% |
| 4 | Triangular | 2 | 5% |

| | | | |
|---|---|---|---|
| 5 | Rectangular | 2 | 5% |

**Table 1: Shapes of quadrate lobe**



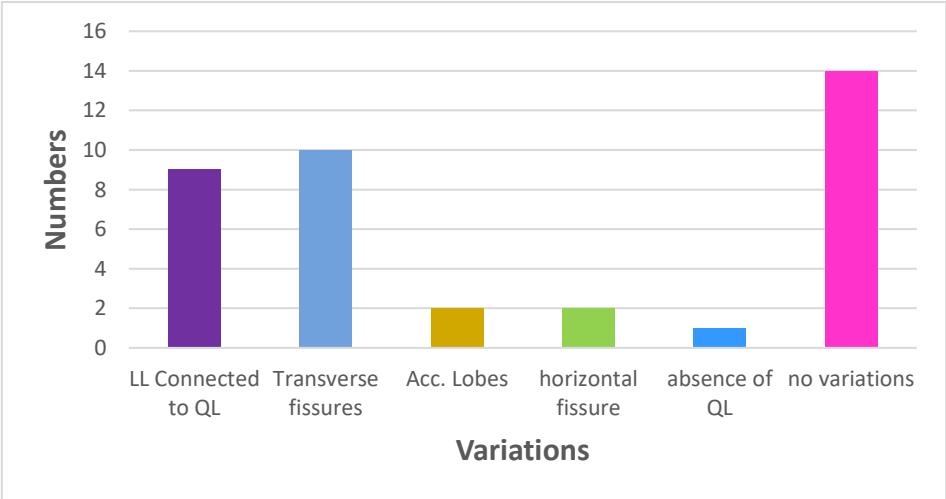

**Graph 1: Different shapes of quadrate lobes in percentage**

**Variations in quadrate lobe:**

variations found in QL are, left lobe connected to quadrate lobe (23.68%), transverse fissures (26.31%), accessory lobes (5.26%), horizontal fissure (5.26%), absence of QL (2.63%).

| Sl. No. | Parameters | Number | Percentage (%) |
|---|---|---|---|
| 1 | Left lobe Connected to quadrate lobe | 9 | 23.68 |
| | | | |
| 2 | Transverse fissures | 10 | 26.31 |
| 3 | Accessory Lobes | 2 | 5.26 |
| 4 | Horizontal fissure | 2 | 5.26 |
| 5 | Absence of QL | 1 | 2.63 |
| 6 | No variations | 14 | 37 |
| | Total | 38 | 100 |

**Table 2: Variations in quadrate lobes**




**Graph 2: Variations in shapes of quadrate lobes in percentage**

## 4.Discussion

**Comparison b/w different shapes of quadrate lobe of liver:**

Sambhav et al. (2023) studied morphology of QL, they found quadrangular (25%), irregular (12.5%), triangular (17.5%) and rectangular (15%). Mohini M. Joshi et al. (2017) noted square shape (2%), triangular (16%) and rectangular (68%). Sharma P. et al. reported quadrangular (42%), irregular (20%), square (16%), triangular (16%) and rectangular (5%).

In present study we observed that (50%) of quadrangular, (29%) of irregular, (11%) of square, (5%) of triangular and (5%) of rectangular shapes. The percentage of quadrangular, square, rectangular shapes of current study correlate with the Sharma P. et al. authors findings.

**Comparison of variations in quadrate lobes of livers:**

Hiteshkumar et al. found only variation in transverse fissure 11,53%. Heena J et al. reported 1.25% LL connected to QL and 3.37% accessory lobes. Sangeetha et al. noted 6% LL connected to QL, horizontal fissures, absence of QL observed in 2% of liver. Ranjana S et al. reported 5% LL connected to QL, 6.6% accessory lobes and absence of QL 3.3%. Shweta ST, MP Ambali et al. (2022) conducted a study on Caudate and Quadrate lobes of livers, they found many variations in QL i,e 14.4% LL connected to QL, 4.4% transverse fissure, 8.8% accessory lobes and 4.4% horizontal fissures. Mohini MJ et al. in their study the found 13% LL connected to QL, 34% transverse fissures, 5% accessory lobes and 2% absence of QL. Sambhav et al reported 17.5% transverse fissures, 5% accessory lobes and 2% horizontal fissures.

In present study we reported variations in QL we found, 23.68% LL connected to QL, 26.31% transverse fissures, 5.26% accessory lobes, 5.26% horizontal fissures and 2.63% absence of QL. The percentage of presence of accessory lobes are correlated with the study of authors Shwetha ST et al. findings. The % of Absence of QL correlates with the author Sangeetha et al. findings.

## 5.Conclusion-

Majority of livers showed variations in the morphology of quadrate lobe of livers. It is highly significant to know the detailed understanding of the morphology & variations quadrate lobe of liver as it is important for radiologists and to surgeons performing surgical procedures and liver transplant.

The values observed in all parameters were greater in previous studies when compared with the present study done in North Karnataka. The knowledge of variations helps the surgeons to reduce risk of accidental damage to related structures, thus preventing post-operative complications. This will help in accurate interpretation of radiological imaging and also aid in planning precise interventional surgical procedures in hepato-biliary pathologies and neoplastic tumour resection etc.

## REFERENCES


1. Standring S. Gray's Anatomy: The anatomical basis of clinical practice. 40th ed. Spain: Churchill Livingstone Elsevier; 2008: p.1163-65.
2. Contractor JB, Kodiyatar BB, Vaniya VH. A morphological study of caudate lobe in human cadaveric liver. Sch Int J Anat Physiol 2019;2(3): p.128-131.
3. Nayak BS. A study on the anomalies of liver in the south Indian cadavers. Int J Morphol. 2013;31(2):658-661.
4. Arya RS, Arya RC, Kumar A, Basan K, Singh B, Jangde S. Study of cadaveric liver lobe anomaly. Ind J Clin Anat Physiol. 2015;2(4):212-15.
5. Thorat SS, Ambali MP, Kharat VS, Khemnar G. A cadaveric study of caudate and quadrate lobes of liver and its clinical correlation. WIMJOURNAL 2022;9(2):48-51.
6. Romanes GJ. Cunningham's manual of practical anatomy. Vol 2 The abdomen.
7. 15th ed. New York: Oxford medical publications;1999. p.165-177.
8. Dhanalaxmi DN, Umesh KK. A cadaveric study. MedPulse-International Journal of Anatomy. 2019;12(2):48-52.
9. Jayarathna MJ, Udupihille J, Amaratunga HA. Surface morphology of the right lobe of the human liver. SLAJ, 2024;8(1):46-54.
10. Sangeetha A, Kumar SN. Morphological variations of the liver and its applied significance: A cadaveric study. J Datta Meghe Inst Med Sci Univ. 2021;16(2):303-07.
11. Joshi MM, Chavan SK. Morphological study of adult human cadaveric liver. Int J Anat Res. 2017;5(3.2):4284-89.
12. Phad VV, Syed SA, Joshi RA. Morphological variations of liver. Int J Health Sci Res. 2014;4(9):119-24.