

## CASE REPORT

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### An interlobar ligament connecting the right and left lobes of the liver – A cadaveric case report

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#### Abstract

Several ligaments and peritoneal folds attach the liver to other organs and to the abdominal wall. These are the falciform ligament, ligamentum teres hepatis or round ligament, right triangular ligament, left triangular ligament, lesser omentum, and ligamentum venosum. We report a unique ligament connecting the right and left lobes of the liver, on its visceral surface near its inferior border. This ligament is seen forming a tunnel through which the ligamentum teres is seen to travel.

The knowledge can be used by the radiologists and clinicians in image interpretation and subsequent clinical diagnosis and by anatomists and embryologists for academic interests. Further, this ligament and the tunnel formed by it maybe a potential site for strangulation of abdominal content.

**Key words:** liver, ligaments, embryology, acute abdomen, radiology

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## **Introduction**

Liver, being the largest and the most vascular organ in the human body occupies the right hypochondrial and most of the epigastric region. It weighs approximately 1500g and usually receives about 1500ml blood per minute via both the portal and systemic circulations. Morphologically, the liver is divided into two main lobes, the larger right and a smaller left lobe. These lobes are divided by the ligaments or peritoneal folds. Two smaller lobes, the caudate and the quadrate are considered as parts of the right lobe (1).

There are several ligaments and peritoneal folds associated with liver. The falciform ligament runs from the anterosuperior surface of liver to the anterior abdominal wall and the diaphragm. The Ligamentum teres hepatis or round ligament lies in the umbilical fissure. While the ligamentum venosum lies within the fissure between the caudate and left lobes. The right triangular ligament runs from the right lateral surface of the liver to the diaphragm, while the left triangular ligament runs from the left lobe of the liver to the diaphragm. The lesser omentum suspends the lesser curvature of the stomach and the proximal duodenum from the fissure of the ligamentum venosum and the porta hepatis on the undersurface of the liver (2,3,4).

In this report we present a case where an additional interlobar ligament connecting the right and left lobes of the liver, and making a tunnel for the ligamentum teres, was observed during routine dissections at the department of Anatomy, University of Peradeniya.

## **Case report**

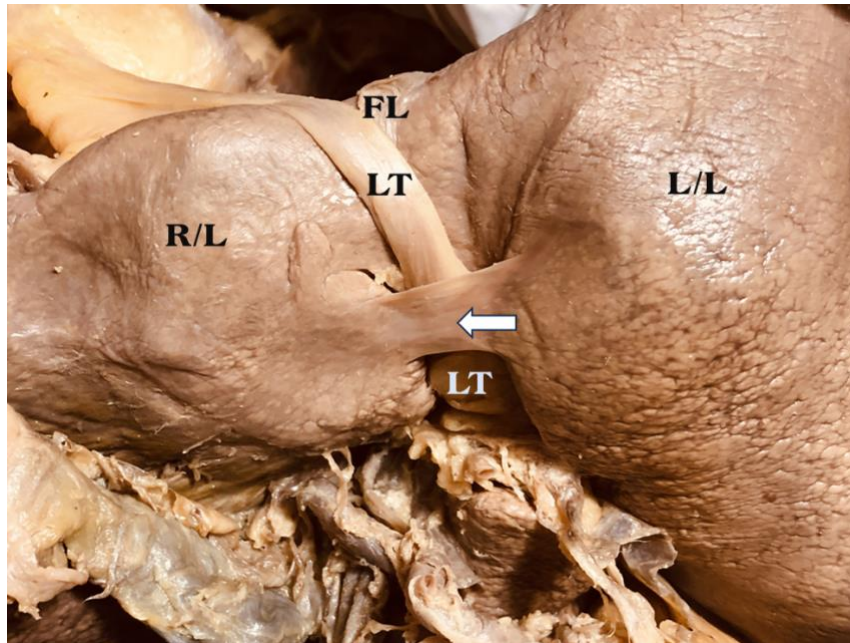
During routine dissections at the department of Anatomy Peradeniya, an additional short ligament was observed in a formalin preserved cadaver of an adult female of Sri Lankan origin.

A short, roughly square shaped ligament was observed between the right and left lobes of the liver, on the visceral surface superficial to the ligamentum teres before it emerged from the inferior border of the liver. This ligament connected the right and left lobes. Ligamentum teres was freely movable inside the tunnel formed by this unique interlobar ligament. Figure 1 and 2 shows the liver, Ligamentum teres and interlobar ligament from the visceral surface and from the inferior border respectively.

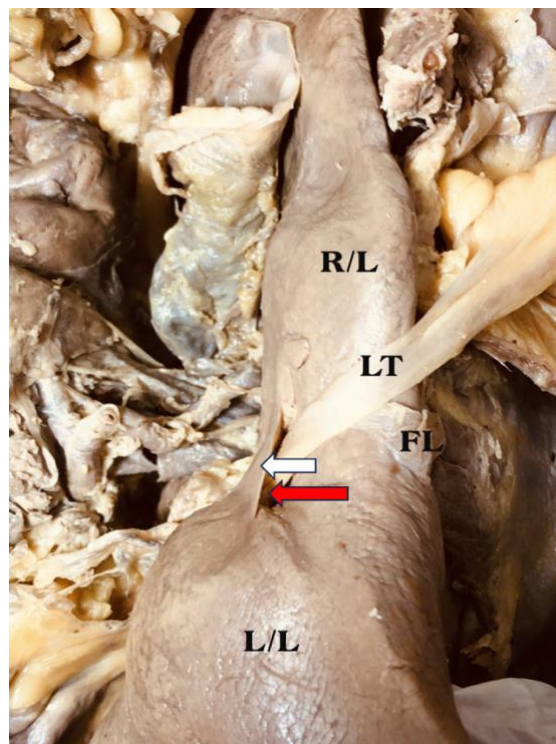
No other additional ligaments were noticed on the liver and no other morphological variations, surgical scars or adhesions were noticed inside the abdominal cavity.

## **Discussion**

Variations in the ligaments associated with the liver are uncommon and can be anomalies of liver development (5). During development, the falciform ligament forms from the ventral mesogastrium which is derived from the mesoderm of the septum transversum. When the liver bud starts to grow during the middle of the third week into the septum transversum, it becomes thin and ultimately forms the falciform ligament, lesser omentum and the peritoneum of the liver. The umbilical vein



**Figure 1:** Liver, Ligamentum teres and interlobar ligament shown from the visceral surface. (White arrow – new interlobar ligament, FL – Falciform ligament, LT – Ligamentum teres passing through the tunnel, R/L – Right lobe of liver, L/L – Left lobe of liver)



**Figure 2:** Liver, Ligamentum teres and interlobar ligament shown from inferior border. (White arrow – new ligament, Red arrow – tunnel formed by the new interlobar ligament, FL – Falciform ligament, LT – Ligamentum teres, R/L – Right lobe of liver, L/L – Left lobe of l

which runs along the free margin of the falciform ligament obliterates after birth and forms the ligamentum teres hepatis (6), (2). Therefore, this interlobar ligament can be a remnant of the septum transversum which develops into a ligament connecting the right and left lobes of the liver near the inferior border on the visceral surface.

The anatomical and pathological features of the ligaments can be detected by using radiological interventions such as ultrasound scanning/ endoscopic ultrasound scanning, computed tomography, and magnetic resonance imaging in a living person (2). Isolated infection and/or gangrene of the ligamentum teres and falciform ligament is among the rarest causes of acute abdomen (7). Idiopathic segmental infarction of the ligamentum teres can also present as acute abdomen and the diagnosis is usually made intraoperatively (8). Similar to ligamentum teres and falciform ligament, there is a possibility of the said ligament subjecting to infection and/ or gangrene resulting in acute abdomen.

## **Conclusion**

In the index case, we observed an interconnecting ligament between the right and left lobes of the liver and the ligamentum teres was seen to be passing through the tunnel made by it. The knowledge and findings can be used by anatomists, embryologists, radiologists, and clinicians for research as well as in image interpretations and subsequent diagnosis of

liver and abdominal pathologies. Further studies on embryological origin of this ligament are warranted.

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**Conflicts of interests:** The authors have no conflicts of interests.

**Authors contributions:** MJSJ was involved in conceptualization, resources, writing original draft, review and editing, HAA was involved in conceptualization, resources, supervision, writing, review and editing.

## **References**

1. Sinnatamby C. Last's Anatomy Regional and Applied. 12th edition. Edinburgh: Elsevier/ Churchill Livingstone, 2011:259-266.
2. Sharma M, Rai P, Rameshbabu CS, Baiju Senadhipanet B. 'Imaging of peritoneal ligaments by endoscopic ultrasound (with videos)'. Endosc Ultrasound 2015;4(1):15.
3. Abdel-Misih SRZ, Bloomston M. 'Liver anatomy'. Surg Clin N Am 2010;90(4):643–653.
4. Snell R. Snell clinical anatomy by regions. 9th ed. Philadelphia: Wolters Kluwer/ Lippincott Williams & Wilkins, 2019:162.

5. Ebby S, Ambike MV. 'Anatomical Variation of Ligamentum Teres of Liver - A Case Report', WebmedCentral Anatomy 2012 in press.
6. Sadler TW. Langman's Medical Embryology. 12th edition. Philadelphia: Wolters Kluwer Health/Lippincott Williams & Wilkins. 2012:295-300.
7. Losanoff JE , Kjossev KT. Isolated gangrene of the round and falciform liver ligaments: A rare cause of peritonitis: Case report and review of the world literature. Am Surg 2002;68(9):751–755.
8. Goti F, Reinhart M, Decurtins M. Idiopathische segmentale Fettgewebsnekrose des Lig. teres hepatis. Der Chirurg 2000;71(2):225–227.