LIGAMENTUM TERES HEPATIS TUNNEL (PONS HEPATIS) IN HUMAN LIVER: A CASE REPORT FROM NEPAL

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ABSTRACT

INTRODUCTION

The liver, the biggest gland with diverse metabolic activity consist right and left lobe, where left lobe was isolated from quadrate lobe by umbilical or fissure for ligamentum teres exhibits variation. The case reported explains about the liver tissue bridge, a 2 cm long creating incomplete tunnel that connect the quadrate lobe to the left lobe corresponding to type 4 b variation of Pons hepatis. As a result, the tunnel may depict a deceptive impression of a diseased cavity due to liver parenchyma and confuse surgeons and pathologist.

KEYWORDS

Quadrate lobe, Tunnel, Ligamentum teres, Fissure for ligamentum teres, Pons hepatis

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INTRODUCTION

The liver, the biggest gland with diverse metabolic activity, occupies the right hypochondrium, epigastrium, and a portion of the left hypochondrium. The right and left anatomical lobes were separated by the falciform ligament anteriorly and the fissure for the ligamentum venosum posteriorly, whereas the quadrate lobe was separated from the left lobe by the fissure for the ligamentum teres hepatis[1,2] which was also known as the Umbilical fissure or rex recess.[3] This fissure is formed by a remnant of an obliterated umbilical vein termed the ligamentum teres, which connects the venous structure between the placenta and the umbilical section of the left portal vein, supplying nutrient-rich blood to fetus through placenta. The ligamentum teres is frequently employed for cannulation in different diagnostic and therapeutic procedures and is thought to play a clinically unimportant function in disease processes and operations.[4] Abnormalities of the liver are mostly related with variations in lobe size, fissure, and structure.[5]

As a result, the purpose of this case report is to describe the path of the ligament teres via the tunnel generated during research by the connection of the quadrate lobe to the left lobe of the liver, and this may serve to provide data that may aid in the planning and diagnosis of liver illness.

CASE REPORT

Over 30 embalmed liver specimens were observed during an ongoing project on the preparation of acrylic color gross museum specimens of the liver at the department of anatomy, Universal College of Medical Sciences, Nepal. One of those specimens, however, displayed a rare variation. It appeared to be healthy, had a normal size and shape, but the ligamentum teres fissure had been partially obliterated, creating a tunnel through which the ligament teres entered the visceral surface of the liver. A liver tissue bridge connecting the quadrate lobe to the left lobe is 2 cm in length and is made of incomplete tunnel. Additionally, the little fissure runs from the porta hepatis to the tunnel.

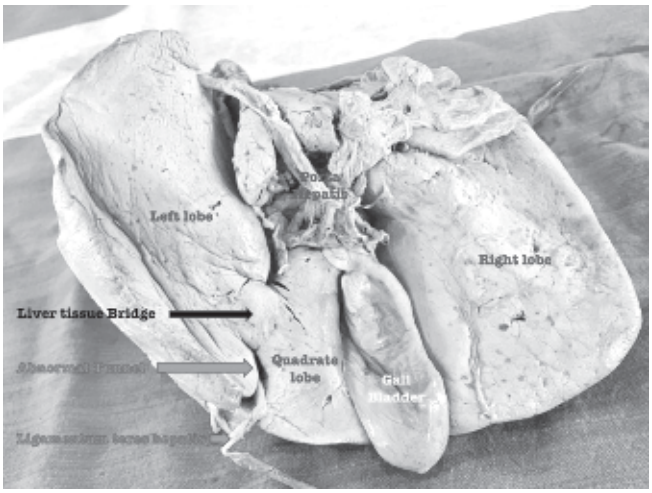

Figure 1. Fissure for ligamentum teres was absent and ligament entered liver through an incomplete tunnel formed by liver tissue on the visceral surface

DISCUSSION

A variety of congenital liver malformations including atrophy, agenesis, and lobes have been documented, however we present here an unusual variant in which the fissure for ligamentum teres has been transformed into an incomplete tunnel. This case corresponds to type 4 b variants of pons hepatis, where the middle part of the umbilical fissure is covered by a parenchymal bundle that is more than 2 cm long.[6] This may due to the failure of liver to get separated out into right and left lobe during second month of gestation leads to formation of tunnel.[7] Mansur D I witnessed a similar variation in his work on morphological variation in human liver exhibiting partial fissure of ligamentum teres.[5] The observed instance was extremely unusual, and it corresponded to a case reported by Singh R (2019) in which a parenchymal bridge covered a fissure, constructing a tunnel.[4] According to Reddy N's research on the anatomy of the caudate and quadrate lobes of the liver, the incidence ratio of pons hepatis was 38.75% in his study,[2] while Cawich SO indicated that the incidence ratio of pons hepatis globally was 3.45%.[3] During radiography, such a tunnel identifies a hyperlucent region, making diagnosis difficult and altering the architecture of the quadrate lobe.[7] As a result, the tunnel may depict a deceptive impression of a diseased cavity due to liver parenchyma.

CONCLUSION

The awareness of the structural variances in the liver is crucial for surgeons and radiologists for surgical and diagnostic operations, as there may be a surprise factor during laparoscopic surgery that could compromise the outcome. This could assist pathologists avoid confusing the tunnel with the diseased cavity that has developed in the liver parenchyma.

CONFLICT OF INTEREST

None

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