Case Report: Congenital Defect of the Liver Falciform Ligament

Hasan Pahang[1*]

1. Department of Anatomy, School of Medicine, North Khorasan University of Medical Sciences, Bojnurd, Iran.

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Hasan Pahang was born in Mashhad, Iran and raised in a crowed family. After graduated in Bachelor of Radiology, he got interested to anatomy and acquired PhD. in anatomy from Mashhad Medical Science. Now he is a Faculty member of Department of Anatomy, School of Medicine, North Khorasan University of Medical Sciences, Bojnurd, Iran.

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ABSTRACT

Congenital variations and anomalies in the human body are clinically important and surgeons must be aware of those. Various human congenital malformation types have been reported. The liver is the largest organ of the digestive system. Numerous studies surveyed malposition in the liver and its attachments, because variations in the hypochondriac region and liver attachments may cause acute abdomen symptoms and medical emergency conditions like bowel obstruction. In this case report, we described an abnormal hepatic falciform ligament that connected the liver to the anterior abdominal wall in a male cadaver; this connection is important in the fundamental liver mobilization. The routine dissection of the anterior abdominal wall of a 56-year-old male formalin-fixed cadaver donated to the North Khorasan University of Iran suggested that a part of the falciform ligament was not formed. Inspecting the diaphragmatic and visceral surfaces of the liver revealed no hypertrophy or abnormal findings in the liver lobes. Additionally, there were no signs of surgical incision to the cadaver's abdominal wall. The findings of our report indicated that liver attachment defect was a congenital abnormality.

1. Introduction

Although there are numerous anatomical variations in the abdominal cavity organs, those associated with the liver ligament attachments are clinically important. One of which is a falciform ligament, that runs from the anterior abdominal wall to the diaphragm and attaches the liver to the umbilical ring [1]. Previous studies have suggested that anatomical variations in the thickness, stretch, and development of falciform ligament are different in adults and children [2]. According to previous research, the length and mean thickness of falciform ligament in adults are about 9.9 cm and 6 mm, respectively. Furthermore, this ligament encloses the obliterated umbilical vein [3].

*** Corresponding Author:**
Hasan Pahang, PhD.
Address: *Department of Anatomy, School of Medicine, North Khorasan University of Medical Sciences, Bojnurd, Iran.*
Tel: *+98 (915) 3152099*
E-mail: *pahang_hasan@yahoo.com*

Figure 1. The anterior border of liver
This figure illustrates the anterior border of liver, where the teres ligament entered the anterior border of the liver. Moreover, the free margin of falciform ligament is shown in the superior surface of the liver.

A record of the liver ligaments anatomical variations is important for predicting laparoscopic abdominal surgery complications. Additionally, anatomical variations in the liver attachments and the right hypochondriac region can sometimes cause acute abdomen symptoms and medical emergency conditions like bowel obstruction [3, 4]. For example, sometimes a part of the bowel herniated through a defect in the falciform ligament may be caused by trocar insertion in operation room; also, part of small bowel herniated through a congenital defect in the falciform ligament may be created in a virgin abdomen [5].

However, data on the partial agenesis of falciform ligament are scarce. In this paper, we presented a case of anatomical congenital partial agenesis of this ligament in a 56-year-old formalin-fixed human body.

2. Case Presentation

The general dissection course of abdominal wall of a 56-year-old man's cadaver maintained in the North Khorasan University of Medicine in Iran, was investigated. We observed that a part of the liver falciform ligament was not formed and the liver had abnormal attachments to the anterior abdomen wall (Figure 1). Our research about the agenesis or defects of falciform ligament in the liver suggested that it is a rare anatomical variation, only described in limited studies. This report demonstrated a congenital defect of the falciform ligament in the liver.

In other words, we observed that a part of the falciform ligament was not formed. However, the round ligament of liver was hung from the anterior abdominal wall above the umbilical ring and was inserted inside the parenchyma of the anterior border of liver in the normal position. Inspecting the diaphragmatic and visceral surface of liver revealed no hypertrophy or abnormal findings in the liver lobes. In addition, examining the abdominal wall and abdominal contents suggested no signs of surgical injury. Defects of falciform ligaments are important in surgery and sometimes in a part of the bowel herniated through this defect in the falciform ligament.

3. Discussion

Partial agenesis of the falciform ligament are extreme anatomical variations; this abnormality is important in clinical conditions. Defects generated in the falciform ligament may be congenital or the result of an abdominal surgical trauma. Sometimes, the surgical defects of falciform ligament present as a cystic abdominal mass or abscess [6]. Most reports of the abnormality, hypoplasia or failure of falciform ligament have been congenitally-related; no signs of abdominal surgery was observed in the current report [7].

Internal herniation through a congenital defect in this ligament may be caused by factors like pregnancy trauma that moves the abdominal contents into the upper abdo-

men and falciform ligament. We investigated the cadaver of a 56-year-old man with no signs of surgical incision to the abdominal wall. It seemed the huge defect in the falciform ligament was congenital. The variations in the falciform ligament anatomy are well-defined; however, disorders related to the falciform ligament remain undiscovered. Prevalent complications such as ligament cysts, tumors, abnormal vascularization, and partial ligament defects are the most recognized congenital abnormalities in the falciform ligament [8].

4. Conclusion

The diagnosed defects in the falciform ligament may indicate the importance of protective procedures to inhibit internal herniation through the falciform ligament.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by the Ethics Committee of North Khorasan University of Medical Sciences (code: IR.NKUMS.REC.1398.002).

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Conflict of interest

The authors declared no conflict of interest.

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