

Case Report

PRESENCE OF AN UNUSUAL FISSURE ON THE DIAPHRAGMATIC SURFACE OF SPLEEN

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ABSTRACT

Spleen is the largest lymphoid organ of the body. Variations in the diaphragmatic surface of spleen are extremely rare which makes it significant. We observed an unusual fissure on the diaphragmatic surface of the spleen during routine dissection. Knowledge of this variation of spleen is important for radiologists, surgeons, clinicians and anatomists.

KEY WORDS: Spleen, Fissure, Diaphragmatic surface.

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INTRODUCTION

In the early 20th centuries, Spleen was considered to be an insignificant organ, the importance of which has now increased because of its immunological and cytopoietic activity along with its potential for R.B.C storage and blood filtration [1]. The growing awareness of its clinical and functional role had led to many insights on the conservative strategies in managing conditions associated with spleen. The size of the spleen is used as an indicator of disease activity in a variety of reticuloendothelial system diseases. Measurement of the splenic length clinically is a very good indicator

of actual splenic size [2]. Spleen is an intraperitoneal organ with two surfaces namely, the diaphragmatic and visceral surface. It has three borders namely, superior, intermediate and inferior and has two poles - anterior and posterior [3]. The diaphragmatic surface is convex and smooth and is related to the abdominal surface of the left dome of the diaphragm [4]. The visceral surface is irregular and is characterized by renal, gastric, colic and pancreatic impressions. In the early fetal life, 1-2 notches could persist near the anterior extremity from the lobulated form of the spleen. The posterior extremity or superior pole is

directed towards the vertebral column. The anterior extremity or inferior pole is broad and is laterally directed [4]. Its superior border shows variable number of splenic notches. The diaphragmatic surface is totally covered by peritoneum and usually does not show any notches or fissures. The diaphragmatic surface may show grooves formed by the 9th, 10th, and 11th ribs. The shape of the organ depends on the surrounding viscera [3, 4]

CASE REPORT

During routine dissection classes of medical undergraduates in Yenepoya Medical College, Mangalore, Karnataka; a Spleen with an unusual presentation of an abnormal notch in the inferior border extending as a fissure into the diaphragmatic surface of spleen is noted in a male cadaver of about 60 years of age. (figure 1) The fissure also extended into the visceral surface for a distance of 22.4mm. (figure 2)

Fig. 1: Fissure extending into the diaphragmatic surface of spleen.



Fig. 2: Fissure extending into the visceral surface of Spleen.



The superior border presented no notches. The fissure is presented 30.4mm from the anterior border extending upwards and backwards through the diaphragmatic surface and ending just below the superior border separated from the same by 9.2mm. The fissure measured 89.4mm in length and 20.5mm in depth. The spleen as a whole was 157.4mm in length, 99.8mm in breadth and 49.4 mm width. The visceral surface of the spleen presented lobulated appearance which points out to defective fusion and development of the organ. No other visible anomalies were found in other viscera of the cadaver.

DISCUSSION

Spleen is the largest lymphatic organ, connected to the blood vascular system consisting of a large encapsulated mass of lymphoid and vascular tissues, situated in the left hypochondrium and partly in the epigastrium, between the fundus of the stomach and the diaphragm. The spleen develops from the mesoderm and during its development, different lobules are formed, which fuses with each other later on which is indicated in the form of the lobulations in adult spleen that can be seen on the superior as well as on the inferior borders as notches.

Despite its clinical significance, spleen is very often prone to certain negligence. Spleen is vulnerable to several surgical complications indicative of splenectomy. As such, the current trend of surgeons is to efficiently conserve much splenic tissue and preserve its significance [6]. Hence, developing an awareness of splenic variational anatomy is of paramount importance from the fundamental view point.

There is a wide range of congenital anomalies of the spleen. Some are common, such as splenic lobulations and accessory spleen. Other less common conditions, such as wandering spleen and polysplenia, have particular clinical significance. In fetal life, although spleen occurs in a lobulated form, lobules disappear prior to the child birth. In adult spleen, notches are considered as remnants of the grooves from where the fetal lobules have undergone separation [7].

Splenic notches are usually present in the superior border of spleen. Inferior notches are rare occurrences. In the present case, presence of an inferior splenic notch, extending as a fissure towards diaphragmatic surface as well as visceral surface, points out to defective development of the viscera. This may be mistaken for lacerations of the spleen in case of radiological observations of the abdominal trauma. A case of large congenital fissure mimicking splenic hematoma was observed in splenic scintigraphy by Smidt [8]. The lobulated appearance of visceral surface may be due to the improper fusion of the splenic nodules during development. The present variation may create confusions in clinical palpation of the enlarged spleen in splenomegaly as it may be mistaken for a growth or a defect. This knowledge is also very important for the surgeons performing surgical interventions on spleen and for radiologists performing diagnostic procedures. This possibility must be kept in mind during planning of surgeries and also in laparoscopic interventions. This knowledge helps the practitioners for prompt diagnosis and a good clinical outcome. In this modern era of imaging and minimally-invasive approaches, it is imperative on the side of both the radiologists and operating surgeons to have a thorough knowledge of the anatomy and the commonly-occurring variations in this organ.

CONCLUSION

Knowledge about the reported variation of spleen is important to clinicians, surgeons, radiologists as well as in the field of anatomy, embryology and anthropology. These sorts of anomalies should be kept in mind during clinical and imaging evaluations in order to avoid possible misinterpretations and arrive at accurate clinical diagnosis and render proper treatment strategies.

Conflicts of Interests: None

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