Lobulated spleen with a fissure on diaphragmatic surface

Kumaraswami B Hiremath

Professor & HOD, Dept. of Anatomy, Rachana Sharir, SJG Aurvedic Medical College, Koppal, Karnataka

Email: kbhiremathphd@gmail.com

Abstract

During my dissection classes, a bi-lobed and large lobulated spleen with a deep vertical fissure measuring 2cms deep was observed. Fissure is in between superior and inferior border i.e. in diaphragmatic surface. As it is shown in the below photograph, the spleen is marked in two halves with a fissure and make the Spleen in to 2/3rd superior lobe & 1/3rd of inferior lobe.

This knowledge is useful to the radiologists and surgeons.

Access this article online	
Quick Response Code:	Website: www.innovativepublication.com
	DOI: 10.5958/2394-2126.2016.00068.2

Case Report

During routine dissection classes for Ayurvedic Medical undergraduate students, a lobulated spleen with a fissure was noted in a 60 years female cadaver. The spleen apparently looked healthy with a light purplish/ pinkish grey color. It was 2.5cm thick, 8cm broad and 13cm long. The spleen was lying obliquely along to the long axis of the 10th rib; make an angle about 45^0 with the horizontal plane sand weight was 130gms.

Fig. 1: Photograph of the diaphragmatic surface of Spleen with a fissure

Fig. 2: Photograph of depth of the fissure between Superior, Inferior border & diaphragmatic surface

Fig. 3: Photograph showing the view of diaphragmatic surface make the Spleen in to 2/3rd superior lobe & 1/3rd of inferior lobe

Discussion

The size and weight of spleen vary with age, individual and the same individual under different conditions. In the adult it is usually 12cm long, 7cm broad and 3-4cm wide tends to diminish in size and weight in older people. Its average adult weight is about 150gm (normal range: 80-300gm, largely reflecting its blood content).

The spleen has two major functions: The removal of particulate material including aging erythrocytes from the circulation and the provision of lymphocytes and antibodies as part of body's system of secondary

lymphoid tissues. Both of these activities are shared with other organs in the body, so the spleen is not essential to survival, although its removal diminishes the body's defense against disease. Abnormal hila and fissure are present in spleen in very few cases[1].

Splenic noduls are present in early stages later on diffuse to form spleen. In rare cases these nodules develop independently and lead to accessory spleen. Except upper border, fusion takes place smoothly. This is the embryological reason for having notches on the superior border. Lobulated spleen disappears at birth however; it may persist along the medial part of the spleen[2].

The fetal lobules are sometimes appears as notches which are presented on the superior border of the adult spleen as a remnants. These notches can be sharp and are occasionally deep as 2-3cm. Occurrence of deep fissure on the diaphragmatic surface has been reported recently. It is very rare, present only 1% of cases[3].

The knowledge of the same is very useful for radiologists for the interpretation of the radiological findings. We report here spleen with a fissure and discuss its clinical significance. During fifth week of fetal life from mass of mesenchymal cells spleen begin to develop in the dorsal mesogastrium. Growth of the dorsal mesogastrium and rotation of the stomach help in moving the spleen from the midline position to the left side of the abdominal cavity. Between the spleen and left kidney spleenorenal ligament is formed by the result of the dorsal mesogastrium. The portion of dorsal mesentry between the spleen and the stomach forms the gastrosplenic ligament[4].

To preserve splenic tissue, each surgeon should know importance of it, along with clinical and surgical knowledge[5,6]. Other congenital anomalies of the spleen are lobulation and accessory polysplenia. These are less common though, with clinical significance[7]. Shrijit Das et al[8] (2008) in 100 cadevars, they found 2 to 4 splenic notches at superior border of spleen in 98 specimens. In only 2 specimens splenic notches were at inferior border of spleen. Out of which one specimen has splenic notches superior as well as inferior border. This will give an idea to differentiate the marks of splenic injuries[9]. Because of this anomaly, there is a chance of error in radiological observation with misinterpretation as lacerations and haematoma in the upper abdominal trauma[10].

In this case spleen is having a fissure in between superior and inferior border i.e. in diaphragmatic surface. As it is shown in the photo the spleen is marked in two halves with a fissure make the Spleen in to 2/3rd superior lobe & 1/3rd of inferior lobe.

Knowledge of this variation could be useful to the radiologists and surgeons.

Conclusion

Presence of abnormal fissures and lobes may lead to erroneous diagnosis. In the blunt trauma of the upper abdomen, fissures and lobes of spleen might confuse the radiologists in interpretation of radiological findings especially.

This may be mistaken for lacerations of the spleen in case of radiological observations of the abdominal trauma. It's only a structural change without interfering physiological aspect.

Reference

1. Peter L. Williams. Gray's Anatomy: The Anatomical Basis of Medicine and Surgery. 38th edition.1995. pp.1437.
2. Das S, AbdLatiff A, Suhaimi FH, Ghazalli H, Othman F. Anomalous splenic notches: a cadaveric study with clinical importance. Bratisl Lek Listy. 2008;109(11):513–16. [PubMed]
3. Lee JKT, Sagel SS, Stanley RJ. Computed body tomography with MRI correlation. 2nd edn. New York: Raven Press; 1989. pp. 521–41.
4. Das S, AbdLatiff A, Suhaimi FH, Ghazalli H, Othman F. Anomalous splenic notches: a cadaveric study with clinical importance. Bratisl Lek Listy. 2008;109(11):513–16. [PubMed]
5. Larsen WJ. Larsen WJ, editor. Human embryology. (2nd edn) New York: Churchill Livingstone; 1997. pp. 229–59.
6. Moore KL, Persaud TVN. The developing human, clinically oriented embryology. 6th edn. Philadelphia, PA: WB Saunders Co; 1998. pp. 271–302.
7. Patcher HL, Grau J. The current status of splenic preservation. Adv. Surg 2000;34:137-74.
8. Keith. L. Moore, T V N. Persaud. The Developing Human. Clinically Oriented Embryology. Elsevier, 8th ED. 223-224.
9. Shrijith Das, Azian Abd Latiff, Farihah Haji Suhaimi, Hairi Ghazalli, Faizah Othman: Anomalous splenic notches: A cadaveric study with clinic importance. Bratisl Lek Listy 2008; pp 513-516.
10. Smidt KP. Splenic scintigraphy: a large congenital fissure mimicking splenic hematoma. Radiology. 1977;122:169.