

LOBULATED SPLEEN – A CASE REPORT**Suresh R Rao^{1*}, T Ramesh Rao²****ABSTRACT**

The spleen is a highly vascular organ, reddish purple in color; its size, shape, position and weight varies. It is situated mainly in the left hypochondriac region and partly in the epigastric region. Spleen exhibits a wide range of anomalies. Most of these anomalies are congenital, but there are also acquired types. All these anomalies are due to deviated embryogenesis of the spleen. There are only a few studies which have reported congenital anomalies of the spleen, particularly those with multiple fissures and multiple hila.

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INTRODUCTION

The Spleen is situated in the left hypochondrium and partly in the epigastrium between the fundus of the stomach and the diaphragm. It is a haemo-lymph organ and belongs to the reticulo-endothelial system. Spleen filters the blood by removing damaged erythrocytes or any microbial antigens from the circulation. In foetal life, spleen manufactures erythrocytes and after birth it manufactures lymphocytes. Each splenic lymphatic follicle is traversed eccentrically by an arteriole and is surrounded by the red pulp. The spleen is the major repository of mononuclear phagocytic macrophage cells situated in the red pulp and lymphoid cells in the white pulp. The shape of the spleen varies from a wedge to a tetrahedron. On an average, in the adults, the spleen is 12cm long, 7cm broad and 3-4cm wide. It has an average adult weight of 150 gms ^[1]. Normally, the upper border of the spleen presents splenic notches and the hilum present at the centre of its visceral surface allows for the passage of the splenic vessels. Spleen is known to show variations in its size, shape and position ^[2]. One of the most common congenital anomalies of the spleen is the presence of accessory spleens in various parts of the abdomen in addition to the main organ ^[3]. In

rare cases, the spleen presents abnormal fissures and hila ^[4].

Case Report

Using conventional dissecting techniques, with a purpose of teaching and preparing museum anatomical specimens, the abdominal region was dissected in a 55-year-old embalmed male cadaver, at the Anatomy Department of Faculty of Medical Sciences of UWI. There was no sign of trauma, surgery or wound scars in the trunk region. The skin, superficial fascia and the deep fascia of the anterior abdominal wall were removed systematically. The muscles, nerves and vessels were cleaned and exposed.

During our routine dissections of the abdominal region, we perceived an unusual case of a lobulation in the spleen with numerous fissures and hila. The spleen apparently looked healthy with pinkish grey color. Its précised dimensions were noted, which were 2.6cm thick, 8.5cm broad and 14cm long. The hilum of the spleen was present in three different parts and all the three hila allowed for the means of access for the branches of the splenic vessels. The three hila, on the visceral surface of the spleen seem to appear of almost of the same length. One of the hila was positioned just above the intermediate border and close to the anterior

end of the spleen. The remaining two hila were placed nearer to the posterior end of the spleen (Fig-1).



Fig 1: Visceral Surface of the Spleen

We noticed only one fissure on the upper border of the spleen, which was directed downwards. This fissure was visible on both visceral and diaphragmatic surfaces of the spleen. We also observed three fissures on the lower border of the spleen which were directed forwards on both diaphragmatic as well as on the visceral surface. (Fig-1 & 2). The existence of these fissures made the spleen appear lobulated.

Discussion:

Discrepancy in the size, shape, fissures and position of the spleen are quite common [2]. Some of these discrepancies may end up in diagnostic consequences and may lead to

misinterpretation as morbid development. Existence of accessory spleens in diverse parts of the abdominal regions in addition to the main organ is one of the common congenital anomalies of the spleen [3]. Several types of literature on spleen showing abnormal fissures and hila have been documented [4].



Fig 2: Diaphragmatic Surface of the Spleen

We report here a spleen with numerous fissures and hila and discuss its developmental background and its clinical importance. The spleen is developed from the mesenchyme of the dorsal mesogastrium. At second month of foetal period, when embryo is at 8-10mm of length, a collection of mesenchymal cells found in the dorsal mesogastrium. This collection of mesenchymal cells increases quickly and at the third month of the foetal life, these mesenchymal cells acquire a typical shape of the spleen. Vascularization also occurs at this time. Active formation of erythrocytes takes place at 4th to 8th month of

the foetal period in the spleen: which accounts to the formation of much of the size of the spleen. Erythrocytogenesis ceases completely at the end of the eighth month of the foetal life, but it may be revived in certain diseases in the adults. Appearance of lymphoid tissue in small quantities will be seen in very early stage of spleen development, but characteristic splenic corpuscles or Malphigian corpuscles will develop during six to eight month of foetal period of spleen development. During early stage of spleen development, spleen exhibits with very few splenic nodules. Later, these splenic nodules will eventually fuse to form the complete spleen. Some of these splenic nodules may get alienated from the rest and develop independently to form accessory spleens. The splenic nodules fuse with each other smoothly, except at its upper border. This is why the spleen exhibits notches on its upper border. Lobulation is found in the fetal spleen but it disappears after birth. On the other hand, the lobulation may persist along the visceral surface of the spleen [5]. On rare occasions, a splenic lobule may be present partially posterior to the upper pole of the left kidney and may displace the kidney anteriorly [6]. The notches seen on the upper border of the adult spleen are the vestiges of the grooves that originally detached from the fetal lobules. Around 1% of incidence of an

abnormal deep fissure on the diaphragmatic surface of the spleen has been documented [7]. Several reports have been published on the occurrence of six notches on the upper border of the spleen and one notch on the anterior end [8]. As mentioned earlier, abnormal notches have been found on the upper border, anterior end and lower border. Even in this case discussed above, we observed fissures on the superior and on the inferior borders as well as on the diaphragmatic surface of the spleen, which divided the spleen incompletely into lobes and lobules.

Existence of aberrant fissures and lobes might lead to erroneous diagnosis and especially the radiologist should be aware about this type of anomaly during interpretation of their radiological findings. Reports on the appearance of an innate fissure resembling splenic hematoma or abnormal lobulation can result in misinterpretation as a mass arising from the kidney. Also, variations in the branching patterns of splenic artery and point of their entry into the spleen by the radiologists have been documented [9-14]. But reports on occurrence of multiple hila along with multiple fissures are inadequate. In desolating injury of the spleen, presence of many hila, with each having a branch of splenic artery, may lead to any one of the

branches being left without a ligature, causing postoperative bleeding.

Conclusion:

Knowledge of splenic anomalies including the presence of lobulation and multiple hila is of great significance. It will avoid misinterpretations by the radiologists and the surgeons during spleen-preserving splenic lymph node dissection and radical total gastrectomy. Such knowledge of splenic anomalies will also prove useful in laparoscopic splenic vessel-preserving distal pancreatectomy procedures.

Conflict of Interest Statement-

There is no conflict of interest.

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