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A Rare Presentation of Splenunculus in Greater Omentum - An Original Case Report

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Abstract: ***Splenunculus or accessory spleen is a congenital foci of normal splenic tissue found separately from the main body of the spleen. It is found in approximately 10% of population. Accessory spleens may appear either due to developmental defects or as a result of trauma. Most common sites for splenenculi are hilum of the spleen and near the tail of pancreas. It may also be present in other sites such as greater omentum, mesentry or in the walls of stomach and intestines. Here we report a case of an accessory spleen seen in the greater omentum. The splenunculus was noted during routine cadaveric dissection of a middle aged person in the department of Anatomy, Believers church medical college, Thiruvalla. Knowledge regarding splenunculi is important for surgeons especially during splenectomy as failure to remove the accessory spleen may result in recurrence of the disease. Additionally during any radiographic imaging, the accessory spleen maybe mistaken for an enlarged lymphnode or a tumour. In some cases, the splenunculi may become symptomatic causing abdominal pain and vomiting due to torsion. This case has been reported to give an insight into the rare presentation of an accessory spleen in the greater omentum.***

Keywords: Splenunculi, splenectomy, greater omentum

1. Introduction

Splenunculus, also known as accessory spleen is a congenital ectopic splenic tissue arising during the embryonic period of development. Spleen is an organ present in the left hypochondrium between the fundus of the stomach and the diaphragm. It is the largest lymphoid organ in the body. Spleen is a haemo - lymph organ and it belongs to the reticulo - endothelial system. The spleen filters blood by taking out worn - out RBC's. 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. [(1)]

The spleen develops from the mesenchymal cells found between the layers of the dorsal mesogastrium. Formation of splenenculi maybe congenital or acquired. The acquired cases of splenunculi usually results from trauma where the cells receive their blood supply from the nearby structures. The congenital development of accessory spleens happens when some cells from the developing spleen gets deposited along the path from the midline to its final location in the left hypochondrium of the abdomen. Splenenculi are most commonly seen in the hilum of the spleen and within the tail of the pancreas. It maybe also present in the gastrosplenic ligament, greater omentum and rarely in the left spermatic cord. [(2)]

Spleen may present various other anomalies such as complete agenesis and polysplenia or multiple spleens. The size of the spleen diminishes in starvation, in old age or in case of any severe haemorrhage. Accurate preoperative radiological investigations have to be done before attempting any surgeries on spleen. ([3)]

2. Case Report

During routine cadaveric dissection for 1st year MBBS students in the department of Anatomy, Believers Church medical college Thiruvalla, there was an incidental finding of asplenenculus in the greater omentum. It was observed in a middle - aged male cadaver. This is the first case reported for splenenculus in our department representing a frequency of 4% (1/25 cadavers) during the period 2016 - 2020.

The anterior abdominal wall was dissected and the peritoneal cavity was opened. The left lobe of the liver had extended up to the left hypochodrium overlapping the medial end of the spleen. The liver was removed. The gastro - splenic ligament and part of greater omentum were seen adherent to the visceral surface of the spleen. The spleen extended down beyond the border of the 11th rib. The primary spleen was removed. The spleen was tetrahedral in shape. The spleen measured 15.5 cms in length, 9 cms in breadth and 2.3 cms in thickness. (Figure - I) There was a fissure on the diaphragmatic surface of the spleen. The fissure measured 4.8 cms in length. (Figure - II)

An ovoid mass of tissue was seen in the inferior part of the greater omentum. (Figure - III) The tissue appeared to be an accessory spleen. It measured around 5.4cms in length, 4.6cms in breadth and 1.5cms in thickness. The dimension of the accessory spleen is large compared to the usual diameter of about 2 cms. There was no separate vascular pedicle seen. Probably it received the blood supply from the neighbouring vessels. The tissue was cut and sent for histological evaluation. Slide was prepared and it showed the microscopic appearance of spleen. All other organs were normal and without any anomalies.

3. Discussion

Spleen is an organ present in all vertebrates. The lateral 2/3rd of the spleen lies in the left hypochondrium and medial 1/3rd

in the epigastrium. The axis of the spleen is directed downwards, forwards and laterally. The spleen lies against 9^{th} - 11^{th} ribs of left side. Filtration of unwanted elements from the blood by phagocytosis is the main function of spleen.

Spleen is a lymphoid organ and it develops from mesoderm in the dorsal mesogastrium, close to the developing stomach. Spleen develops as a collection of mesenchymal cells. It forms small lobular masses of splenic tissue in the dorsal mesogastrium. As the mesenchymal cells proliferate, the splenic mass projects in the left layer of dorsal mesogastrium. Some cells of the developing spleen gets deposited along the path from the midline to the left hypochondrium which leads to the development of splenenculi. It happens as a result of imperfect fusion of separate splenic masses. [4]

Splenunculus is a condition seen in 15 - 40% of autopsies. In most cases, the accessory spleen maybe one in number and sometimes two or more. The splenenculi are usually less than 2 cm in diameter. The most common locations include hilum of the spleen, behind the tail of pancreas, greater omentum, mesentery, kidney or in the pelvis as an adnexal mass. It maybe also seen in the gastrosplenic and lienorenal ligament. Usually splenenculi are asymptomatic but rarely presents with symptoms. Mostly splenenculi are incidentally detected during an abdominal ultrasound or CT. In few cases, it may present with abdominal pain due to torsion. [5]

At times, splenunculi maybe mistaken for splenosis. Splenosis is an acquired condition due to trauma or surgery. Splenosis occurs where foci of splenic tissue undergoes autotransplantation following trauma or splenectomy. Displaced tissue fragments implant on vascularized surfaces in the abdominal cavity or it may even penetrate into the thorax. In some cases, there may be splenogonadal fusion which can result in one or more accessory spleens along the path from the abdomen to the pelvis. [6]

It is possible to differentiate splenenculi from splenosis histologically. Splenenculi shows well formed capsule, hilum, trabeculae, white pulp and red pulp under the microscope. Whereas in case of splenosis, the nodules maybe surrounded by a capsule but malphigian corpuscle with a central arteriole maynot be formed. ([7]

Most often splenenculi are detected as incidental findings during abdominal ultrasound or CT scan done prior to surgeries like splenectomy. While doing splenectomy for haemotological disorders, the surgeon should be careful to remove the splenenculi if present as it may undergo hyperplasia and cause recurrence of the disease. Presence of splenenculi in patients undergoing splenectomy for non - haematological disorders or in patients with ruptured spleen maybe considered as a blessing as the accessory spleen performs all the functions of the normal spleen.

Splenenculi are often misdiagnosed for any pancreatic or renal tumour. Therefore it is important to confirm the presence of splenenculi by CT scan or 99m Tc - heat denatured red blood cell scan and confirmed by taking biopsy. [8]

According to Park et al, an incidence rate of 15% is observed in patients undergoing splenectomy for various haematological disorders. According to various literatures, frequencies of one, two and three accessory spleens are 79 - 86%, 10.5 - 14% and 1 - 10.5% respectively. [9] Mortelle' et al had done a study in 1000 consecutive patients undergoing abdominal contrast enhanced CT scans. He reported that 15.6% patients had one accessory spleen and 13% had two or three accessory spleens. Presence of splenic tissue has even been reported in the liver and lung following trauma. [10]

4. Conclusion

Although presence of accessory spleens is usually asymptomatic, rarely it gains clinical importance. In some cases, it leads to complications such as torsion, haemorrhage, cyst formation or even spontaneous rupture. It may lead to further complications such as abscess formation, peritonitis or gangrene. It may sometimes mimic neoplastic tumours. In addition to studies done in living subjects through radiological scans or laparoscopic procedures, cadaveric studies can be done to determine the incidence of development of accessory spleens.

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Figure I: Showing the primary spleen of the concerned cadaver

Figure III: Showing the presence of splenunculus in the lower part of greater omentum

Figure II: Showing the fissure on the diaphragmatic surface of the spleen