CASE REPORT

Splenunculi Duplex in Association with Atypical Vasculature: A Clinico-anatomical Appraisal

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ABSTRACT

Aim and objective: To report a rare case observed in the Department of Anatomy at a Medical College in Northern India during routine cadaveric dissection for first-year medical students.

Background: Many anomalies of spleen have been reported which include multilobulated spleen, persistent lobulation, accessory spleen, asplenia, ectopic spleen, polysplenia, splenunculi, wandering spleen, and splenogonadal fusion. These splenic anomalies may be associated or may not be associated with other anomalies.

Case description: We found an enlarged spleen with two accessory splenunculi of different sizes, lying separately, with no connection between them. Independent branches from left gastrosplenic artery were seen to be supplying each splenunculus. The enlarged spleen was completely covered by the left lobe of liver at its superior border.

Conclusion: Accessory spleens or splenunculi have clinical significance in cases of splenomegaly, splenic trauma, and lymphadenopathy observed during clinical or imaging studies.

Clinical significance: During the procedure of splenectomy, splenic lobules should be looked for and should be removed if present. In cases of ruptured primary spleen, accessory spleen can be preserved as splenic tissue.

Keywords: Accessory spleen, Congenital anomalies, Polysplenia, Splenunculi.

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BACKGROUND

Spleen is the largest lymphoid organ of the body and is located in the left hypochondrium. It lies between the left dome of the diaphragm and the stomach fundus. Embryologically, the spleen develops at about sixth week of intrauterine life as a localized thickening of coelomic epithelium of the dorsal mesogastrium. Many nodules arise that later fuse to form a lobulated spleen. However, before birth lobulation disappears, which is indicated by notched superior border of spleen (Sadler TW 1 and Patricia Collins 2). Varied embryological anomalies of spleen have been noticed which include persistent lobulation or multilobulated spleen, wandering spleen, ectopic spleen, accessory spleen or splenunculi, asplenia, polysplenia, and splenogonadal fusion.

CASE DESCRIPTION

A rare case of an enlarged spleen with two splenunculi was found in a female cadaver aged 28 years during routine cadaveric dissection in Department of Anatomy in a Medical College in Northern India.

Exploration of abdominal viscera revealed a lobular mass of about an inch diameter situated close to the greater curvature of stomach in the left lumbar quadrant (Fig. 1). On careful dissection and reflection of the stomach and the layers of greater omentum inferolaterally, it was found that this mass was in supracolic compartment situated close to the tail of pancreas. It was covered by a capsule and was attached to the splenic hilum by a band of peritoneum. This lobule was found to be 3 × 2.7 cm resembling the spleen in appearance and texture. The spleen occupied its normal position in the left hypochondrium. Its size was enlarged, and it measured 14.5 cm in length and 9 cm in breadth.

The splenic artery was cleared, and its branches ramified in the hilum of spleen. The left gastroepiploic artery, which is a branch

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Fig. 1: An accessory spleen or splenunculus (AS) close to the greater curvature of stomach. L, liver; SP, spleen; ST, stomach

Fig. 2: Accessory spleen 1 (AS1) and accessory spleen 2 (AS2) with the enlarged spleen (SP) in the abdominal cavity after reflecting stomach. L, liver; P, pancreas; SA, splenic artery; LGA, left gastroepiploic artery; Br LGA, branch of left gastroepiploic artery

from splenic artery, was dissected. The left gastroepiploic artery gave one branch that was seen to be entering the hilum of this lobule. Situated superior to this mass another small similar lobule was seen. This mass measured 0.8 cm in diameter and was attached to the lienorenal ligament by a continuation of its capsule. A branch from the left gastroepiploic artery was found to enter this lobule (Fig. 2). The branch from the left gastroepiploic artery supplying the larger lobule was wider in caliber when compared to the branch supplying the smaller lobule.

Each lobule was meticulously cleared from adjoining connective tissue and associated peritoneal folds. The dissected area was photographed.

In association with the slightly enlarged spleen, the left lobe of the liver also appeared to be enlarged, and it showed a well-defined left margin covering the spleen (Fig. 1).

The clinical history of the patient according to its case file revealed that the deceased had suffered from enteric fever with cerebral malaria.

DISCUSSION

Accessory spleen is a small nodule of healthy splenic tissue that is found apart from the main body of spleen.^{1–3} It results from the failure of fusion of splenunculi, which are located in the dorsal mesogastrium, during embryonic development.^{4,5}

Chin et al.⁵ reported an exceptionally large accessory spleen (more than 5 cm in diameter) presenting as a submucosal tumor of the stomach, and the definite diagnosis was made by technetium-99m sulfur colloid scintigraphy.

An accessory spleen is most commonly found at splenic hilum followed by tail of pancreas. It may also be located in the omentum, mesentery, and peritoneum.⁶ Usually, most of the splenunculi are asymptomatic and are discovered during abdominal ultrasound or computed tomography scan. Sometimes, they become symptomatic and can cause abdominal pain due to torsion or infarction.⁷

Gayer⁸ studied the embryological perspective of congenital anomalies and their presentation on CT scan. He discussed the diagnostic pitfalls and complications associated with splenic anomalies, such as accessory spleen, wandering spleen, and

polysplenia. According to their study, wandering spleen or ectopic spleen was mainly found in children and women aged 20–40 years. The major complication associated with these anomalies was acute, chronic, or intermittent torsion caused by increased mobility, since it has long mesentery.

Mohan et al.⁹ noticed three cases of splenunculi on histological examination. They emphasized that splenunculi should be differentiated from splenosis—an acquired condition associated with splenic surgery or splenic trauma. Splenosis presented as numerous nodules located intraperitoneally or extraperitoneally. Also, there was a marked histological difference between splenunculi and splenosis. Splenunculi showed histological features of normal spleen, whereas splenotic nodules lacked central arterioles in the follicles.

Varga et al.¹⁰ studied the congenital anomalies of spleen and found lobular spleen without any clinical features. They found accessory spleens (splenunculi) in about 10–30% of patients at autopsy. Accessory spleens were located near hilum of spleen; in gastrosplenic ligament and lienorenal ligaments, liver, and stomach wall; in pancreas; or in pelvis. Ectopic spleen was rarely found and if present was located in abdominal cavity, near urinary bladder (Kapellerová et al.),¹¹ in left iliac fossa (Etcheverry et al.),¹² or in thoracic cavity (Carvajal-Balaguera et al.).¹³

In the present case, we found a slightly enlarged spleen that can be corroborated in view of the clinical history of the deceased who suffered from enteric fever. In addition, two splenunculi were observed which were independently vascularized by branches originating from the left gastroepiploic artery. The larger lobule measured 3 × 2.7 cm and the smaller lobule was 0.8 cm in diameter. We speculate that the difference in the sizes of the two splenunculi observed in the current report can possibly be attributed to the different calibers of the arteries supplying them.

The dual splenunculi in the present case can be correlated with the developmental anomaly of nonfusion of splenic lobules.

This is a rare observation of an enlarged spleen with a pair of accessory splenunculi vascularized by the left gastroepiploic artery.

CLINICAL SIGNIFICANCE

Splenic anomalies like splenunculi or accessory spleens should be ruled out during clinical or radiological evaluations of cases of splenomegaly, splenic traumas, and lymphadenopathy.

In cases where splenectomy is required, care should be taken to explore the area and excise all the splenic lobules; otherwise, the residual splenic tissue may take up the function of spleen and would nullify the effect of splenectomy. Also, in cases where splenectomy is planned for autoimmune diseases such as thrombocytopenic purpura and autoimmune hemolytic anemias, the growth of unrecognized accessory spleen is a cause of late relapse. An accessory spleen is also clinically significant since it can be preserved and can take up the function of spleen in cases of ruptured primary spleen, splenic torsion, or bleeding caused by spontaneous rupture.

REFERENCES

1. Sadler TW. Langman's medical embryology. Digestive System. 11th ed., Philadelphia: Lippincott Williams and Wilkins; 2009. p. 215.
2. Collins P. Gray's Anatomy Embryology and Development. 38th ed., New York: Churchill Livingstone; 1995. p. 328.
3. Freeman JL, Jafri SZ, Roberts JL, et al. CT of congenital and acquired abnormalities of the spleen. Radiographics 1993;13(3):597–610. DOI: 10.1148/radiographics.13.3.8316667.

4. Dodds WJ, Taylor AJ, Erickson SJ, et al. Radiologic imaging of splenic anomalies. *AJR Am J Roentgenol* 1990;155(4):805–810. DOI: 10.2214/ajr.155.4.2119113.
5. Chin S, Isomoto H, Mizuta Y, et al. Enlarged accessory spleen presenting stomach submucosal tumor. *World J Gastroenterol* 2007;13(11):1752–1754. DOI: 10.3748/wjg.v13.i11.1752.
6. Hayward I, Mindelzun RE, Jeffrey RB. Intrahepatic; accessory spleen mimicking pancreatic mass on CT scan. *J Computer Assist Tomograp* 1992;16(6):984–985. DOI: 10.1097/00004728-199211000-00030.
7. Raichuk IE, Chesakov SA, Niirchenko IY, et al. Torsion of accessory spleen. *Klin Khir* 1994;10:64.
8. Gayer G, Zissin R, Apter S, et al. CT findings in congenital anomalies of the spleen. *Br J Radiol* 2001;74(884):767–772. DOI: 10.1259/bjr.74.884.740767.
9. Mohan H, Amanjit, Bhardwaj S, et al. Splenunculi – report of three cases. *J Anat Soc India* 2002;51(1):70–71.
10. Varga I, Galfiova P, Adamkov M, et al. Congenital anomalies of the spleen from an embryological point of view. *Med Sci Monit* 2009;15(12):RA269–RA276.
11. Kapellerová A, Siman J, Rašková J, et al. Enuresis as a rare symptom of the dystopic spleen in a child. *Eur J Pediatr* 1999;158(10):870–871. DOI: 10.1007/s004310051229.
12. Etcheverry R, Allamand JP, Guzman G, et al. Ectopic or migrating spleen and supernumerary spleens: detection and identification with 99mTc, 51Cr and 113In radioisotopes. *Rev Med Chil* 1989;117(12):1403–1408.
13. Carvajal-Balaguera JJ, Peña Gamarra L, Gómez Maestro P, et al. Bochdalek's hernia in an adult with stomach volvulus and extra-pulmonary sequestration. *Arch Bronchopneumol* 1995;31(6):287–289. DOI: 10.1016/S0300-2896(15)30915-7.