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An 18-Year-Old Male Patient Presenting with Splenic Cyst and a History of Kidney Transplantation

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Abstract
The spleen is the most commonly injured solid organ in blunt abdominal trauma and contributes to mortality and morbidity. Epidermoid splenic cysts are an example of primary congenital cysts that contain an epithelial lining unlike secondary cysts that are collection of fibrous tissue.
An 18-year-old male presented with acute left upper abdominal pain, feeling of fullness and dyspepsia since 10 days ago. His past medical history was positive for renal transplantation from deceased donor five years prior to presentation. Physical examination revealed normal findings except a palpable soft mass measuring 15x20 cm in the left upper quadrant (LUQ).

Keywords: Splenic Cyst; Epithelial Cyst; Alport Syndrome; Renal Transplant; Splenectomy.

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Introduction
The spleen is the most commonly injured solid organ in blunt abdominal trauma and contributes to mortality and morbidity(1). The normal spleen weighs about 100-250 g in adults. Histologically, the spleen is made up of red pulp and white pulp (2). The red pulp is a series of large vascular channels that filter old red blood cells and trap the bacteria. This allows bacterial wall antigen presentation to the lymphocytes in the white pulp, which is filled largely with lymphocytes. Lymphocyte exposure to antigens results in the production of immunoglobulins (IgM), the most common of which is IgM. The white pulp is also the site of production of opsonins such as tuftsin and complement activation in response to proper stimuli (3). Splenic cysts are sporadic and are either primary or secondary. Primary cysts have a lined epithelium and secondary cysts could be secondary to trauma. Epidermoid splenic cysts are an sample of primary congenital cysts that contain an epithelial lining, unlike secondary cysts that are a collection of fibrous tissue (4). Patients usually do not have specific symptoms if the cyst is small. When the cyst is large, they have nonspecific abdominal symptoms like pain, nausea, or a palpable mass usually in the left upper quadrant (5). Epidermoid cysts and parasitic cysts are examples of primary cysts and they usually have a classic appearance on imaging. Despite imaging modalities and the patient's history, it may be difficult to diagnose an epidermoid cyst without a histological examination (6). The purpose of this case report is to show a rare type of a huge splenic traumatic mass.

Case report
An 18-year-old male presented with acute left upper abdominal pain, feeling of fullness and dyspepsia since 10 days ago. His past medical history was positive for Alport syndrome and renal transplantation from deceased donor five years prior to presentation. He denied recent trauma, but he gave a history of heavy exercise in the gym. Physical examination revealed normal findings except a palpable soft mass measuring 15x20 cm in the left upper quadrant (LUQ) without tenderness. Laboratory tests revealed normal renal function. Other laboratory tests, including the inflammatory markers, were normal. CMV and BK virus PCR were negative but PCR was positive for EBV with a

titer of 2331. Abdominal ultrasound showed a 90x150 mm hypoechoic mass with debris in the medial aspect of the spleen. The mass had no vascularity on color doppler ultrasound. There was no other remarkable finding on abdominal ultrasound. Enhanced-contrast abdominal computed tomography (CT) revealed a hypodense cystic mass in the medial aspect of the spleen measuring 150x160x130 mm. The mass was aspirated, which was bloody with a normal smear and culture. After discussing with the patient and his parents, splenectomy was offered to the patient. He received standard splenectomy vaccinations prior to surgery. He underwent open surgery splenectomy. Surgery and hospital stay were uneventful and the patient was discharged on the third postoperative day. He continued to have an uneventful recovery on follow-up with no recurrence of symptoms. On gross examination, the spleen had a cystic external surface with a cystic lesion filled with a turbid brownish fluid. Microscopic evaluation showed a congested splenic tissue and an epithelial cyst. On microscopic examination, sections demonstrated unremarkable splenic parenchyma and cyst walls lined with the epithelium.

Discussion

Splenic cysts are unusual and classified into parasitic or nonparasitic cysts. Non-parasitic cysts are classified as primary or true cysts, which are lined with epithelial cells, and pseudo cysts, which do not have an epithelial lining. Pseudo cysts can be formed following a trauma, degeneration, necrotizing infection, or abscess (6).

There are some theories about etiopathogenesis of splenic epithelial cysts. Some believe that they are caused by invagination of splenic capsular mesothelium during development and subsequent fluid accumulation. Others propose that these cysts are formed from inclusion of epithelial cells from adjacent structures and consequent metaplasia during embryonic period (7).

Primary splenic cysts are commonly seen in children and young adults as in our patient (8). Our patient did not report any family history of such cysts or masses. Epithelial cysts are mostly asymptomatic or mildly symptomatic as in our case. Symptoms usually include dull pain, feeling of fullness, and a palpable mass.

There are reports of some rare presentations such as acute abdomen caused by intracystic bleeding, infection, rupture, or hypersplenism (12). In addition, there may be some symptoms due to cyst growth causing compression on adjacent organs, including vomiting, dysphagia, hydronephrosis, etc. (8).

There are many lab tests to characterize splenic cysts. On ultrasound, epithelial cysts appear as cystic masses that may contain echogenic debris as in our case. Debris may be due to intracystic bleeding or infection (8).

CT scan will show a well-defined mass with low attenuation, and magnetic resonance imaging (MRI) will show a bright lesion on T2 weighted images. Banerjee reported that guided aspirations of the cyst does not assist in the diagnosis as we concluded in our case (9).

Some studies found that tumor markers such as carcinoembryonic antigen (CEA) and CA 19.9 might be elevated in the serum or cystic fluid (10). Tumor markers are requested when there is a clinical doubt for a cancerous lesion and it is not a routine test for diagnosis or follow-up; therefore, they were not requested in our case. Imaging modalities help to achieve the best treatment method for the patient by specifying the cyst size, situation, and relation to the spleen. Different treatment plans include marsupialization, fenestration, deroofing and partial or total splenectomy. Each of these options can be done laparoscopically or through open surgery methods (9). Considering the transplant history of our patient and his immunocompromised state, splenic preservation was the best choice but the surgical team had no choice other than total splenectomy because of connection to the splenic hilum. Unfortunately, our patient is now severely immunocompromised due to post-transplant immunosuppressive drugs and recent splenectomy and should be observed and controlled for possible infections. We could not find any connection between the cyst and Alport syndrome or post kidney transplant state.

Conclusion

It is considered a pivotal element for physicians to be familiar with the rare presentations of blunt trauma, such as huge traumatic splenic masses. This report shows that a big splenic mass might have appeared just through a blunt trauma.

Conflict of Interest

The authors declare no conflicts of interest.

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