CASE REPORT

Renal splenosis presenting as a renal mass

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Splenosis should be considered in the differential of any patient with a history of splenic trauma or removal and a solid enhancing mass near or within the kidney. Splenosis is the autotransplantation of splenic tissue associated with splenic trauma or surgery, and can be diagnosed properatively, avoiding unnecessary surgery.

Key Words: renal mass, splenosis, splenic trauma

Case report

A 39-year old male had an ultrasound due to indigestion and the question of gall bladder disease. He was otherwise healthy and denied any genitourinary symptoms. His past medical history was significant for a splenectomy at age 9 secondary to trauma from a car accident. The ultrasound showed a solid mass in the left kidney. A CT scan subsequently confirmed an enhancing exophytic solid mass, measuring 3.9 cm x 2.4 cm, arising from the upper pole of the left kidney and the absence of the spleen Figure 1. Preoperative creatinine was 99 μmol/L. The metastatic work-up was negative. After discussion the patient was offered an open partial nephrectomy versus an open radical nephrectomy, depending upon operative findings. Laparoscopic surgery was excluded due to the previous surgery and trauma.

An attempt was made at a partial nephrectomy but due to technical reasons an open radical nephrectomy was performed uneventfully. Pathology showed encapsulated splenic tissue measuring 3 cm Figure 2,

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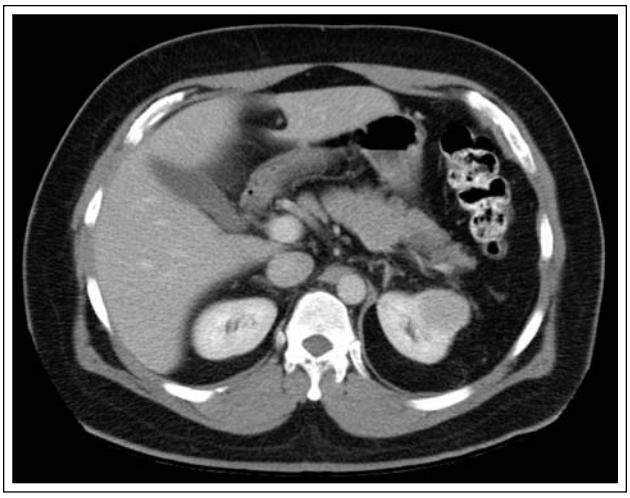

Figure 1. CT demonstrating exophytic solid mass, measuring 3.9 cm x 2.4 cm, arising from upper pole of left kidney.

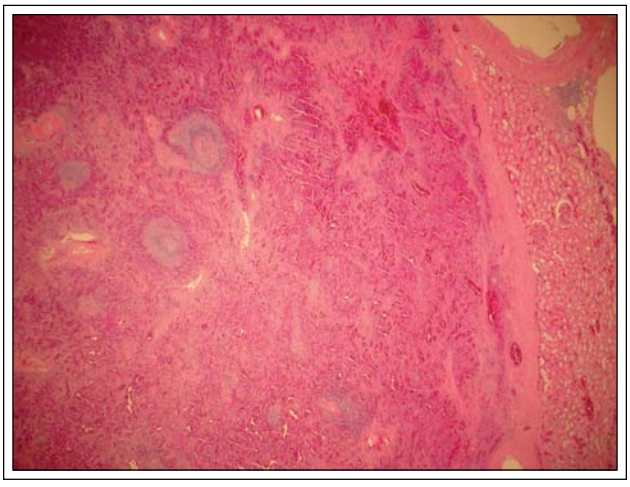

Figure 2. Mass of splenic tissue composed of white and red pulp, bounded by a capsule and kidney parenchyma on the right side.

which was contained within the kidney. The surrounding renal parenchyma showed mild congestion and focal calcifications. No malignancy was found and the patient recovered uneventfully Figure 3.

Discussion

The discovery of splenosis involving the left kidney is both relieving and frustrating. The worry and consequences of carcinoma are gone and the cure rate is obviously 100%. Unfortunately the surgery was unnecessary and a healthy kidney was removed.

Figure 3. Well-circumscribed, dark red-brown mass on the renal cortex with a demonstrable thin capsule. The mass measured 3 cm in widest dimension.

When a renal mass is discovered in a patient the differential diagnosis should consider splenosis if there is a history of splenic trauma or removal.

Splenosis is well described in the literature. Although first described by Albrecht in 1896 from postmortem examinations,[1] the term splenosis originated in 1939.[2] It refers to the autotransplantation of splenic tissue in a heterotrophic location.[3] Depending upon the report source, the frequency of splenic implants, or splenules, post-splenic injury is 26%-67%. Most commonly, the areas affected are the serosal surface of the bowel, greater omentum, parietal peritoneum, serosal surface of large bowel, mesentery, and the diaphragmatic surface.[4-6] The presence of renal splenosis is rare.

Splenosis is quite different from an accessory spleen. An accessory spleen is more common and is found along the spleno-pancreatic ligament. Another difference between the two entities is the nodules of splenosis can be numerous whereas an accessory spleen has only a few. The accessory spleen has its own distinct blood supply from a branch of the splenic artery, whereas nodules of splenosis receive their blood supply from the surrounding tissues. Lastly, an accessory spleen has all the components of a normal spleen while splenules do not have a discrete shape, hilum, or capsule. In fact, splenules often consist of poorly defined follicles and have fewer germinal cells.[6,7]

Splenosis may provide functional benefit if a critical mass of 20-30 cm^3 is formed and preserved. This amount of tissue has been shown to be beneficial in decreasing the incidence of lethal sepsis post-

traumatic splenectomy.[8] The effectiveness of splenules can be measured peripherally by counting pitted red blood cells (RBC). Healthy adults with a spleen have <16% pitted RBC on peripheral blood smear and patients who have splenosis large enough to show radionucleotide uptake also have <16% pitted RBC.[8]

The diagnosis of splenosis is possible preoperatively. The main tool required is consideration of splenosis in the differential of enhancing renal masses. If a patient has had a splenectomy or a history of splenic trauma, it would be prudent to consider splenosis as a cause. The location of the abdominal or retroperitoneal mass does not rule out splenosis.

In 2002, Perry and associates described a 52-year-old male with a right suprarenal mass and a right inferior pole intraparenchymal mass.[9] The pathology revealed the renal mass was a clear cell renal carcinoma but the suprarenal mass was splenic tissue.

If the work-up of a patient suggested a risk of splenosis versus a cancer diagnosis, this could be confirmed with a technetium-99m-sulfur colloid scan. This scan is capable of identifying splenic tissue within the peritoneum or parenchyma as small as 2 cm in diameter. Technetium-99m-labelled heat-damaged RBC maybe used as the radionucleotide to increase the sensitivity and specificity of the scan. It can be used to discover smaller samples of splenic tissue or to distinguish the splenic tissue from the liver.[3,4,10] A recent report described the use of ferumoxide-enhanced magnetic resonance imaging (MRI) to preoperatively diagnose splenosis involving the left kidney.[11] A radical nephrectomy was avoided.

Conclusion

Splenosis is a rare condition and renal splenosis is even rarer. When a patient presents with an enhancing renal mass on CT scan and has a past history of splenic trauma the diagnosis of splenosis should be considered and excluded. Nuclear imaging and possibly ferumoxide-enhanced MRI provide a fast and safe way to diagnose heterotrophic splenic tissue and ensure appropriate treatment. □

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