Right renal mass diagnosed as focal splenosis; a rare differential for a small renal mass highlighting utility of heat damaged Tc-99m RBC scintigraphy to avoid unnecessary surgery

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ABSTRACT

Small renal masses (SRM) represent a heterogenous group of kidney lesions that are often found incidentally and can represent a diagnostic dilemma. Herein, we report a 55 year old female who presented with a 25mm right renal mass. She had no symptomology or significant medical history but did report undergoing a traumatic splenectomy 30 years prior. Using Tc-99m heat damaged RBC scintigraphy, the renal mass was confirmed as focal splenosis. Right sided renal splenosis is almost unheard of. Our case illustrates how good clinical history and correct imaging can prevent unnecessary investigations and surgery for a rare differential of SRMs.

1. Introduction

Small renal masses (SRM) represent a heterogenous group of kidney lesions less than 4cm in size which meet the staging characteristic of T1a. Typically, they are diagnosed incidentally from abdominal imaging given they are often asymptomatic. With the advances and increased accessibility of computerised tomography (CT) and ultra-sound (US) imaging, these lesions are becoming much more prevalent. Twenty percent of renal masses are benign and while the rest represent a form of malignancy, only 20–25% represent aggressively malignant lesions. With a vast list of benign and malignant differentials of these renal masses; their management can often be complex and poses a diagnostic dilemma for clinicians leading to invasive investigations or unnecessary surgery.

Herein we present a case that highlights focal splenosis as a rare differential for an SRM. The ectopic auto-transplantation of splenic tissue seen in splenosis is not uncommon following traumatic splenic injury. It is however uncommon to involve the kidney, and almost unheard of to involve the right (contralateral) kidney. We demonstrate that heat damaged Tc-99m RBC scintigraphy imaging can accurately diagnose the condition and avoid unnecessary biopsy or surgery.

2. Case presentation

A 55 year old female was newly referred to the urology outpatient department for an incidental right upper pole renal lesion. The initial CT was carried out at the emergency department 3 weeks prior for left lower quadrant abdominal pain diagnosed to be acute uncomplicated diverticulitis. On review her diverticulitis had since resolved with anti-biotics and she was currently pain free. She denies a history of haematuria, flank pain or urinary symptoms. There was no preceding illness, and she denies a history of unintentional weight loss or night sweats. She has a positive family history for diverticulitis but no specific cancers. She is a non-smoker and denied any occupation exposure to chemicals, textiles or dyes. Her medical history is significant for hypertension managed with an ACE-inhibitor and she reports a previous emergency splenectomy following a motor vehicle accident 30 years prior. On physical examination, there was no peripheral stigmata of chronic disease. She was euvolemic with no evidence of fluid retention. Her abdomen and flanks were soft and non-tender with no palpable masses felt and bowel sounds were present. All her vital signs were within normal limits, she was afebrile and weighed 67kg. Serum biochemistry revealed a stable renal function of 63ml/min/1.73 m.

All electrolytes and liver function tests were normal and there were no findings to suggest paraneoplastic syndrome. Her urine microscopy was unremarkable with no erythrocytes or bacterial growth.

A CT renal multiphase revealed a right sided, well circumscribed upper pole 25mm renal lesion (Fig. 1). The lesion was enhancing and did not appear consistent with an angiomyolipoma which raised concern for a malignant process. On further discussion with radiology, it was noted...
that the renal lesion appears to perfuse similarly to splenic tissue and in the context of previous traumatic splenectomy, this raised suspicion for focal splenosis despite being rare to be associated with a contralateral kidney. A Tc-99m-labelled, heat-damaged RBC scintigraphy scan was carried out revealing focal intense radiotracer uptake in the 25mm renal mass (Fig. 2). Images were reviewed at a multidisciplinary meeting and given these findings, a diagnosis of focal splenosis was made and no further intervention or investigations were deemed necessary. The patient was discharged back to the GP without an ongoing need for follow-up.

3. Discussion

Splenosis is a benign condition characterised by an acquired ectopic auto-transplantation of splenic tissue from the main organ. Typically, this occurs following traumatic rupture of the spleen requiring splenectomy. It is presumed splenic pulp seeds to areas of the abdominal cavity where it establishes a blood supply to become a functional focus of splenic tissue. There is also evidence of thoracic spread through defects in the diaphragm or hematogenous spread of splenic tissue from case reports of intracranial splenic deposits. While rare to see the phenomenon in practice, intra-abdominal splenosis occurs in up to 65% of splenic rupture cases. Most commonly the deposits are found in the peritoneal cavities of the abdomen and pelvis. Focal splenosis associated with the kidney is less common but has certainly been described in the literature. Reported cases of splenosis in the literature appear to predominantly involve the left kidney given its proximity to the spleen. Focal splenosis in the right kidney is much rarer and has only been reported once in the current literature by Page et al. In this case report, it was felt so unlikely that splenosis could occur in the right kidney that the patient underwent an unnecessary nephrectomy to confirm the diagnosis. A good example where Tc-99m-labelled, heat-damaged RBC scintigraphy would have been useful to preserve the kidney.

Single-photon emission computed tomography (SPECT) combined with CT using Tc-99 m labelled heat-denatured erythrocytes is a modern and valuable tool to diagnose splenic tissue. Because the focus of ectopic splenic tissue is fully functional, the denatured labelled erythrocytes sequester in the tissues displaying avidity on imaging. The technique is accepted to be highly sensitive and specific in diagnosing splenic tissue. There is yet to be a percentage denoted to the exact sensitivity and specificity of the technique purely due to the rarity of splenosis. Ultimately, a positive result is reliable and false negatives are almost universally found to be a lab error during the preparation process of the denatured erythrocytes. By utilising this modality of imaging, we were able to confidently diagnose focal splenosis of the kidney and avoid invasive investigations and renal surgery. Additionally, by leaving the ectopic splenic tissue, this may help prevent complications of asplenia, thus preserving a normal blood smear and retain a competent systemic response to infection.

In conclusion, while our case represents an extremely rare cause for an SRM, renal splenosis in general is not uncommon. Any patient with an SRM or abdominal lesion of concern who reports a history of traumatic splenectomy should be investigated for splenosis.

Ethics

Consent was obtained from patient for presentation of their case. Copy of consent can be obtained from author.

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Declaration of competing interest

There are no conflicts of interest to report.

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