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Oncology

Robotic assisted laparoscopic excision of a renal schwannoma from a community hospital: A case report

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ABSTRACT

Renal schwannomas are an extremely rare renal tumor with possibility for malignant conversion. Although reports are scant, most reports have been presented from academic institutions. We report on a case of a renal schwannoma that was removed via robotic assisted laparoscopic nephrectomy in a community-based specialty practice under the suspicion of a renal malignancy.

Introduction

Schwannomas are generally benign tumors that arise from the peripheral nerve sheath and are most often found in the head, neck or extremities.[1] About 3% of schwannomas have been described in the literature to arise in the retroperitoneum.[1] Most reported cases of this rare tumor have been discovered and published from academic institutions. We report on a case of a benign schwannoma treated in our department, a community-based specialty practice.

Case presentation

A 62 year old female was referred to our clinic for the evaluation of an incidental left renal mass discovered on MRI spine obtained for evaluation of chronic back pain with left lower extremity radiculopathy. Her past medical and social history were largely non-contributory. However, she did have a diagnosis of essential thrombocytosis managed with hydroxyurea, coronary artery disease status post two percutaneous transluminal coronary angioplasties now on clopidogril, and chronic lower back pain with degenerative joint disease. She had no genitourinary complaints. Her urinalysis was unremarkable as were her pre-operative labs with the exception of a platelet count of $476 \times 10^3/\mu L$ in the setting of known history of essential thrombocytosis. Physical exam was unremarkable.

Magnetic resonance imaging revealed a 2.8 cm by 2.5 cm AP/TR well-circumscribed heterogeneous T1 and T2 signal intensity mass in the posterior cortex upper aspect of a partially visualized left kidney (Fig. 1). A CT urogram confirmed a solid mass in the upper pole posterior cortex of the left kidney which was slightly exophytic and measured 2.82 cm by 2.82 cm and very close to the collecting system (Fig. 1). Pre-infusion Hounsfield Units (HU) was 19.73, arterial 38.90 HU, venous 58.50 HU and excretory phase 65.80 HU. There was no associated adenopathy or involvement of the vasculature. Given the radiological findings, the mass was suspected to likely represent a malignancy, and the patient was appropriately counseled on management. This mass was deemed amenable to partial nephrectomy however the patient strongly preferred to proceed with a radical nephrectomy. She underwent an uncomplicated robotic assisted laparoscopic nephrectomy with operative time of 164 minutes, estimated blood loss of 50 mL, and was discharged home on post-operative day 1. Gross examination revealed a discrete well circumscribed and encapsulated 2.5 cm, yellow, rubbery mass in the upper pole (Fig. 2). The mass was comprised of cytologically bland spindle cells with serpentine nuclei variably forming palisading fascicles and less cellular myxoedematous foci (Fig. 3A–B). Lymphoid aggregates were a prominent feature at the periphery of the mass (Fig. 3C). There was no necrosis observed and only rare mitosis were seen. The tumor cells stained strongly and diffusely for vimentin and S100 (Fig. 3D) and were negative for pancytokeratin, smooth muscle actin, epithelial membrane antigen, and HMB-45. Rare focal desmin and CD10 positivity was also noted. The histology and marker results are characteristic for benign schwannoma.

Discussion

Schwannomas are rare tumors that arise from Schwann cells of nerve sheaths.[1] They are usually benign with about 3% of all

Abbreviations: Hounsfield Units, HU

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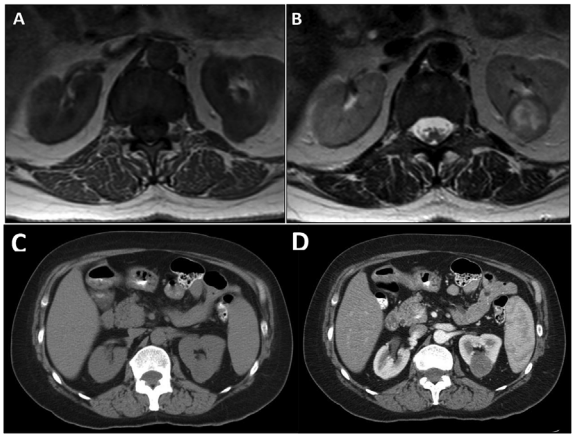

Fig. 1. MRI and CT urogram depicting left renal mass. (A) Magnetic resonance imaging revealed a 2.8 cm by 2.5 cm AP/TR well-circumscribed heterogeneous and isointense T1 and (B) hyperintense T2 signal intensity mass in the posterior cortex upper aspect of a partially visualized left kidney. (C–D) A CT urogram shows a solid mass in the upper pole posterior cortex of the left kidney which is slightly exophytic, measures 2.82 cm by 2.82 cm and very close to the collecting system. Pre-infusion Hounsfield Units (HU) was 19.73, arterial 38.90 HU, venous 58.50 HU and excretory phase 65.80 HU. There was no associated adenopathy or involvement of the vasculature.

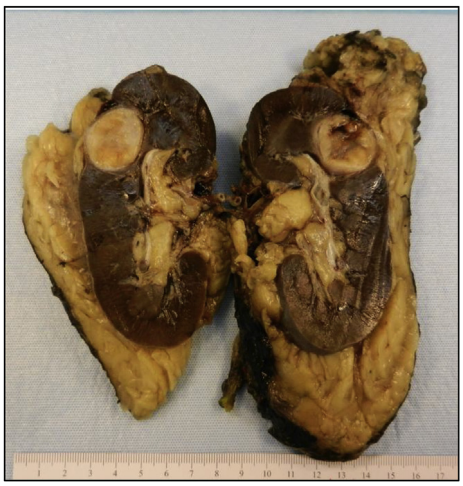

Fig. 2. Bivalved kidney with 2.5 cm mass. Gross specimen shows a well circumscribed, encapsulated, tan, focally yellow, rubbery mass in the superior pole that abuts the capsule of the kidney, the renal pelvis, and renal parenchyma. (For interpretation of the references to colour in this figure legend, the reader is referred to the Web version of this article.)

schwannomas located in the retroperitoneum.[1] Although even less common, there are several reported cases of malignant renal schwannomas. They are associated with very poor prognosis with spread typically by direct extension.[2] Unfortunately, radiological findings alone are not sufficient for making the diagnosis of renal schwannoma. It has been reported that on MRI, however, these masses are isointense on T1-weighted images and with high signal intensity on T2-weighted images[3] as was the case with our patient. Nonetheless, surgical excision and pathological diagnosis is recommended because of the uncertainty in radiological diagnosis and possibility of malignant schwannoma.[3]

With regards to associated factors, there is a known association between nerve sheath tumors and neurofibromatosis[4] which our patient did not have. Interestingly, she did have a diagnosis of essential thrombocytosis. Pre-operative thrombocytosis has been shown to correlate with poorer survival outcomes in patients with renal cell carcinoma.[5] However it should be noted that this association is generally

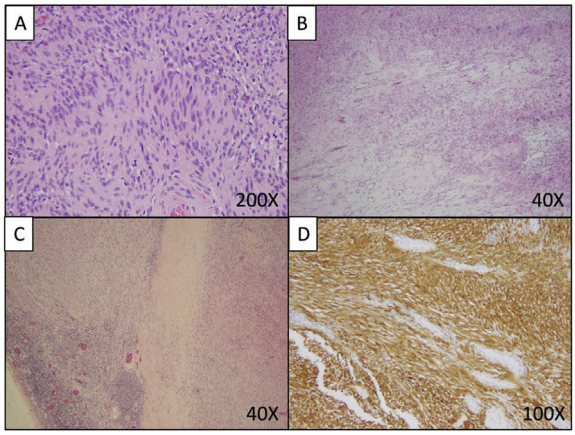

Fig. 3. Characterization of the renal mass as a benign schwannoma. (A–B) Hematoxylin and eosin stain of the mass shows cytologically bland spindle cells with serpentine nuclei variably forming palisading fascicles and less cellular myxoedematous foci **(C)** Lymphoid aggregates are a prominent feature at the periphery of the mass **(D)** Immunohistochemistry with S-100 antibody stains strongly and diffusely in the spindle cells.

seen with a secondary or reactive thrombocytosis unlike our patient who had a diagnosis of essential thrombocytosis. Furthermore, our patient had a benign diagnosis and as such is likely not exposed to the same risks with the studied population. Several theories have been circulated with regards to how thrombocytosis relates to malignant potential including increase in mitogenic factors, decrease in immune system clearance of tumor cells, and increased ease of malignant cell sequestration and adherence to the endothelial wall.[5] Inasmuch as these hypotheses relate to a malignant and not benign process, it is worth postulating if the above mechanisms predispose to tumorigenic potential in general and thus possibly a risk factor irrespective of primary or secondary thrombocytosis.

Finally, the vast majority of reported cases have been resected and thus published from academic centers. Despite this tumor being rare, a case presented at our community-based specialty practice and was managed accordingly. Although the tumor is very rare that no extensive research studies have been conducted to date, it behooves the research community to report all cases of this rare tumor as they present. The presentation of this patient at our facility highlights the need for continued concerted efforts between the academic and community urologists to share our clinical and research results with the overall goal of improved patient care.

Conclusion

Renal schwannomas are a rare entity with less than 30 cases worldwide reported in the literature to date. Although mostly benign, there is the potential for malignant transformation. Unfortunately, there is no concrete radiological or clinical findings that distinguish renal schwannomas from other malignant renal masses and as such diagnosis is still based largely on pathology specimen following surgical removal. Most of the cases to date have been reported from academic institutions with this current case being reported from a community-based specialty practice. Although rare, this tumor was still evident in our community practice and underscores the need for continued collaboration between the academic and community settings to further the urological field in general.

Declaration

- No formal ethics approval was required in this case report by the Advocate Internal Review Board
- Written consent for publication was obtained from the patient

- Availability of data and material: Data sharing is not applicable to this article as no datasets were generated or analyzed during this case report
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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.eucr.2019.100891.

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