

## Oncology

## Schwannoma masquerading as adrenocortical tumor: A case report and review of literature

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## A B S T R A C T

Schwannomas arising from retroperitoneal space are rare tumors. Adrenal Schwannomas are often misdiagnosed due to deficient of distinctive radiological findings. We report a case of adrenal schwannoma presented with vague abdominal pain. Initially, the patient was diagnosed as adrenocortical tumor that was treated with robotic adrenalectomy. Histopathological and immuno-histochemical examination revealed schwannoma. We will report the case and review the literature regarding this rare tumor.

## Introduction

Schwannomas are rare encapsulating, slowly progressing tumors with usually benign behavior. Although their usual origin is the central nervous system, they have been encountered in the stomach, liver, pancreas and kidney.<sup>1</sup> Most of the reported cases are asymptomatic at the time of diagnosis. Adrenal schwannomas are usually misdiagnosed due to lack of specific clinical and radiological characteristics. The definitive diagnosis is usually made upon histopathological and immunohistochemical studies of the removed specimen.<sup>2</sup> We report a case of adrenal schwannoma mimicking adrenal cortical tumor.

## Case report

A healthy 32 years old male patient presented to the primary care clinic with recurrent vague loin pain with no other associated symptoms. He is not known to have hypertension or on long-term medications. He has no history of fever or weight loss. Physical examination was normal. CT scan of the abdomen with contrast showed a 47 x 43 x 52 mm inhomogeneously enhancing mass within the right adrenal gland in the retrocaval region of the upper abdomen abutting and splaying the limbs of the adrenal gland **Figure (1)**. Hormonal workup showed normal levels of catecholamines with normal hypothalamic-pituitary adrenal axis. He was declared a case of nonfunctional right adrenal adenoma. Treatment plan was discussed with the patient and he elected for robotic transperitoneal right adrenalectomy.

General endotracheal intubation was induced followed by placing the patient in the flank position. Four 8-mm robotic trocars were placed in a straight line in the right midclavicular line. Two additional

midline trocars were placed. A 5-mm trocar was placed in the sub-xiphoidal area for liver retraction. The liver was mobilized superiorly and the duodenum was Kocherized. A large adrenal mass was encountered and the right renal vein was identified. Dissection along the side of the IVC was done till identifying the insertion of the right adrenal vein which was controlled with hem-o-lock. The tumor was then dissected off the inferior surface of the liver and the upper pole of the kidney. Multiple collateral veins were seen going into the tumor from the upper border of the renal vein and the lateral border of the IVC. After removing the tumor, we could see clearly the retroperitoneal area indicating that the tumor was completely excised. Postoperatively, the patient had uneventful recovery and was discharged home on the 3rd postoperative day.

Histopathological examination showed spindle cells arranged in intervening fascicles with frequent degenerative and necrotic changes and focal degenerative atypia with many foamy histiocytes **Figure (2)**. Immunohistochemical staining showed positive immunoreactivity of the spindle cells with S100 antibodies (diffuse strong cytoplasmic and nuclear) **Figure (3)** and negative staining with CD34, inhibin, cytokeratin, smooth muscle actin, synaptophysin and chromogranin. The morphological findings and the immunohistochemical staining profile were consistent with peripheral nerve schwannoma.

## Discussion

Schwannoma is a tumor that arises from the Schwann cells surrounding the peripheral nerves. Commonly, it originates from the nerves of the head and neck or the peripheral extremities.

Retroperitoneal schwannomas are usually asymptomatic and

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<https://doi.org/10.1016/j.eucr.2019.100926>

Received 21 May 2019; Accepted 28 May 2019

Available online 30 May 2019

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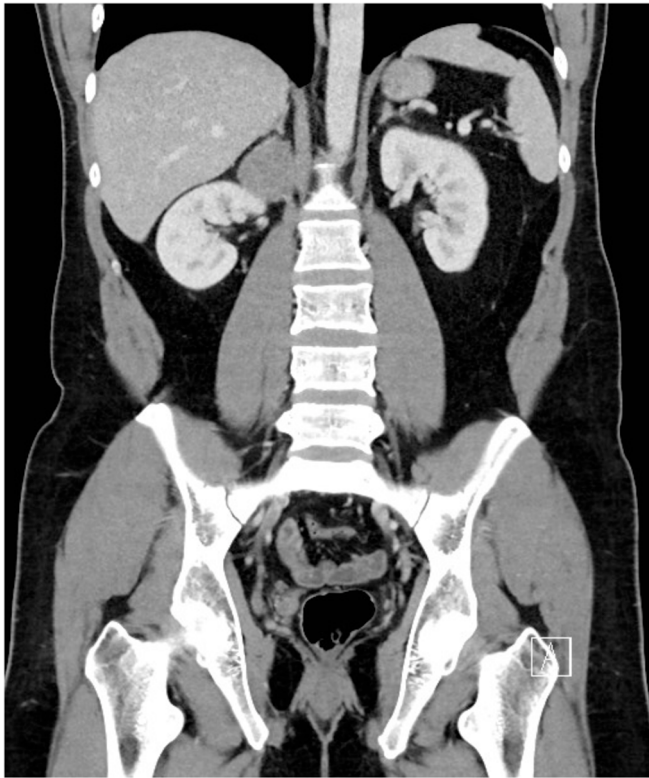


Fig. 1. Ct with contrast showing a 47 x 43 × 52 mm right adrenal mass.

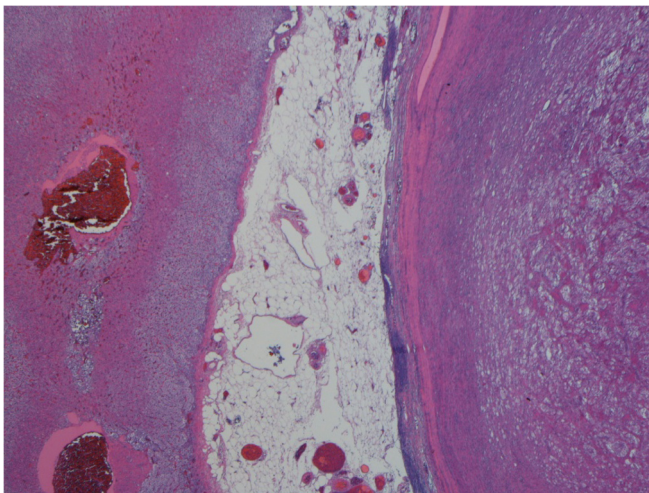


Fig. 2. Low power view of the mass (right) with the adjacent adrenal gland (left). H&E 40 X

accidentally discovered during radiological studies due to roomy retroperitoneal space that allows the tumor to reach a large size without affecting the adjacent organs.<sup>3</sup>

Preoperative definitive diagnosis of adrenal schwannoma is unlikely as the radiological features are commonly confused with other suprarenal pathologies. In our case, the final diagnosis was made after histopathological examination of the removed specimen.

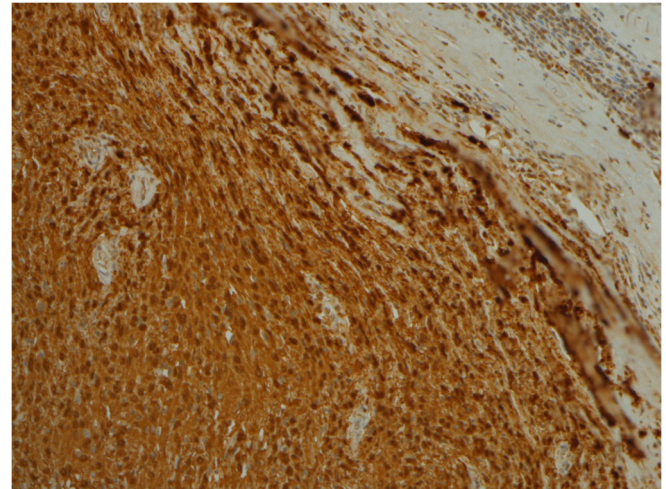


Fig. 3. S100 immunostain showing diffuse strong immunoreactivity of Schwann cells excluding the capsule. S100 immunostain 200 X

Imaging studies usually lack specificity in differentiating schwannoma from other adrenal masses. *Shen et al* suggested that a combination of necrosis with minimal degree of tumor enhancement during the arterial phase of the CT scan increases the probability of ruling out schwannoma.<sup>4</sup> In our case, because of the tumor size inhomogenous CT appearance, we proceeded directly with adrenalectomy without doing any other radiological studies. The heterogenous appearance maybe due to frequently encountered area of hemorrhage and cystic changes in schwannomas.

Immunohistochemical staining plays an important role in confirming the diagnosis of schwannoma. Positive S-100 antibodies with negative CD34, inhibin and cytokeratin strongly suggest the diagnosis.<sup>5</sup> In our case it has typical immunohistochemical panel for schwannoma.

### Conclusion

We report a case of an incidentally discovered schwannoma arising from the suprarenal gland. Lack of preoperative diagnostic characteristics would encourage its implementation in the differential of adrenal incidentalomas

### Conflicts of interest

The authors declare that there is no conflict of interest regarding the publication of this paper.

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