

Retroperitoneal ancient schwannoma presenting as an adrenal incidentaloma: CT and MR findings

Taku Inokuchi^a, Hidekazu Takiuchi^{b,d}, Yuji Moriwaki^{a,*}, Tuneyoshi Ka^a, Sumio Takahashi^a, Zenta Tsutsumi^a, Hiroki Shima^b, Seiichi Hirota^c, Tetsuya Yamamoto^a

^aDivision of Endocrinology and Metabolism, Department of Internal Medicine, Hyogo College of Medicine, Nishinomiya, Hyogo, Japan

^bDepartment of Urology, Hyogo College of Medicine, Nishinomiya, Hyogo, Japan

^cDepartment of Surgical Pathology, Hyogo College of Medicine, Nishinomiya, Hyogo, Japan

^dDepartment of Urology, Nishinomiya Municipal Central Hospital, Nishinomiya, Hyogo, Japan

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Abstract

A 35-year-old woman was referred to our institution for additional examinations to evaluate bilateral suprarenal masses incidentally found on abdominal ultrasonographic images obtained during an annual medical health checkup. Our computed tomographic scans showed bilateral and well-circumscribed low-density suprarenal masses, while MRI revealed the tumors to be heterogeneous with low intensity on T_1 -weighted images and high intensity on T_2 -weighted images. A laparoscopic adrenalectomy was performed under the suspicion of a malignant tumor, such as a malignant fibrous histiocytoma. Pathologic findings indicated a retroperitoneal ancient schwannoma of two histologic types: Antoni A and Antoni B. We considered that elucidation of the characteristic features of a schwannoma would provide helpful preoperative information for diagnosis.

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1. Introduction

Schwannomas and neurofibromas are neural sheath tumors, with the former entity found in all organs and in the nerve trunk, except for cranial nerves I and II, although rarely in the retroperitoneum, because these comprise only 3% of all schwannomas (malignant and benign combined) [1]. A retroperitoneal schwannoma is usually asymptomatic; thus, the diagnosis is often casual and difficult to determine preoperatively. We present a case of retroperitoneal ancient schwannoma, a rare variant characterized by degeneration, that was incidentally discovered in the patient by an abdominal ultrasonographic examination during a medical health checkup.

2. Case report

A 35-year-old woman had bilateral suprarenal masses incidentally found on abdominal ultrasonographic images

during an annual medical health checkup and was referred to our institution for additional evaluations. Her medical and family histories were unremarkable. At the initial examination, her height and weight were 163 cm and 67 kg, respectively; her blood pressure was 108/62 mm Hg, pulse rate was 87/min and body temperature was 36.7°C. On admission, her physical examination findings were essentially within normal limits. The results of laboratory investigations showed a white blood cell count of 5400/ μ L, with normal hemoglobin concentration and platelet count. Her C-reactive protein and lactic dehydrogenase levels were 0.1 mg/dl and 194 U/L (upper limit of normal=230 U/L), respectively, while the rest of her routine biochemical profile was within normal limits. The patient's endocrinologic data were as follows: urinary 17-hydroxycorticosteroids, 6.7 ± 1.8 mg/day ($n=3$); urinary 17-ketosteroids, 6.1 ± 1.5 mg/day ($n=3$); plasma epinephrine < 0.01 ng/ml; plasma norepinephrine, 0.16 ng/ml; urinary epinephrine, 6.4 ± 2.5 mg/day ($n=3$); urinary norepinephrine, 80.0 ± 26.3 mg/day ($n=3$); urinary metanephrine, 0.07 ± 0.02 mg/day ($n=3$); urinary normetanephrine, 0.15 ± 0.03 mg/day ($n=3$);

* Corresponding author. Tel.: +81 798 45 6472; fax: +81 798 45 6474.
E-mail address: moriwaki@hyo-med.ac.jp (Y. Moriwaki).

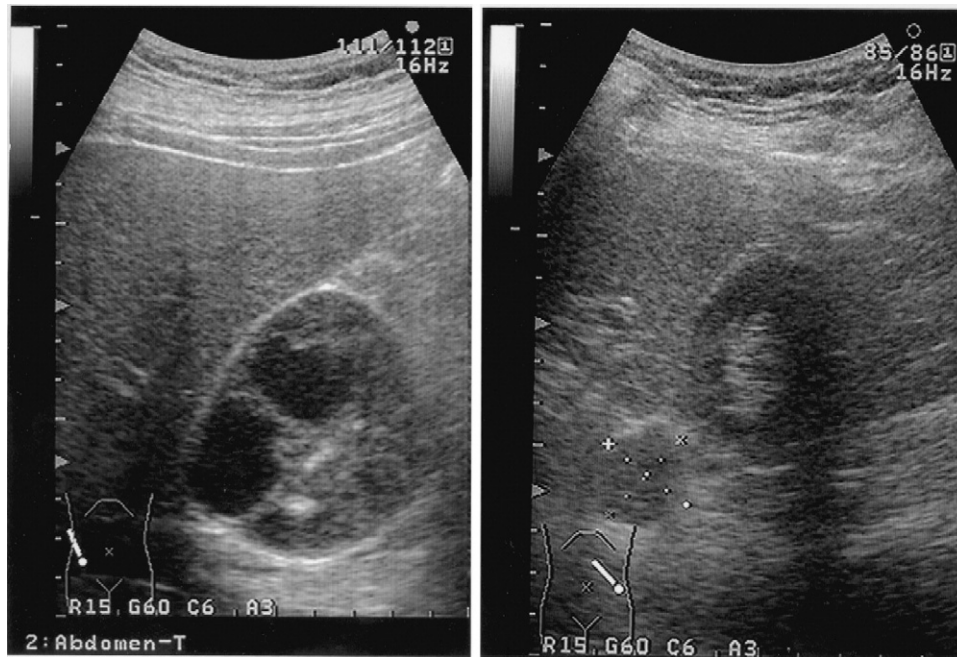


Fig. 1. Ultrasonographic images of the abdomen showing a well-circumscribed hypoechoic mass with cystic components measuring 5.7×6.9 cm in diameter (left panel) and a well-circumscribed hypoechoic mass measuring 2.4×2.5 cm in diameter (right panel) located adjacent to the superior border of both kidneys.

urinary vanillylmandelic acid, 2.4 ± 0.5 mg/day ($n=3$); urinary homovanillic acid, 2.2 ± 0.6 mg/day ($n=3$); and serum DHEA-S, 124 mg/dl. Ultrasonography of the abdomen demonstrated a well-circumscribed hypoechoic mass with cystic components that measured 5.7×6.9 cm in diameter and another well-circumscribed hypoechoic mass that measured 2.4×2.5 cm in diameter; these were located adjacent to the superior border of the right and left kidney, respectively (Fig. 1). Computed tomography (CT) findings showed bilateral and well-circumscribed low-density suprarenal masses (Fig. 2), with the right mass containing an area of calcification. MRI showed a 7×7-cm heterogeneous retroperitoneal mass with solid and cystic components near the superior portion of the right kidney and a 2×2 cm heterogeneous mass near the superior portion of the left kidney (Fig. 3). Adrenal scintigraphy using ^{131}I -adosterol and MIBG demonstrated no remarkable finding, and the results of ^{67}Ga citrate scintigraphy were normal. A tentative preoperative diagnosis of a malignant tumor of undetermined origin, schwannoma or nonfunctioning pheochromocytoma was considered on the basis of the imaging results.

The patient underwent a right laparoscopic adrenalectomy, during which the surface of the tumor was found to be smooth and not adherent to the kidney. The resected specimen was oval and firm; it measured 7.5×6.5×2.5 cm and weighed 88 g. The tumor was well demarcated from the adrenal gland, and the cut surface of the excised specimen was red brownish and contained areas of cyst formation, hemorrhage and necrosis (Fig. 4). A rapid intraoperative frozen section analysis of the right suprarenal tumor suggested a schwannoma; therefore, the left suprarenal

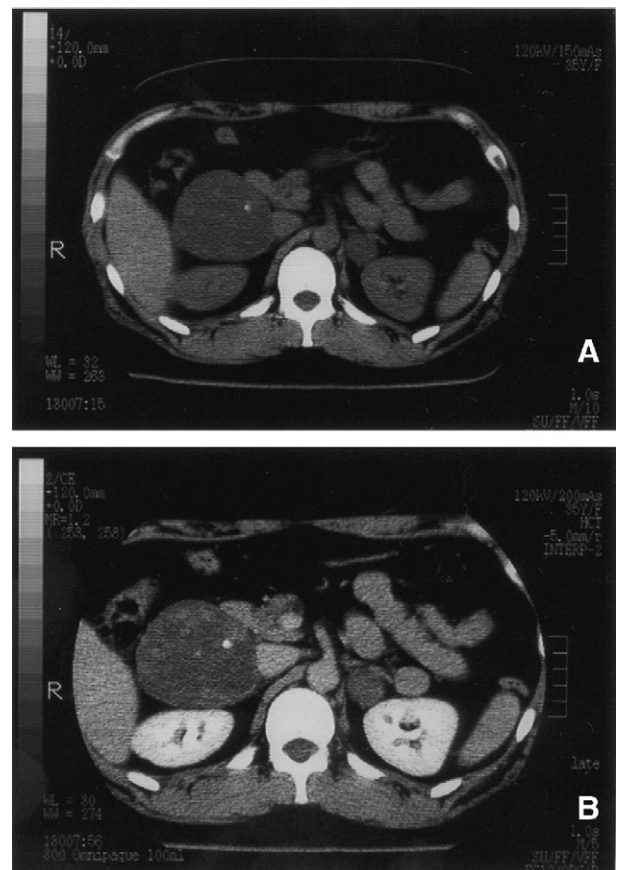


Fig. 2. CT scan image of the abdomen demonstrating a well-circumscribed low-density mass with calcification, approximately 7 cm in size, located in the region of the right adrenal gland. Also shown is a 2-cm low-density mass located near the superior portion of the left kidney. (A) Precontrast image; (B) postcontrast image.

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