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Extraadrenal pheochromocytoma masquerading as renal tumor

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ABSTRACT

An otherwise healthy 43-year old woman presented with a large upper pole mass of the left kidney. Transabdominal left-sided nephrectomy including adrenalectomy was performed. Histopathological examination revealed extraadrenal pheochromocytoma with infiltration of the kidney. Awareness of this rare condition could avoid potentially dangerous cardiovascular complications during surgery.

Background

Pheochromocytomas may produce and store excessive amounts of catecholamines that may cause life-threatening complications during surgery.[1,2]

Case presentation

An otherwise healthy 43-year old woman presented with abdominal pain. There was no history of hypertension. Computed tomography revealed a large upper pole mass of the left-sided kidney (Fig. 1). Transabdominal nephrectomy including adrenalectomy was performed. The adrenal gland was replaced ventrally by the tumor but was macroscopically inconspicuous. Histopathological examination revealed a completely removed pheochromocytoma with central necrosis and infiltration of the kidney (Fig. 2). Microscopically, the adrenal gland was intact without direct relationship to the tumor. With standard management unaware of the nature of the neoplasm, there were no episodes of hypertension during surgery. The postoperative course was uneventful.

Discussion

The radiologic presentation of pheochromocytomas is variable. Hypervascularization, necrosis and cystic changes as seen in this case (Fig. 1) are common but are not specific.[1,3] Nevertheless, the imaging features appear suited to create awareness of the rare constellation of primary renal pheochromocytoma (paraganglioma). Preoperative awareness of such tumor could trigger appropriate preoperative workup with hormonal diagnostics and molecular imaging and decrease the risk of serious intraoperative cardiovascular complications.

Conclusion

Extraadrenal pheochromocytoma should be taken into consideration in the differential diagnosis of renal tumors.

Author Contributions

Anne-Kathrin Sünder: Manuscript writing, operation of the patient
Uta Stiller: Providing CT images, manuscript editing
Jörg Wittmann: Providing histopathological images, manuscript editing
Michael Froehner: Manuscript editing, operation of the patient, supervision

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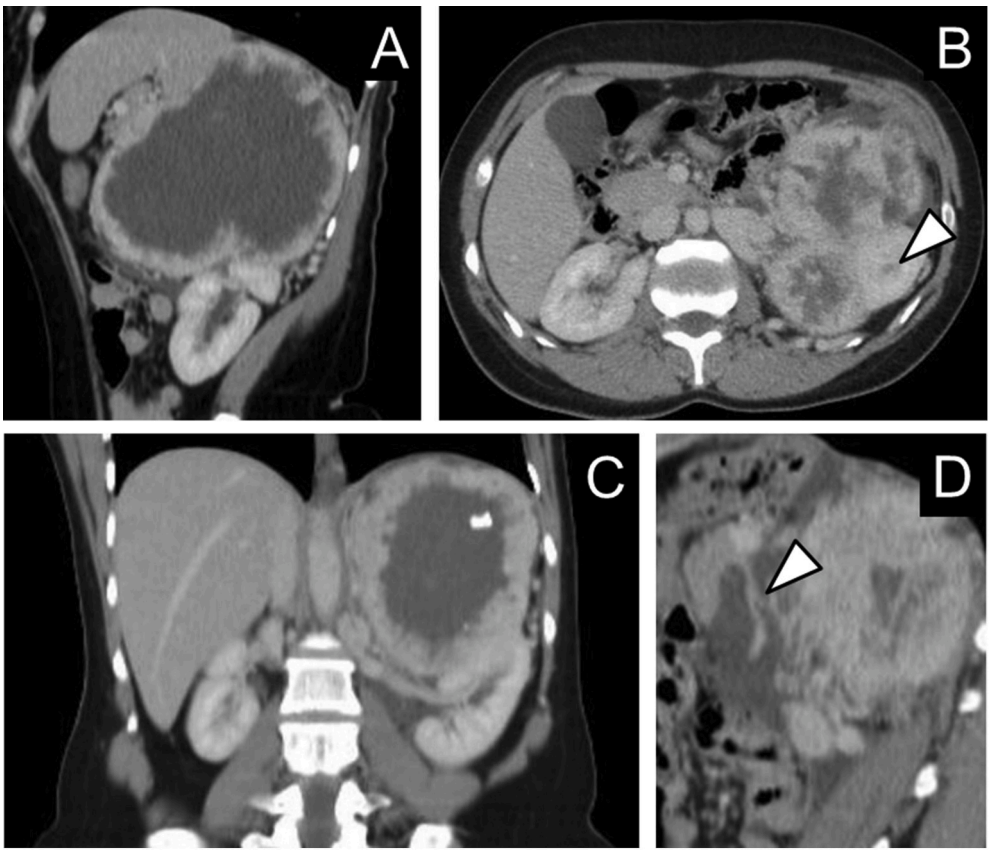

Fig. 1. Contrast medium-enhanced computed tomography images. A: Sagittal image of the tumor and its relation to the left-sided kidney; B: Axial view demonstrating the close relationship of the tumor to the left kidney (arrowhead); C: Coronar view; D: Ventral replacement of the intact left-sided adrenal gland (sagittal view, arrowhead).

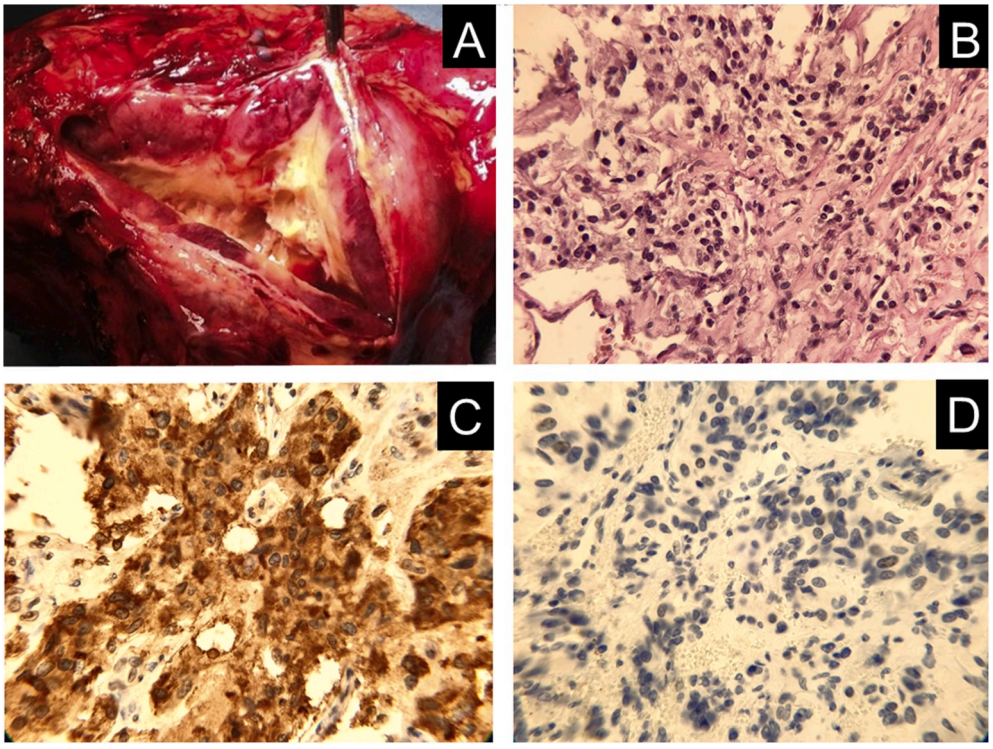

Fig. 2. A: Macroscopic appearance of the tumor with central necrosis and tumor tissue in the periphery with a color resembling that of normal renal parenchyma; B: Microscopic appearance of the tumor (H & E); C: Negative immunohistochemical staining for cytokeratin MFN 116; D: Positive immunohistochemical staining for chromogranin A. (For interpretation of the references to color in this figure legend, the reader is referred to the Web version of this article.)

Declaration of competing interest

The authors declare no conflict of interest.

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