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Image of the Month

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Keywords: Oncocytic neoplasms, adrenal, surgery, testosterone, cortisol

- The case report was approved by the Ethics Committee of Hospital General Universitario Dr. Balmis. Alicante (Spain).
- Written consent was obtained from patient.
- This manuscript includes two images.
- Manuscript word count: 307

A 69-year-old woman with no relevant medical history presented with symptoms of hormonal dysfunction (hair loss, insomnia, increased libido, and hirsutism). Hormonal evaluation revealed markedly elevated androgen levels: testosterone 3.64 ng/mL (normal 0.12–0.36), DHEA-S 9,480 µg/mL (0.336–0.789), free testosterone index 74.3% (0.19–3.63), and cortisol 24.8 µg/dL (3.7–19.4). The remaining hormonal studies, including pheochromocytoma screening, were within normal limits.

Thoracoabdominal CT showed a 65×40×56 mm right adrenal mass in close contact with the inferior vena cava

(IVC), without a clear cleavage plane (Fig.1A). MRI demonstrated a heterogeneous mass in T2 signal with small hemorrhagic foci on T1, contacting the right diaphragmatic pillar and liver segment VII. Partial collapse of the retrohepatic IVC suggested possible local infiltration (Fig. 1B). A 3D reconstruction confirmed contact with the IVC, without evidence of intraluminal tumor (Fig.1C).

At surgery, tumor extension behind the IVC toward the caudate lobe was confirmed, but without invasion. After complete dissection from the IVC, right adrenalectomy with regional lymphadenectomy was performed. The postoperative course was uneventful.

Histopathological analysis revealed a high-grade oncocytic adrenocortical carcinoma, with 25 mitoses/50 HPF, tumor necrosis, capsular and lymphatic invasion, and metastases in three of seven lymph nodes (T2N1). Immunohistochemistry showed positivity for: synaptophysin, Melan A, and SF1; Ki-67 index: 25–30%, and negativity for chromogranin, CKAE1/AE3, and PD-L1. The patient has initiated adjuvant therapy.

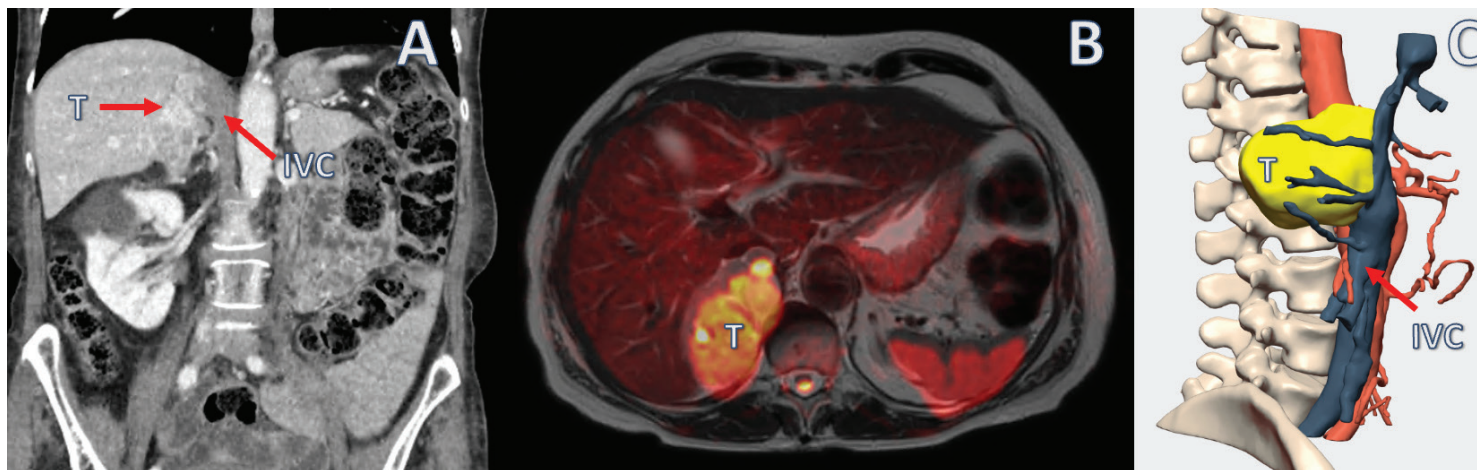


Figure 1:

1A: CT: Adrenal mass (T) contacting IVC (IVC)

1B: MRI: Adrenal Mass

1C 3D CT model relationship between tumor (T) and IVC (IVC)

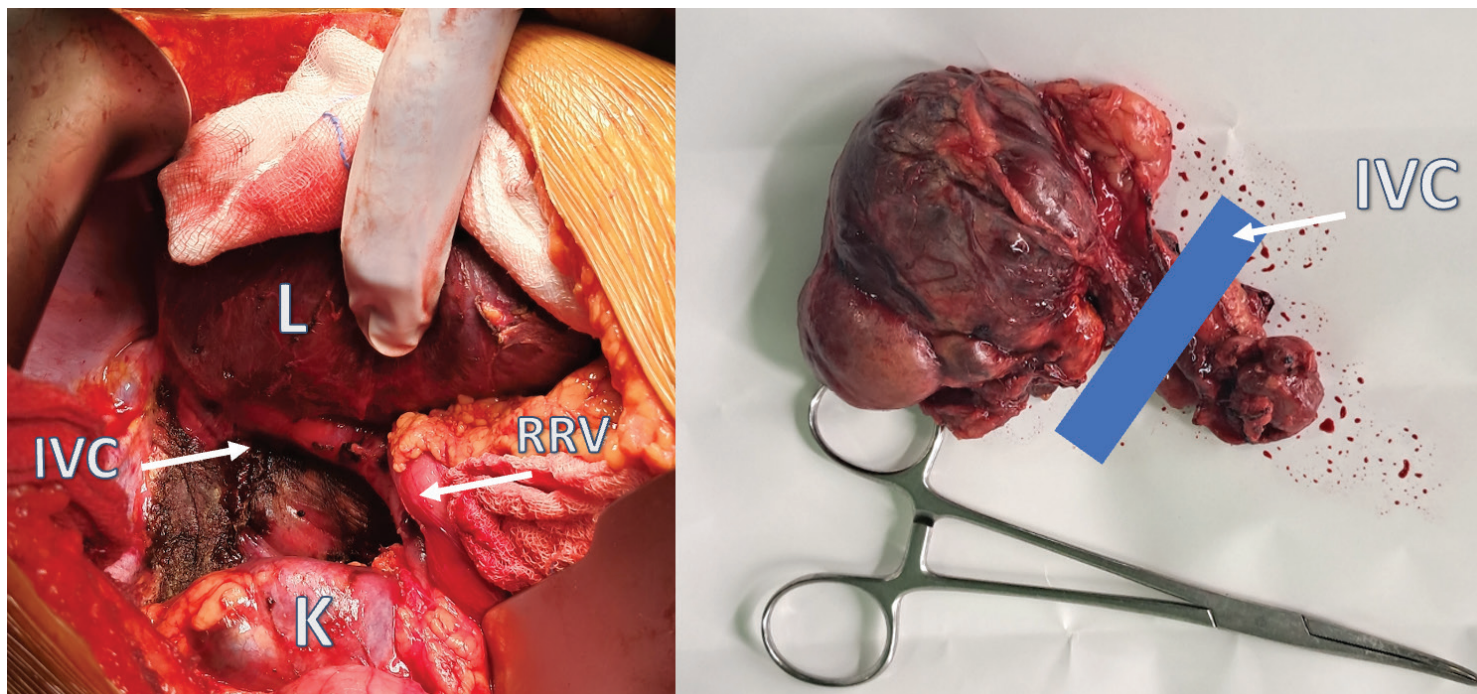


Figure 2:

2A: Operative field after resection Kidney (K); Liver (L); Inferior Vena Cava (IVC); Right renal vein (RRV)

2B: Surgical specimen. Blue line: location of IVC

Adrenal oncocytic neoplasms are extremely rare, with approximately 300 cases reported since their first description in 1986. They predominantly affect women, are usually large, non-functioning tumors, and only 30% are malignant. Surgical resection is the treatment of choice, performed by an open approach for tumors larger than 6 cm or with suspected IVC involvement.

Learning points: Accurate preoperative assessment

using MRI and 3D CT reconstruction is crucial for distinguishing between IVC compression and infiltration, guiding surgical strategy, and preparing for potential vascular resection or replacement.

DIAGNOSIS: SECRETING TESTOSTERONE AND CORTISOL ADRENOCORTICAL ONCOCYTIC CARCINOMA

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