Pitfalls in adrenal surgery
Report of two cases

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Antonio Toniato, Domenico Rubello*, Maria Rosa Pelizzo

Surgical Pathology, Department of Medical and Surgical Sciences, University of Padua, School of Medicine, Padova, Italy
**Nuclear Medicine, IOV, Rovigo, Italy*

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Pitfalls in diagnosis and treatment of adrenal diseases are frequent and not properly reported in literature. Among more than 51 adrenalectomies for incidentaloma performed during a 10.years period, we present 2 cases of diagnostic errors that a very formative opportunity in the approach to adrenal diseases.
A precise and careful preoperative diagnosis is of utmost importance in the management of adrenal disease to avoid therapeutic pitfalls.

KEY WORDS: Adrenal diseases, Adrenalectomy.

Introduction

In the last recent years the widespread use of imaging studies enabled an increasing diagnosis of adrenal incidentalomas, the current incidence ranging from 1% to 5%. Although errors and pitfalls are frequent in the diagnosis and treatment of adrenal diseases, they are surprisingly not reported adequately in the literature (1-5). Analyzing these cases provides a very formative opportunity with a view to defining preventive strategies to minimize errors.
Out of 51 laparoscopic adrenalectomies performed for incidentaloma in our institution during a 10-year period, we describe herein 2 cases of diagnostic errors.

Case reports

CASE N.1
In a 57-year-old woman with inherited polycystic disease, an abdominal ultrasound showed multiple hepatic and renal cysts. Five years later, she was admitted for asthenia, fever, tachycardia and weight loss with a diagnosis of hyperthyroidism. In addition to the previously-recorded cysts, a new ultrasound study detected an inhomogeneous lesion (74 x 64 mm in size) between the superior pole of the right kidney and the inferior hepatic margin. A right adrenal mass was supposed and a magnetic resonance imaging (MRI) showed a homogeneous right adrenal mass (Fig. 1).
Metabolic tests revealed no anomalies in adrenal functions and no significant information was available from ultrasound-guided fine-needle aspiration biopsy of the lesion. During laparoscopic adrenalectomy, the right adrenal gland was dissected from the surrounding tissues with considerable technical difficulty due to numerous concomitant adhesions at the large hepatic and renal cysts. Macroscopically, the adrenal gland appeared to be normal and closely adherent to the mass disclosed at the superior pole of the kidney.
Laparoscopy procedure was converted to open surgery to better establish the nature of the lesion, which revealed to be a renal cyst. Adrenalectomy was performed nevertheless and adrenal gland histological specimen proved to be a hemorrhagic-necrotic adrenal microadenoma.

CASE N. 2
A 38-year-old obese man and prior splenectomy for trauma 20 years earlier being considered for adjustable gas-

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Correspondence to: Antonio Toniato, M.D.Surgical Pathology, Dept. of Medical and Surgical Sciences,University of Padua, School of Medicine, Via Giustiniani 2; 35128 Padua, Italy (e-mail: antonio.toniato@unipd.it)

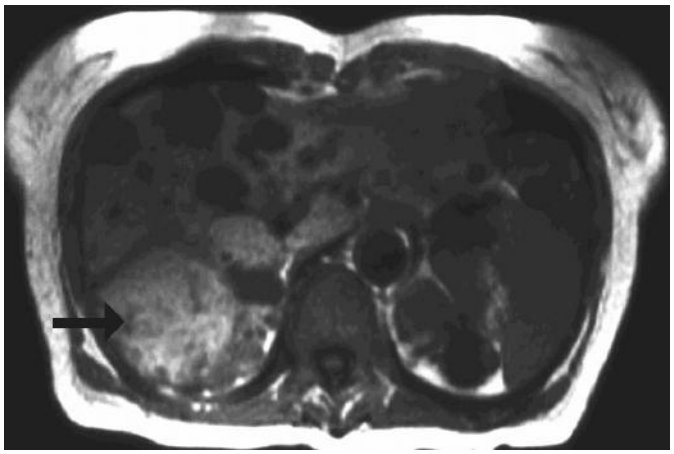

Fig. 1: Magnetic resonance imaging shows a right adrenal mass (arrow) that was supposed as incidentaloma

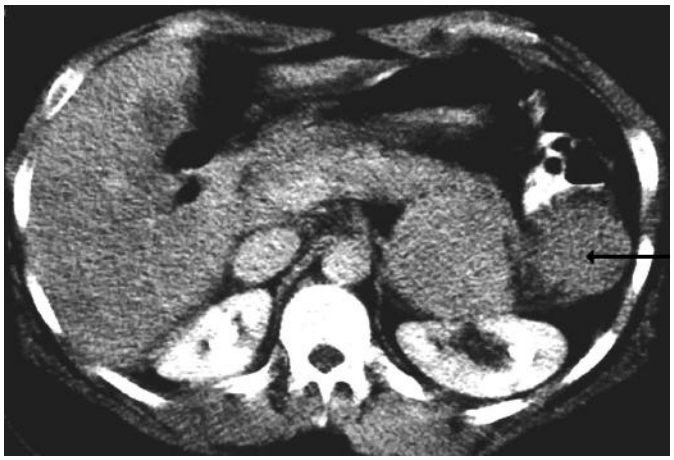

Fig. 2: Computed tomography scan reveals a left adrenal incidentaloma 10 cm in diameter (arrow)

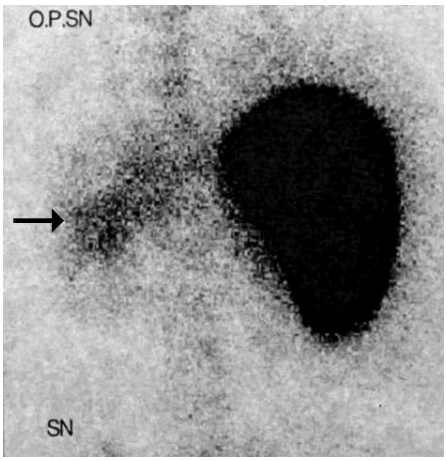

Fig. 3: Radiolabeled denatured RBC scintigraphy showed evidence of functioning autotransplanted splenic tissue in adrenal site (arrow).

tric banding underwent an abdominal computed tomography scan, which disclosed a left adrenal incidentaloma 10 cm in size (Fig. 2). Laboratory data demonstrated no secretory hyperactivity and a diagnosis of adrenal incidentaloma was done.

On the basis of the precedent case and of the radiological density, solid and homogeneous very similar to hepatic tissue, a radiolabeled denatured RBC scintigraphy was performed and it showed the location of functioning autotransplanted spleen tissue in adrenal site (Fig. 3).

The surgical planning was not carried out.

Discussion

After detecting an incidental adrenal mass, the first critical issue is established if is a benign or malignant lesion, and if the mass is hormonally active. The functional status evaluation may involve subclinical forms of Cushing's syndrome, catecholamine excess, hyperaldosteronism or hyperandrogenism. The adrenalectomy is mandatory: 1) when there is hormone hypersecretion, 2) when imaging studies are likely for malignancy, 3) when the lesion's size is larger than 4 cm., and 4) when the patients have been previous treated for others tumors (lung, breast, colon, kidney, or melanoma).

Malpractice in endocrine surgery is a rare event. In an analysis by Kern et al [2], three of four cases of controversy in endocrine surgery regarded thyroid diseases, one of five adrenal diseases and one of ten parathyroid diseases.

As for adrenal diseases, despite the ability of MRI to define the lesion's tissue-specific characteristics, it is not difficult to mistake for adrenal tumors lesions of adjacent anatomical structures, such as the tail of the pancreas, splenic vessels, lymph nodes, the masses of the superior pole of the kidney, heterotopic splenic tissue, and even a stomach full of liquid or the diaphragmatic pillar [3-8].

When a diagnostic doubt exists, as in our case 1, Henry [3] emphasized the importance of exploring the posterior face of the adrenal gland without damaging its anatomical structure and without sectioning the median vein. In our case 1, the important anatomical changes induced by multiple hepatic and renal cysts made adrenal gland resection very troublesome, obliging us to dissect the median vein. Adrenalectomy is never justified if there is no evidence of a mass, except for the case of hyperfunctioning lesions identified by scintigraphy or adrenal venous sampling.

In conclusion, we believe that our two cases (4% of diagnostic errors in our experience) may be of interest because such misdiagnoses are rarely described in the literature. An accurate and careful preoperative work-up, relying on an interdisciplinary team of radiology and endocrinology specialists and expert surgeons is of paramount importance in the management of adrenal disease to avoid therapeutic pitfalls [6-9].

Riassunto

Gli errori nella diagnosi e nel trattamento delle malattie surrenali che sono frequenti e non sempre adeguatamente riportati in letteratura.
Negli ultimi 10 anni abbiamo operato 51 pazienti affetti da incidentaloma surrenalico, fra questi vi erano 2 casi in cui si è verificato un errore diagnostico. Tali casi rappresentano una importante opportunità formativa. Una precisa valutazione preoperatoria è di fondamentale importanza per evitare errori terapeutici.

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