Urology Case Reports 26 (2019) 100910

Contents lists available at ScienceDirect

Urology Case Reports

journal homepage: www.elsevier.com/locate/eucr

Oncology

Laparoscopic partial nephrectomy for Juxtaglomerular apparatus tumour: A rare cause of hypertension

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ARTICLE INFO

Keywords:
Juxtaglomerular apparatus tumours
Hyperreninism

ABSTRACT

We report on the case of a partial nephrectomy for a Juxtaglomerular apparatus (JGA) tumour in a 28 year old female who presented with fatigue and symptomatic hypertension, and a normal serum renin level on pre-operative work-up.

Introduction

There have been fewer than 70 cases of this benign tumour reported, with rare reports of metastatic JGA tumour. JGA tumours present with symptoms of excessive renin secretion including symptomatic hypertension. We report on a partial nephrectomy in a 28 year old for a JGA tumour.

Case presentation

A 28 year old female presented for investigation of fatigue and symptomatic hypertension, with systolic blood pressure ranging from 130 to 170 mmHg. Ultrasound demonstrated a solid right lower pole renal mass measuring approximately 2.5cm. This was confirmed on contrast-enhanced CT (Fig. 1), which demonstrated a solid mass with enhancement to 18 Hounsfield units.

Her pre-operative functional workup included a normal serum renin, 24hr urinary catecholamines and electrolytes & review by renal physician. The functional studies were normal. She was commenced on an antihypertensive & a core renal biopsy was performed which demonstrated a JGA tumour.

She proceeded to a laparoscopic partial nephrectomy. The tumour was identified with intra-operative ultrasound with resection achieved with 19mins of warm ischaemic time. Histopathology demonstrated a 2.9cm JGA tumour with clear surgical margins (Figs. 2 and 3). Her blood pressure normalized post-operatively and she was able to cease her anti-hypertensive medications.

Discussion

The JGA is an anatomical unit that has multiple functions including renin secretion from mesenchymal smooth muscle cells in the JGA wall. JGA tumours arise from these cell.

JGA tumours are a rare clinical entity. The first reported case was in 1967,[1] and subsequently there have been under 100 case reports described.[2] They usually have no potential for metastasis[3] but a single case of metastasis has been reported.[4] They classically present with symptoms of hyperaldosteronism. Clinically, this can manifest as uncontrolled hypertension and polyuria. Biochemically they can cause hypokalemia, high plasma renin levels between 2 and 7 times normal, and high plasma aldosterone levels. They are more common in females with a mean age of presentation of 20–40.

This case presentation is atypical in that our patient's serum renin and electrolytes were normal. She was on the oral contraceptive pill, which can affect renin levels.

Post-operative surveillance will comprise bloods including electrolytes and a baseline CT abdomen at 3 months, followed by ultrasound every 6 months for 2 years, followed by annual surveillance.

Conclusion

This report of a rare JGA tumour demonstrates that these rare lesions should be considered in the diagnosis of young patients with symptomatic hypertension, even in the presence of normal serum renin. Laparoscopic partial nephrectomy, after pre-operative control of hypertension, is a suitable technique for resection in appropriately

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https://doi.org/10.1016/j.eucr.2019.100910
Received 2 December 2018; Received in revised form 9 May 2019; Accepted 15 May 2019
Available online 29 May 2019

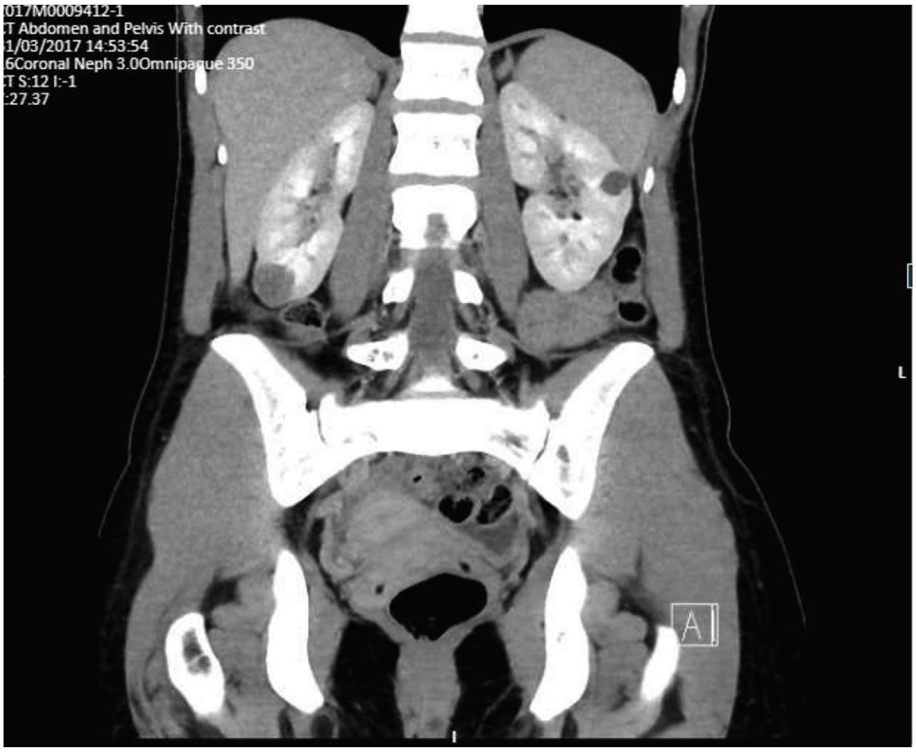

Fig. 1. Contrast enhanced CT showing a 23mm, solid right lower pole lesion with 18 Hounsfield Units of enhancement.

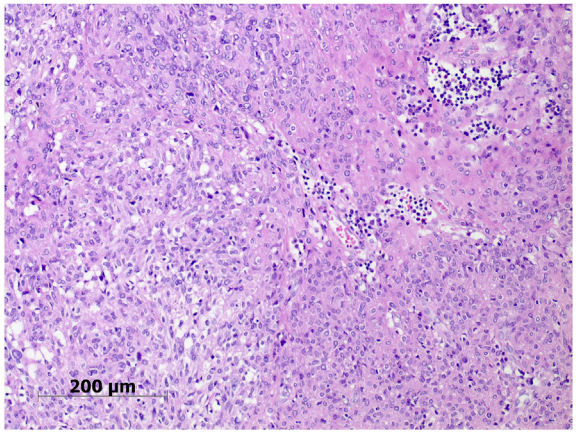

Fig. 2. Tumour cells containing eosinophilic granular cytoplasm.

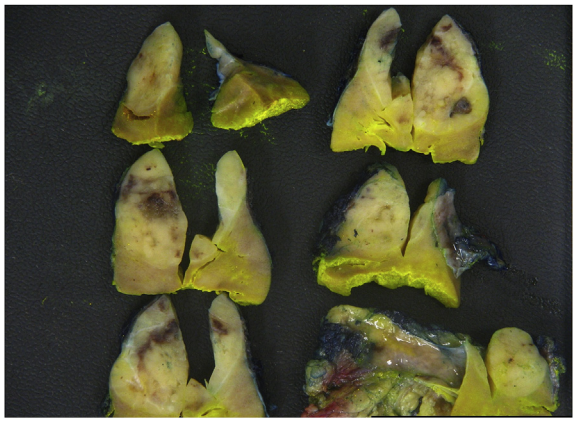

Fig. 3. Macroscopic partial nephrectomy specimen shows well-encapsulated tumour.

selected patients.

Conflicting interests statement

The authors have no conflicting interests to declare.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.eucr.2019.100910.

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