

A man with painless haematuria and hypertension

Question

A 35-year-old male presented with right loin pain and two episodes of painless haematuria. At the age of 27, the patient had surgery for a left cerebellar astrocytoma followed by 6 weeks of radiation therapy. He had been asymptomatic for the last 8 years. On examination he was found to have hypertension and a palpable mass in the right lumbar region. Computed tomographic scans of the abdomen were performed to evaluate the mass (Figs a and b). What are the marked lesions and what is the diagnosis?

Answer

In Fig a, lesion A is a large mass in the region of the left adrenal, indenting and deforming the left kidney.

As the patient has hypertension the lesion is most likely to be a left phaeochromocytoma. Lesion B is in the region of the right adrenal and as the right adrenal is not separately visualised, it represents a second, smaller phaeochromocytoma. Lesion C is a large cystic lesion on the head of the pancreas. In Fig b, lesion D is a tumour arising from the lower pole of the right kidney that is most likely to be a renal cell carcinoma (RCC). Lesion E shows multiple cysts in the lower pole of the left kidney, representing either a benign cyst or a cystic RCC.

This patient had high levels of urinary catecholamine products. In view of the bilateral phaeochromocytomas, RCC, renal and pancreatic cysts and previous surgery for a cerebellar astrocytoma, this patient was diagnosed as having a fully expressed index case of von Hippel-Lindau (VHL) disease.

Discussion

von Hippel-Lindau disease is an autosomal dominant neoplastic syndrome caused by a germline mutation in the *VHL* gene. Germline mutations in the *VHL* gene lead to the development of several benign or malignant tumours, and cysts in many organ systems.¹ The susceptible organs are the central nervous system (CNS) [including retina], kidneys, adrenals, and reproductive adnexal organs. von Hippel-Lindau disease is not rare (the incidence is about one in 36 000 live births) and has over 90% penetrance by 65 years of age.

The diagnosis of VHL disease is often based on clinical criteria. Patients with a family history, and a CNS haemangioblastoma (including retinal haemangioblastomas), phaeochromocytoma, or clear cell renal carcinoma are considered to have the disease. Those with no relevant family history must have two or more CNS haemangioblastomas, or one CNS haemangioblastoma and a visceral tumour (with the exception of epididymal and renal cysts, which are frequent in the general population) to meet the diagnostic criteria.²

The common tumours found in the CNS are cerebellar, spinal cord, brainstem, nerve root and supratentorial haemangioblastomas, as well as retinal haemangioblastomas. There have been rare case reports of cerebellar astrocytomas associated with VHL disease.³ Specific presentation patterns have emerged, which have helped with the screening and counselling of individuals. Type 1 patients rarely have phaeochromocytomas but can develop all other tumour types. Type 2 patients are at high risk of developing phaeochromocytomas (often

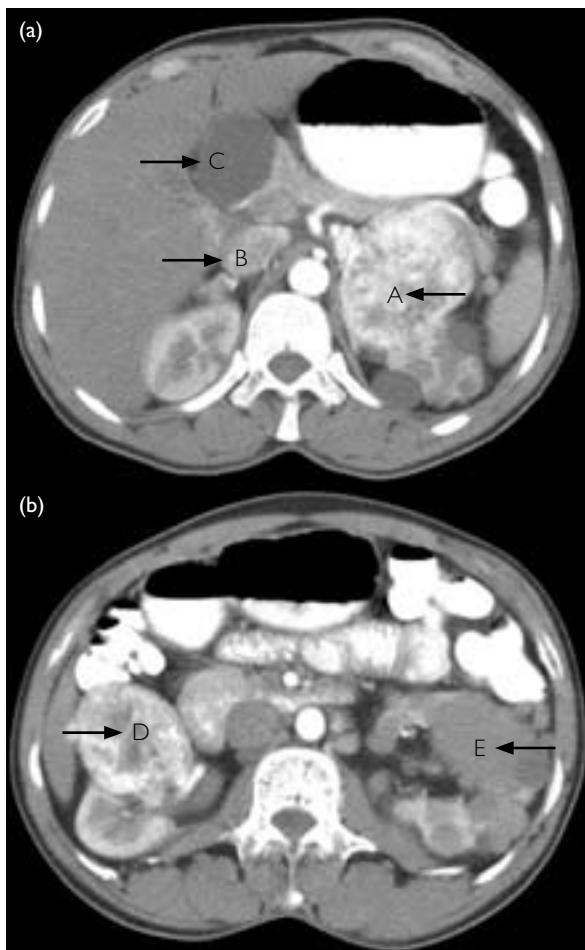


FIG. Computed tomographic scans of the abdomen

bilateral) but are either at low risk for RCC (type 2A) or high risk for RCC (type 2B). Type 2C patients have familial pheochromocytoma only, with no other tumours.² regular follow-up are essential for proper care.⁴

Because of the progressive, diverse nature of VHL, and the high frequency of multiple neoplasms in various organ systems, the management of the tumour types is complicated by the presence of others. A multi-specialty team is needed for the optimal assessment and treatment of these patients. Comprehensive serial screening and

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References

1. Maher ER, Kaelin WG Jr. von Hippel-Lindau disease. *Medicine (Baltimore)* 1997;76:381-91.
2. Lonser RR, Glenn GM, Walther M, et al. von Hippel-Lindau disease. *Lancet* 2003;361:2059-67.
3. Ng HK, Tse JY, Poon WS. Cerebellar astrocytoma associated with von Hippel-Lindau disease: case report with molecular findings. *Br J Neurosurg* 1999;13:504-7.
4. Choyke PL, Glenn GM, Walther MM, Patronas NJ, Linehan WM, Zbar B. von Hippel-Lindau disease: genetic, clinical, and imaging features. *Radiology* 1995;194:629-42.

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I. Update on the treatment of diabetic retinopathy

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|---|---------|----------|----------|----------|----------|
| A | 1. True | 2. False | 3. True | 4. False | 5. True |
| B | 1. True | 2. True | 3. False | 4. False | 5. False |
| C | 1. True | 2. False | 3. False | 4. False | 5. True |

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II. Gastro-intestinal stromal tumours: a review of current management options

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|---|----------|----------|----------|---------|---------|
| A | 1. True | 2. False | 3. False | 4. True | 5. True |
| B | 1. False | 2. True | 3. False | 4. True | 5. True |
| C | 1. True | 2. True | 3. False | 4. True | 5. True |