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Surrenal Pheochromacytoma: A Case Report (01)

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Abstract **Case Report**

Adrenal tumours are rare. We report a case of left adrenal pheochromocytoma in a 44-year-old patient. Arterial hypertension associated with headache, sweating and palpitations led to the diagnosis of pheochromocytoma. Biological work-up based on urinary measurement of methoxylated derivatives confirmed this diagnosis. Ultrasound and CT scan revealed a large left adrenal mass with a tissue structure. The mass was discreetly enhanced after injection of the contrast medium. Given this clinical, biological and morphological picture, the diagnosis of adrenal pheochromocytoma was accepted. A left subcostal adrenalectomy was therefore performed. Anatomopathological examination revealed the presence of a pheochromocytoma on the left adrenalectomy specimen, with a tumour classified as preocupant for malignancy according to the PASS score (≥4). Postoperative follow-up was good, with no recurrence.

Keywords: Pheochromocytoma, adrenal, hypertension.

INTRODUCTION

Pheochromocytoma or chromaffinoma is a rare tumour that develops in the adrenal medulla. It almost always secretes catecholamines [1, 2], the main manifestation of which is arterial hypertension. The annual incidence of these tumours is 1 to 4 per million population [3]. Pheochromocytoma or chromaffinoma is found about 1-5 times in 1000 hypertensives [4]. We report a case of left adrenal pheochromocytoma revealed by a mass on the left flank in a 44-year-old patient with hypertension and diabetes on insulin.

OBSERVATION

A 44-year-old patient with hypertension and diabetes on insulin was presented with a left flank mass.

On clinical examination, the patient was conscious, cooperative, in satisfactory general condition, haemodynamically and respiratory stable (blood pressure 13/8 cmHg, heart rate 76 beats/minute, respiratory rate 18 cycles/minute), GCS 15/15, no oedema of the lower limbs, conjunctivae and integument normo coloured.

Physical examination revealed a painless mass on the left flank with a regular contour and a smooth surface.

The rest of the examination was unremarkable.

Biology showed hypocortisolaemia at 33nmol/l; hyperleukocytosis at 14,000/mm3; haemoglobin at 12.1 g/dl; Plq at 456, lymphopenia at 0.82; C-reactive protein at 26.11 mg/l; blood glucose 1.51 g/l; glycated haemoglobin 9%; renal work-up (urea 0.61 g/l; creatinine 13.4 mg/l); other work-ups (liver and blood ionogram) normal; blood group A positive.

Abdominal ultrasound showed: a large mass measuring 12.2 cm wide, 13 cm in diameter anteroposteriorly and extending to a height of about 14 cm in the left interspleno-renal space, with a retroperitoneal appearance in favour of a Doppler vascular tumour whose origin in this context is the left adrenal gland. The volume of the mass was such as to cast doubt on a renal origin ***(Figure 1).***

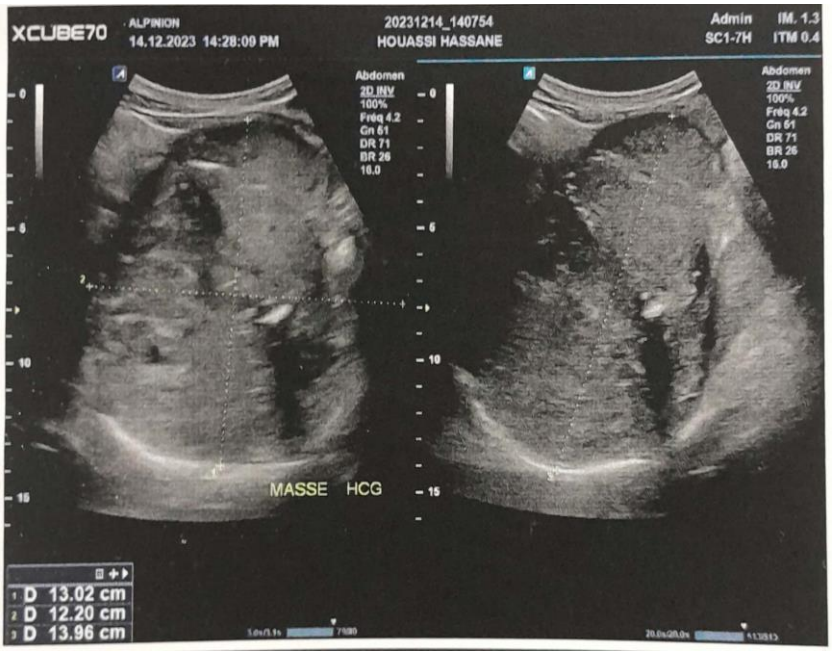

Figure 1: Abdominal ultrasound showing a large anteroposterior mass extending into the left inter-spleno-renal space with a retroperitoneal appearance. HMMI-Meknes Imaging Department

The CT scan showed a voluminous expansive tumour of the left adrenal gland with a long axis of more than 13 cm, in favour of a primary tumour of the left adrenal gland: myelolipoma or adrenal tuberculosis ***(figure 2*)**.

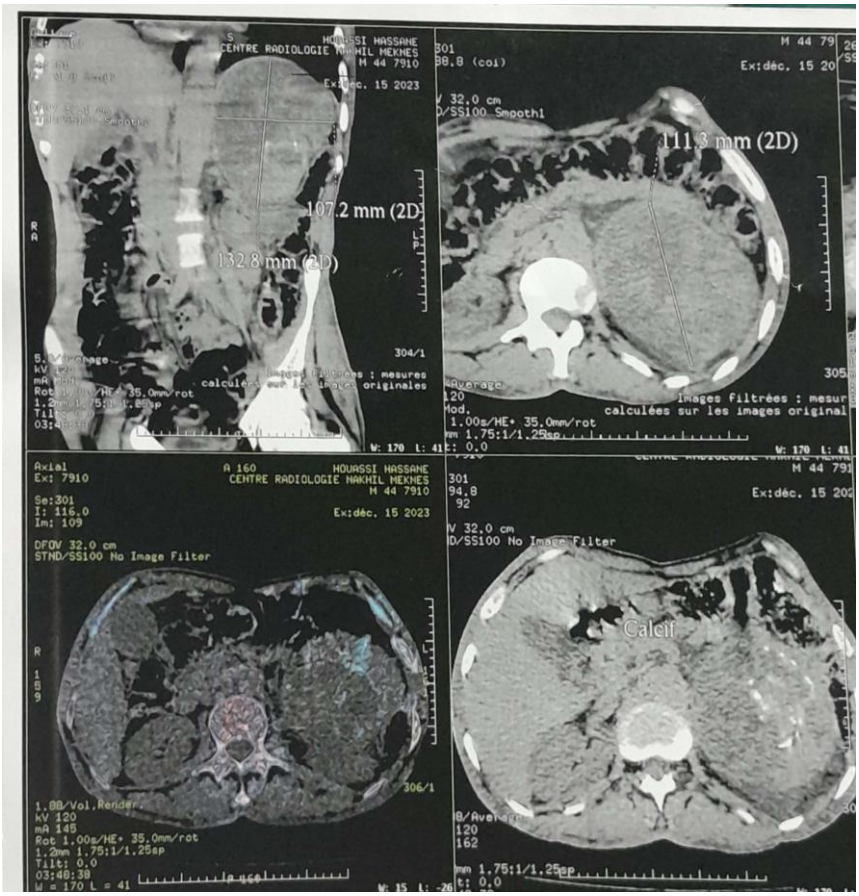

Figure 2: Abdominal CT scan showing a large expansive tumour of the left adrenal gland. HMMI-Meknes Imaging Department

Doppler Ultrasound Showed: ***(figure 3)*.**

- Concentric and slightly dilated hypokinetic CMH
- Moderate eccentric mitral insufficiency
- Aortic micro insufficiency
- Generalized hypokinesia
- Impaired systolic function: EF=48%.
- Impaired diastolic compliance
- OG slightly dilated
- Slightly dilated right chambers
- Grade II IT with moderate PAH

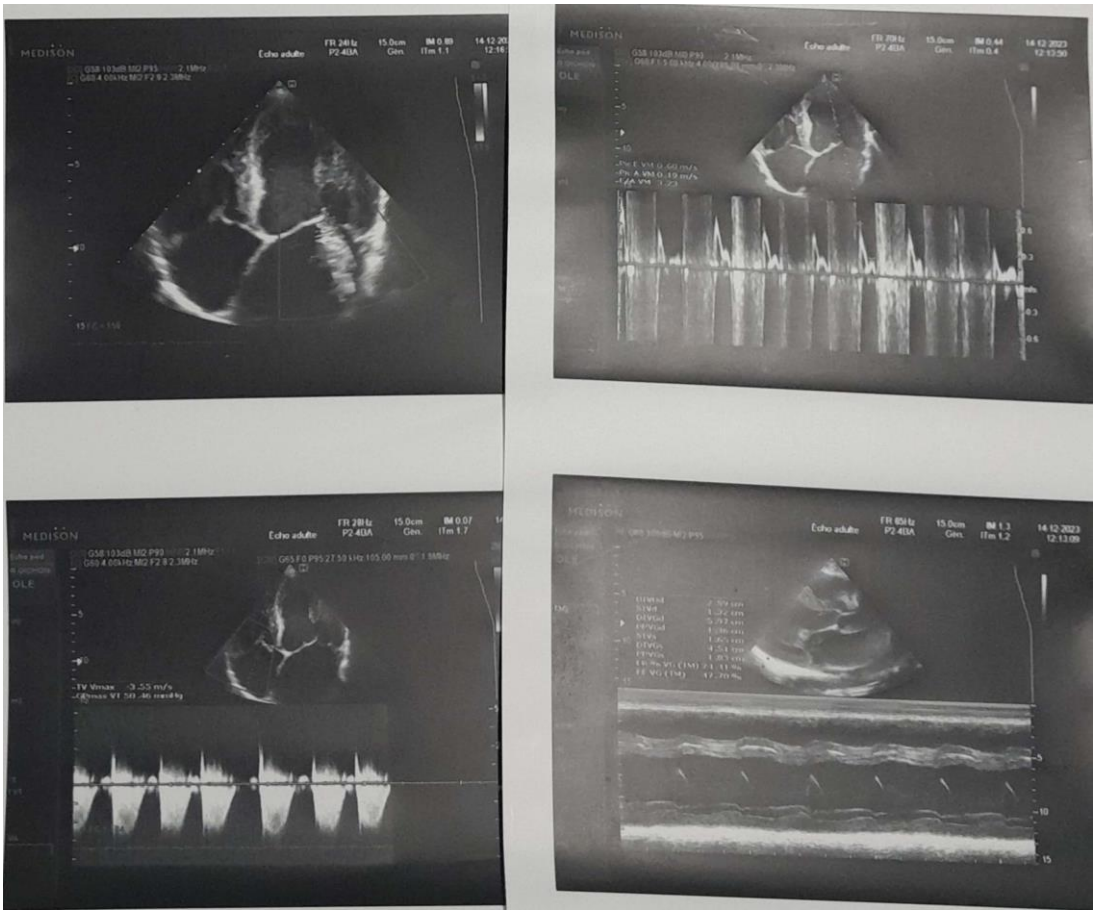

Figure 3: Doppler ultrasound image

The diagnosis of an expansive tumour process of the left adrenal gland in a diabetic setting was accepted in this patient, who was admitted to the Department of Visceral Surgery for removal of the mass.

He was admitted to the operating theatre for removal of the mass.

The patient was placed on the operating table in dorsal recumbency under general anaesthetic, with a subcutaneous block, bladder probe, nasogastric tube and left subcutaneous laparotomy ***(Figure 4)***.

Section of the ligament sustentaculum liénis and detachment of the left colonic angle from the partially descending colon.

Left splenopancreatic detachment with identification of the splenic artery and the left splenic and renal veins.

The adrenal tumour is large, with a lobulated surface at the lower pole, firm consistency, very vascular in its superficial plane and measures 10/8 cm in long axes ***(figure 5)***.

Dissection and location of the middle capsular vein. It is fairly wide, sectioned and ligated between two points using Vicryl 0.

Section and ligation of the inferior and superior adrenal vessels using ligasure.

Posterior, internal and external release of the tumour, which adheres to the left diaphragmatic pillar, part of which is resected with the tumour (a malignant origin is strongly suspected) ***figure 6***.

Haemostasis is checked and appears to be perfect.

Left subphrenic rinsing then splenopancreatic and epiploic replacement in the left subphrenic cavity.

Parietal closure plane by plane.

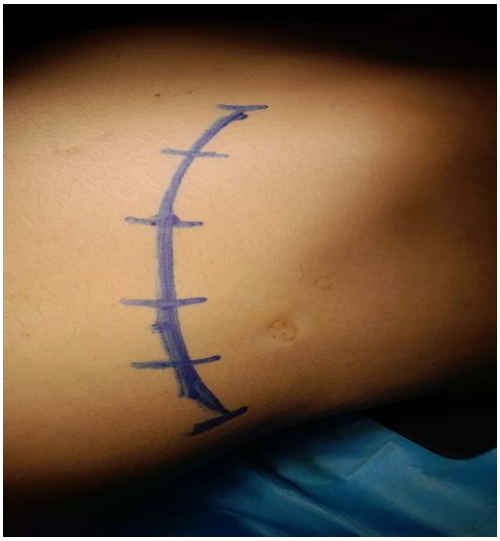

Figure 4: Location of surgical approach (right subcostal). Department of Visceral Surgery, HMMI Meknes

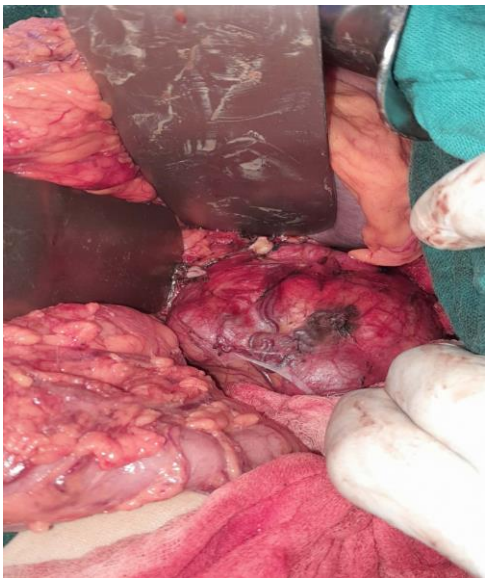

Figure 5: Presence of a large left adrenal tumour

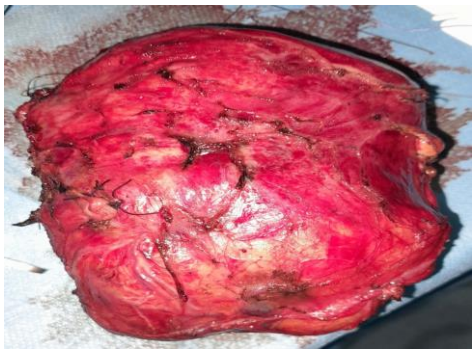

Figure 6: Surgical specimen after resection of the left adrenal tumour. Department of Visceral Surgery, HMMI, Meknes.

The surgical specimen was sent to the laboratory for anatomopathology and immunohistochemistry, the results of which were in favour of a left adrenal pheochromocytoma with tumour classified as preoccupying malignancy according to the PASS score (≥4)

DISCUSSION

Pheochromocytoma is a rare and severe pathology, and its diagnosis by exploring a cause of arterial hypertension underestimates the frequency of these tumours, since 70% of them are complicated by hypertension [5]. The severity of the disease is due to its early onset and its association with signs of severity. The symptoms of pheochromocytoma are polymorphic and mainly caused by the excessive production of catecholamines [6-8].

These manifestations occur in the presence of a tumour secreting mainly epinephrine and dopamine and may consist of arrested growth accompanied by alterations in general condition, neurological disorders with anxiety and visual disturbances [7, 8]. Unilateral pheochromocytoma is revealed by hypertension, which dominated the initial presentation in a 16-year-old adolescent. The triad of symptoms: headache, sweating, palpitations, combined with plasma and/or urinary metanephrines, led to the diagnosis [2, 7, 8]. In our case, we were guided by the clinical signs of call, in particular arterial hypertension accompanied by headaches, profuse sweating and tachycardia, and imaging in the face of these suggestive clinical signs revealed a large tumour mass. As reported in the literature [1, 8].

Removal of the tumour (total left adrenalectomy) allowed our patient to be cured, with discontinuation of post-surgical anti-hypertensive treatment.

Radical cure involves delicate surgery preceded by symptomatic medical treatment inhibiting catecholamines.

The anatomopathological study enabled us to confirm the anatomopathological and histochemical nature of the surgical specimen as a left adrenal pheochromocytoma with a tumour classified as preoccupying malignancy according to the PASS score (≥4).

CONCLUSION

Pheochromocytoma is a rare and serious tumour with highly variable clinical expression. Current advances in genetics have enabled early detection of familial forms.

Its management is medical-surgical and multidisciplinary, involving the cardiologist, endocrinologist, visceral surgeon, anaesthetist and pathologist. Imaging in general, and CT scans in particular, play an essential role in diagnosing the location of pheochromocytomas. Radical treatment involves delicate surgery, usually preceded by medical preparation based mainly on symptomatic treatment to inhibit the effects of catecholamines.

REFERENCES

1. Doyon, S. (2006). Un cas de phéochromocytome. *Pharmactuel*, *39*(5).
2. Ilias, I., & Pacak, K. (2004). Current approaches and recommended algorithm for the diagnostic localization of pheochromocytoma. *The Journal of Clinical Endocrinology & Metabolism*, *89*(2), 479-491.
3. Pisoni, R., Ahmed, M. I., & Calhoun, D. A. (2009). Characterization and treatment of resistant hypertension. *Current cardiology reports*, *11*(6), 407-413.
4. JB, G. (1951, February). Pheochromocytoma and hypertension; an analysis of 207 cases. In *International Abstracts of Surgery* (Vol. 92, No. 2, pp. 105-121).
5. Young Jr, W. F. (1997). Pheochromocytoma and primary aldosteronism. *Endocrine Neoplasms*, 239-261.
6. Dubois, R., & Chappuis, J. P. (1997). Le phéochromocytome: particularités pédiatriques. *Archives de pédiatrie*, *4*(12), 1217-1225.
7. Lenders, J. W., Eisenhofer, G., Mannelli, M., & Pacak, K. (2005). Phaeochromocytoma. *The Lancet*, *366*(9486), 665-675.
8. Lenders, J. W., Eisenhofer, G., Mannelli, M., & Pacak, K. (2005). Phaeochromocytoma. *The Lancet*, *366*(9486), 665-675.