European Journal of Cancer, Vol. 33, No. 10, pp. 1709, 1997

Printed in Great Britain
0959-8049/97 $17.00+0.00

PII: S0959-8049(97)00199-8

An Unusual Case of a Renin-Producing Tumour of the Fallopian Tube

A. Zabernigg,[1] E. Müller-Holzner,[2] J.-M. Gasc[3] and C. Gattringer[1]

[1]General Hospital Kufstein, Department of Internal Medicine/Oncology, Krankenhausgasse 7–9, 6330 Kufstein; [2]Department of Obstetrics and Gynaecology, Innsbruck University Hospital, Austria; and [3]Laboratoire de Medicine Experimentale, College de France, Paris, France

RENIN-SECRETING TUMOURS are a very rare cause of secondary arterial hypertension. Most of these tumours are renal juxtaglomerular cell tumours [1]. Only a few extrarenal renin-secreting tumours have been reported [2–4].

We report a 33-year old Caucasian woman who presented in May, 1995, with a 3 week history of arterial hypertension and headache. She was otherwise well and there was no notable previous medical history.

On admission, her blood pressure was 220/140 mm Hg. Fundoscopic examination showed severe hypertensive retinopathy and physical examination was otherwise normal. A 24 h ambulatory blood pressure recording revealed a stable hypertension without the normal nocturnal fall in blood pressure, suggesting a secondary hypertension. A standard electrocardiogram, chest radiography and two-dimensional echocardiography were normal, corresponding to the short history of hypertension. Routine laboratory tests revealed hypokalemia (2.6 mmol/l) and a metabolic alkalosis (pH 7.55). Serum sodium, chloride, calcium, kidney and liver function tests and a blood count were in the normal range. Endocrine function tests revealed an elevated serum aldosterone (492 nG/l normal < 150) and an unexpected, excessive high serum renin level (> 18 000 pG/ml/h, normal range 120–2200 pG/ml/h). Serum thyroid-stimulating hormone (TSH), serum cortisol, 24 h urine-free cortisol, adrenaline and noradrenaline were in the normal range.

Renovascular hypertension was suspected, but a selective renal angiography was inconspicuous. CT scanning and abdominal ultrasound showed normal kidneys and adrenal glands, but incidentally a 13 × 7 cm large tumour in the pelvis emanating from the right fallopian tube.

Correspondence to A. Zabernigg.
Received 20 Mar. 1997; accepted 8 Apr. 1997.

Figure 1. *In situ* hybridisation with the renin probe 1382-1g; 1382-2j shows strong positivity in some tumour cells (magnification × 400).

Pharmacological antihypertensive therapy with amlodipine 10 mg/d and doxazosin 12 mg/d was started with a 80 mmol potassium daily supplement. When blood pressure was normalised, the patient underwent exploratory laparotomy. The tumour was removed and histological examination revealed a well-differentiated adenocarcinoma of the right fallopian tube (FIGO IIIc). Immunohistochemistry showed weak positivity for renin (2D 12 antibody: monoclonal to human renin–weakly positive, R15: polyclonal to human renin: positive in granules) and negativity to prorenin (4C1: monoclonal to human prorenin). *In situ* hybridisation with a renin probe (a generous gift from F. Soubrier [1382-1g; 1382-2j]) was strongly positive in a minority of cells, corresponding well to a high level of circulating renin [5] (Figure 1).

After removing the tumour, the blood pressure returned to normal within a few days without specific therapy and serum potassium was in the normal range without substitution. Four weeks later serum aldosterone (101 nG/l) and renin (1334 pG/ml/h) also returned to physiological levels.

Renin-secreting tumours are a rare cause of secondary arterial hypertension, but oncologists should be aware of this paraneoplastic syndrome. Most of these tumours are renal juxtaglomerular cell tumours. Only a few extrarenal renin-secreting tumours have been reported and this is the second report of a renin-producing tumour of the fallopian tube. Additionally, in this case the diagnosis was confirmed by immunohistochemistry and *in situ* hybridisation. As in most cases, the diagnosis was evoked by a striking hyperreninaemia and secondary hyperaldosteronism without evidence of renovascular hypertension.

1. Corvol P, Pinet F, Galen FX, *et al.* Primary reninism. In Laragh JH, Brenner BM, eds. *Hypertension. Pathophysiology, Diagnosis and Management.* New York, Raven, 1990, 1573–1582.
2. Ruddy MC, Atlas SA, Salerno FG. Hypertension associated with a renin-secreting adenocarcinoma of the pancreas. *New Engl J Med* 1982, **307**, 993–997.
3. Geddy PM, Main J. Renin-secreting retroperitoneal leiomyosarcoma. An unusual cause of hypertension. *J Hum Hypertension* 1990, **4**, 57–58.
4. Tetu B, Lebel M, Camilleri JP. Renin producing ovarian tumour. A case report with immunohistochemical and electronmicroscopic study. *Am J Surg Pathol* 1988, **12**, 634–640.
5. Bruneval P, Fournier JG, Soubrier F, *et al.* Detection and localisation of renin messenger RNA in human pathologic tissues using *in situ* hybridisation. *Am J Pathol* 1988, **131**, 320–330.