Renal carcinoma in Lindau's disease

VASANTHA NAGENDRAN
M.D., M.R.C.P. (U.K.)

A. H. DIMOND
F.R.C.P.

Department of Medicine, Benenden Chest Hospital, Benenden, Kent

Summary

A case of Lindau's disease is presented where renal carcinoma was detected 2.5 years after surgical removal of a cerebellar haemangioblastoma. This patient had no retinal lesions. The importance of screening for renal carcinoma in patients showing one or more manifestations of the disease and screening relatives is emphasized.

KEY WORDS: renal carcinoma, cerebellar haemangioblastoma, retinal angioma, hypertension.

Introduction

Von Hippel (1904) described retinal angiomas and Lindau (1926) described the association of these with cerebellar haemangioblastoma, comprising the von Hippel-Lindau syndrome. Since then several visceral lesions including renal cysts, renal carcinoma, cysts of the pancreas, liver and omentum, and pheochromocytoma (Wise and Gibson, 1971), have been described in association with this condition. It is a hereditary disorder transmitted by an autosomal dominant gene with variable penetrance (Pearson, Weiss and Tanagho, 1980). Retinal lesions may predominate in one affected family while in another renal and cerebellar lesions without retinal involvement are the pattern.

In a detailed review of the subject (Melmon and Rosen, 1964) it was suggested that the term Lindau disease was more appropriate and this was defined as an association of cerebellar haemangioblastoma with one or more of the following: retinal haemangioblastoma (the von Hippel tumour), spinal cord haemangioblastoma, pancreatic cysts, renal and epididymal abnormalities and the like. Furthermore it was suggested that the diagnosis should cover patients who have a single lesion of the complex provided documentation existed of a central nervous system haemangioblastoma in another member of the family.

Of the varied spectrum of systemic lesions, renal carcinoma represents a serious and life-threatening manifestation of this disease with an incidence as

high as 83% in one affected family (Lee, Wulfsberg and Kepes, 1977).

Case report

A 65-year-old woman presented in June 1982 with a history of attacks of breathlessness, depression, and a tendency to sudden falls. An episode of haematuria at the age of 22 years had been investigated and said to be infective in origin. Ten years previously she was found to have hypertension which was treated with methyldopa and then with prazosin. In November 1979, after a month's history of incoordination, confusion and vomiting, she was investigated in a neurosurgical unit and subsequently a posterior fossa decompression was carried out. A large right intra-cerebellar cyst was aspirated and a nodule was removed. Histology revealed a haemangioblastoma. Her neurological symptoms improved after surgery.

Clinical examination was unrewarding apart from a blood pressure reading of 260/150 mmHg. She had slight ataxia and nystagmus on looking to the right. Ophthalmological examination revealed no evidence of retinal vascular anomalies. Haematology, routine biochemistry, urine microscopy and culture, and chest X-ray were normal. Intravenous urography showed delay in concentration and distortion of the superior calyces on the left side. Ultrasound revealed an enlarged upper pole to the left kidney which was mainly solid with some cystic areas. The dynamic renal scan showed gross reduction in the function of the left kidney as compared with the right. Urinary vanillylmandelic acid was negative.

A left nephrectomy was performed. Histology of the tumour revealed a renal carcinoma and the associated unilocular cysts showed absence of tumour on the cyst wall which was lined by clear cell cuboidal epithelium.

The patient made a good recovery from the operation and her blood pressure was well controlled with metoprolol and prazosin.

Of the two sons of this patient, one was known to have hypertension. A renal scan was normal and

investigations have excluded a pheochromocytoma. The second son lives in Australia and efforts to investigate him and his progeny have been made with suggestions that they should have a renal scan.

Discussion

When either a haemangioblastomatous lesion of the cerebellum or retina is found in an isolated case the diagnosis may be complicated by a renal carcinoma. Though the incidence of this is not known, it is stressed that a careful search for the renal lesion must be made if either of these haemangioblastomata are seen (Lee *et al.*, 1977; Melmon and Rosen, 1964).

Until recently, cerebellar lesions were the commonest cause of death in Lindau disease. With improved methods of treatment more patients survive the cerebellar lesion with the result that renal lesions are being detected *ante mortem* with increasing frequency. As in our patient, renal cysts and renal carcinoma can co-exist. In the presence of cysts, diagnosis of small tumours by intravenous pyelography is difficult. Arteriography is more helpful but is not without risks. Recently computerized tomography has been shown to be a safe and accurate method of detecting small tumours and has been suggested as a useful test for screening asymptomatic relatives (Levine *et al.*, 1979; Wesolowski *et al.*, 1981). Renal carcinoma in this condition can be multicentric and sometimes bilateral, and occasionally small tumour foci have been demonstrated in the walls of apparently benign cysts (Lee *et al.*, 1977). These features add to the difficulties in diagnosis and treatment of renal carcinoma in this condition. It has been suggested that early diagnosis while the carcinoma is still small and localized may enable a surgeon to carry out limited resection with maximal renal conservation (Pearson *et al.*, 1980). Careful follow-up is mandatory to diagnose further lesions in either kidney which require treatment.

The absence of the first lesion described in this condition, namely retinal angiomas, should not deter us from diagnosing this familial condition which may respond to early treatment. Retrospective

and prospective studies have shown a strong likelihood of other family members suffering from this disease. The study of 221 descendants of an individual affected with von Hippel-Lindau disease revealed 42 relations with the disease (Fill, Lamiell and Polk, 1979; Melmon and Rosen, 1964). The ages in this series were from 11 to 62 years. Had the study continued until the younger persons had aged, presumably several more cases would have come to light. Serious consideration must therefore be given to the investigation and follow-up of relatives and to affected individuals being given genetic counselling (Melmon and Rosen, 1964).

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