Int Urol Nephrol (2007) 39:449–451
DOI 10.1007/s11255-006-9017-5

ORIGINAL PAPER

Malignant non-functional paraganglioma of the bladder presenting with azotemia

Rajiv Yadav · Anup Kumar Das · Rajeev Kumar

Published online: 4 January 2007

Abstract Paragangliomas of the urinary bladder are rare tumors representing less than 1% of bladder tumors and are usually benign. Malignant paragangliomas are uncommon and are defined by their clinical behavior rather than the histologic features. We describe a patient with recurrent nonfunctioning paraganglioma of bladder presenting with hematuria and obstructive uropathy due to involvement of ureteroileal anastomoses. Treatment consisted of excision of recurrent lesion involving both lower ureters with the revision of ureteroileal anastomoses. Histology confirmed the presence of nests of tumor cells with abundant eosinophilic cytoplasm. Immunohistochemically the tumor cells were strongly positive for chromogranin A.

Keywords Paraganglioma · Urinary bladder · Obstructive uropathy · pheochromocytoma · Chromogrannin

R. Yadav · R. Kumar (✉)
Department of Urology, All India Institute of Medical Sciences, New Delhi 110029, India
e-mail: rajeev02@gmail.com

A. K. Das
Department of Pathology, All India Institute of Medical Sciences, New Delhi, India

Introduction

Paragangliomas are among the rare tumors of the urinary bladder. Most are benign and malignancy is diagnosed only on the basis of invasion or metastasis. We describe a case with a late recurrence of a nonfunctional paraganglioma of the bladder, which was brought to clinical attention by the development of obstructive uropathy due to local invasion of the ureteroileal anastomoses.

Case report

A 32-year-old male presented with a 15 day history of bilateral flank pain, decreased urine output, vomiting and intermittent, painless hematuria with clots. He had undergone a radical cystectomy with ileal conduit diversion for paraganglioma of the bladder 4 years earlier. He was hypertensive, well controlled on a single antihypertensive drug. He had no history of headaches, syncope, sweating or palpitation. General examination including the pulse and blood pressure was normal. Abdominal examination was unremarkable and the ileal conduit stoma was healthy. Laboratory tests revealed severe azotemia (blood urea 108 mg%, serum creatinine 9.6 mg%). A 24-h total urinary catecholamines on two occasions were within normal limits. Chest and abdominal roentgenograms were normal. Ultrasonogram

revealed moderate to severe hydro-ureteronephrosis of both kidneys with no other abnormality. Bilateral percutaneous nephrostomy tubes were placed with resultant normalization of renal parameters within a week. Bilateral nephrostograms revealed sharp cutoff at the lower end of both the ureters with no dye entering the ileal conduit. Subsequent MRI study showed a poorly defined soft tissue mass (2 cm × 1.5 cm), hyperintense on T2 weighted images, in the presacral region (Fig. 1).

At laparotomy, a dense desmoplastic mass was found in front of the sacral promontory, involving the lower ends of both ureters at the ureteroileal anastomosis and the adjacent ileal conduit. The mass was excised and the ureters were re-anastomosed to the conduit. Histopathology revealed tumor cells arranged in a nesting pattern separated by thin fibrovascular septae, infiltrating the fibrocollagenous tissue and smooth muscle bundles. The cells had abundant eosinophilic cytoplasm and round to oval regular nuclei. Immunohistochemically the tumor cells were strongly positive for chromogranin A, suggestive of paraganglioma (Fig. 2). Postoperative recovery was uneventful.

Discussion

Paragangliomas of the urinary bladder are rare neoplasms constituting less than 0.06% of all bladder neoplasm and 6% of extraadrenal paragangliomas [1]. They are rarely malignant and

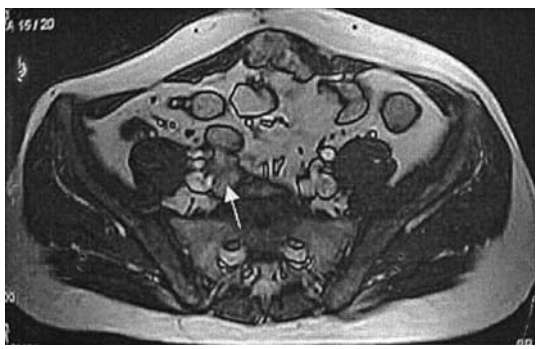

Fig. 1 T2 weighted MR image showing a poorly defined soft tissue mass (arrow) to the right of the sacral promontory involving both the ureters

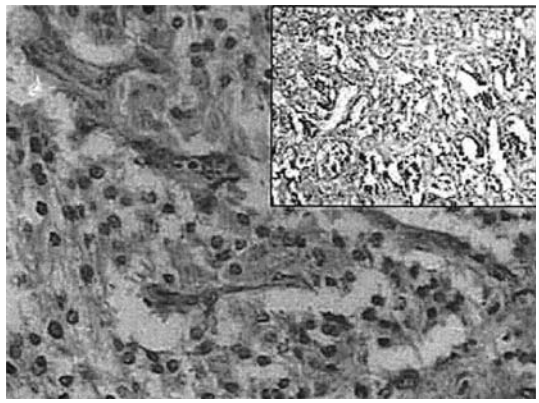

Fig. 2 Photomicrograph showing nests of tumor cells separated by vascularised fibrous septae (H&E 10×). Individual tumor cells have abundant granular eosinophilic cytoplasm which are immunoreactive to Chromogranin A (inset)

there are no histologic features characteristic of malignancy [2]. The only criteria, which can suggest malignancy, are tumor invasion of adjacent tissue and/or metastasis [3]. The development of metastases usually occurs within 1 year of treatment and is often heralded by the return of the endocrine manifestations. Typically after a latent period of approximately 1–3 years, hypertension recurs and death occurs from disseminated tumors [4]. However, long-term survival has been reported in patients with malignant pheochromocytomas of the bladder [5].

Around 17% of bladder paragangliomas may be hormonally inactive [6]. Recurrent or metastatic lesions from these tumors may not have the typical symptoms related to excessive catecholamine secretion by the functional tumors. Due to the dramatic symptoms, functional tumors are usually small when detected, whereas nonfunctional tumors may be large unless they infiltrate a vital structure [7].

It is likely that the disease in our patient was metastatic since it recurred after 4 years and the earlier histology had confirmed margins free of tumor at the time of cystectomy. It was detected early because of its local spread causing symptoms. Although we performed an MIBG scan to look for other sites of metastasis, its failure to pick up any lesion does not necessarily mean absence of disease since this tumor was nonfunctional. ^{131}I-MIBG scintigraphy is highly

effective in the evaluation of patients with a suspected extraadrenal disease, multiple lesions or metastasis, with sensitivity approaching almost 100% [8]. However, false negative scan results are seen in the presence of large areas of necrosis or the small size of the tumor.

When recurrent or metastatic pheochromocytoma is demonstrated, surgical removal or debulking is the treatment of choice [9]. Radiotherapy and chemotherapy are of limited effectiveness in the treatment of locally recurrent and metastatic pheochromocytoma [10].

References

1. Melicow MM (1977) One hundred cases of pheochromocytoma (107 tumors) at the Columbia-Presbyterian Medical Center, 1926–1976: a clinicopathological analysis. Cancer 40(5):1987–2004
2. Sweetser PM, Ohl DA, Thompson NW, (1991). Pheochromocytoma of the urinary bladder. Surgery 109(5):677–681
3. Davis P, Peart WS, Van't Hoff W (1955) Malignant pheochromocytoma with functioning metastases. Lancet 269(6884):274–275
4. Higgins PM, Tresidder GC (1966) Phaeochromocytoma of the urinary bladder. Br Med J 5508:274–277
5. Bourne RB, Beltaos E (1967) Pheochromocytoma of the bladder: case report and summary of literature. J Urol 98(3):361–364
6. Salo JO, Miettinen M, Makinen J,Lehtonen T (1989) Pheochromocytoma of the urinary bladder. Report of 2 cases with ultrastructural and immunohistochemical analyses. Eur Urol 16(3):237–239
7. Grizzle WE (1988) Pathology of the adrenal gland. Semin Roentgenol 23(4):323–331
8. Troncone L, Rufini V, Monteaggi P, Danza FM, Lasorella A, Mastrongelo R (1990) The diagnostic and therapeutic utility of radioiodinated metaiodobenzylguanidine (MIBG). 5 years of experience. Eur J Nucl Med 16(4–6):325–335
9. Ansari MS, Goel A, Goel S, Durairajan LN, Seth A (2001) Malignant paraganglioma of the urinary bladder. A.case report. Int urol Nephrol 33:343–345
10. Manger WM, Gifford RW Jr, Hoffman BB (1985) Pheochromocytoma: a clinical and experimental overview. Curr Probl Cancer 9(5):1–89