Oncology

Incidental Diagnosis of Nonfunctional Bladder Paraganglioma

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INTRODUCTION

Paragangliomas are rare tumors that can be classified as functional (catecholamine secreting) or nonfunctional. They constitute less than 0.06% of all bladder cancer. Symptoms are related to catecholamine hypersecretion or to the effect of the mass. Paragangliomas are occasionally found incidentally on imaging studies of asymptomatic patients.

Histological features such as the diffuse pattern of growth, the focal clear cells, necrosis and even the muscle invasion with cavi
tery artifact can be confused with bladder cancer, especially in cases of nonfunctional paragangliomas in which there are no obvious symptoms. Thus, the importance of clinical suspicion and correct diagnosis is important, because therapy is specific for each disease.

Herein, we report on the case of a female patient with ultrasound suspicion of bladder cancer who underwent transure
thral resection of the lesion and whose anatomopathological and immunohistochemical results confirmed paraganglioma.

CASE REPORT

A 68-year-old female patient was admitted in our hospital in urology department. From a urological perspective, the patient was asymptomatic but was referred due to a bladder lesion found by chance during total abdominal ultrasound to investigate abdominal pain.

The patient had hypertension, type 2 diabetes mellitus and was an ex-smoker (she had stopped 32 years before). The ultrasono
graphic finding showed an echoic image in the posterior wall of the bladder measuring 1.1 × 1.2 cm; vascular flow was seen by Doppler ultrasonography.

Cystoscopy and endoscopic resection was performed using a diathermy loop and a bladder lesion of approximately 1.5 cm was removed. The surgery was uneventful and the patient was discharged on the second postoperative day.

A histopathologic examination of the surgical specimen performed in the Pathology Department revealed paraganglioma and a biopsy showed the margins were affected by neoplasia (Figs. 1 and 2). The immunohistochemical study was positive for the expression for chromogranin A (DAK-A3) and synaptophysin (DAK-SYNAP). Immunostaining for the polyclonal S-100 protein showed a sustentacular pattern, thereby confirming paraganglioma.

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A postoperative magnetic resonance imaging (MRI) of the abdomen shows no bladder injury or extravesical suspicion of paraganglioma however, the patient continues to be followed up as an outpatient.

Discussion

Paragangliomas are neoplasms of chromaffin tissue of the sympathetic central nervous system that originates within the layers of the bladder wall. This neoplasm should be suspected when there are clinical symptoms related to hypersecretion of catecholamines such as headaches, palpitations, fainting and visual disturbances. However, in some cases, it may go unnoticed for years, as it does not always secrete catecholamines.

Nonfunctional bladder paragangliomas are often found in routine imaging exams that show the possibility of bladder cancer. In most methods of imaging, this neoplasm is indistinguishable from other types of tumors, but some features may lead to suspicion of bladder paraganglioma such as small intramural lesions may be accentuated after the administration of contrast in MRI, whereas larger lesions lose the uniformity of attenuation due to necrotic areas. The signal strength on T2 weighted images can be very high in these tumors allowing their characterization. The metaiodobenzylguanidine is highly specific for pheochromocytoma and is thus useful to distinguish between functional and nonfunctional tumors, but it is less sensitive compared to MRI to detect paragangliomas. In this case, the diagnosis was confirmed by pathological examination.

Most bladder cancers appear as papillary or invasive urothelial tumors, with other forms of cancer being rare. As paragangliomas have histological characteristics similar to the most common bladder cancers, the pathological interpretation often depends on clinical suspicion. Histologically, the paraganglioma is usually composed of cells with a ‘zellballen’ pattern (cell balls in German) with abundant eosinophilic or amphophilic cytoplasm divided by delicate vascular stroma. Paragangliomas commonly arise in the deep layers of the bladder wall, so when they develop they affect their own muscle layer, making it even more difficult to make the differential diagnosis with a tendency to diagnose urothelial carcinoma.

Conclusion

The current case report stresses the importance of knowledge of this rare disease, keeping in mind the differential diagnosis with urothelial carcinoma. It describes the similarities and differences in imaging, pathological and immunohistochemical examinations between these two diseases.

Conflict of interest

None.

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