

Adenocarcinoma of urinary bladder in a 55-year-old female: An unusual case report

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ABSTRACT

Adenocarcinoma of the bladder is an uncommon malignant neoplasm and accounts for fewer than 2% of all the malignant urinary bladder tumors. It may arise primarily in the bladder or secondarily from a number of other organs. Adenocarcinoma of urinary bladder can be diagnosed mainly on histopathology and with the aid of immunohistochemistry. We present clinical, imaging, histopathology, and immunohistochemical findings in a case of primary bladder adenocarcinoma (PBA) in a 55-year-old female. Complete clinical details along with a panel of antibodies comprising of β -catenin, cytokeratin 20 (CK20), CK7, and CDX2 can be helpful in distinguishing PBA from metastatic colonic adenocarcinoma.

Key words: Adenocarcinoma, Bladder, Neoplasm

Urinary bladder cancer is the second most frequent tumor of the genitourinary tract [1]. The most common type of bladder cancer is urothelial carcinoma, also called transitional cell carcinoma, accounting for about 90% of the cases. Other uncommon types, squamous cell carcinoma and adenocarcinoma, account for 3-7% and <2% of cases, respectively [2]. Bladder adenocarcinoma may be primary or secondary, with secondary being more common, involving the bladder by metastasis from the colon, prostate, endometrium, cervix, breast, and lung or by direct extension of adenocarcinoma of the surrounding organs, especially colorectum.

Primary bladder adenocarcinoma (PBA) is broadly classified as non-urachal and urachal adenocarcinoma based on location. Non-urachal PBA occurs in the posterior wall and trigone and urachal adenocarcinoma near dome and anterior wall of the bladder. Patients of PBA usually present in the sixth and seventh decades of life with male predominance [3]. The most common symptom is hematuria, followed by bladder irritation symptoms, and rarely, mucusuria. Risk factors include bladder exstrophy, schistosomiasis, chronic irritation, obstruction, and cystocele [4]. Morphologically, these tumors show glandular histology resembling colonic (enteric), mucinous, signet ring cell, clear cell, and mixed morphology. Therefore, distinguishing PBA from secondary involvement, especially, metastatic colonic adenocarcinoma (MCA) is often a diagnostic challenge by light microscopy alone. On immunohistochemistry (IHC), markers such as cytokeratin7 (CK), CK20, CDX2, and especially β -catenin have been found useful in resolving the differential diagnosis of these tumors [3].

CASE REPORT

A 55-year-old diabetic Indian female presented to surgical the outpatient department with complaints of hematuria for 5 months. There was no significant past history. Her general and systemic examination was unremarkable. Ultrasonography showed a hyperechoic urinary bladder mass with significant vascularity. Computed tomography scan showed an intraluminal mass in the anterior wall of the urinary bladder measuring 5 × 5 cm with anterior perivesical fat extension (Fig. 1). Urine cytology showed the presence of red blood cells along with few malignant cells. Hematological and biochemical parameters were within normal limits. The patient refused for total cystectomy, and thus, bladder growth resection was performed and sent for histopathological examination.

Grossly, tumor was solitary, polypoidal, gray-white with a circumference of 0.5 cm of normal bladder wall all around. Entire tumor was processed which, on microscopy, showed well-differentiated adenocarcinoma of enteric type comprising of glandular structures lined by columnar cells with basally located vesicular nuclei and prominent nucleoli. Tumor extension into perivesical fat was found microscopically (Fig. 2). No urothelial component was found. A panel of IHC was put which included CK7, CK20, carcinoembryonic antigen (CEA), cancer antigen-125 (CA), CDX2, GATA-3, and β -catenin. Our case showed nuclear positivity for CDX2, membranous positivity for β -catenin, focal positivity for CK20, and CEA and negativity for GATA-3, CK7, and CA-125 (Fig. 2). Based on these findings, a diagnosis of the enteric type of non-urachal primary urinary bladder adenocarcinoma (moderately differentiated) was made.



Figure 1: Computed tomography scan showing intraluminal mass in anterior wall of urinary bladder

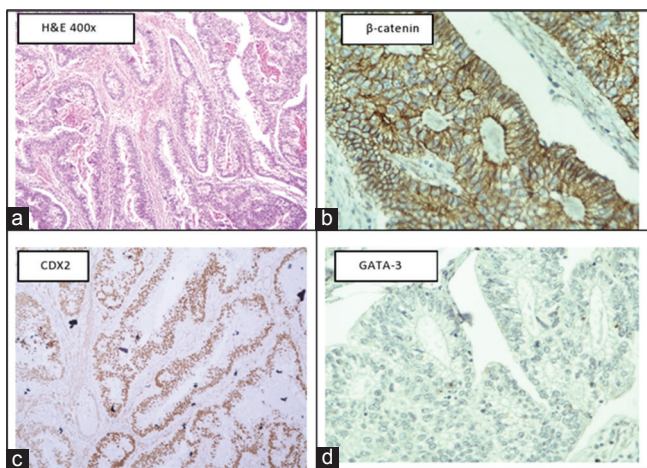


Figure 2: (a) Hematoxylin and eosin stained section of primary adenocarcinoma of urinary bladder (enteric type), (b) membranous positive staining for β -catenin, (c) nuclear-positive staining for CDX2, (d) negative staining for GATA-3

DISCUSSION

Adenocarcinoma of the urinary bladder arising from the urothelial lining is an uncommon malignancy which accounts for 0.5-2.0% of all malignant vesical tumors [2]. Adenocarcinoma of the bladder is reserved for tumor that is entirely composed of glandular differentiation, and thus, it is necessary to examine the entire tumor specimen to rule out any urothelial component before making the diagnosis of adenocarcinoma. Other potential metastatic adenocarcinomas (direct spread, lymphatic, and hematogenous) have to be ruled out before a diagnosis of primary adenocarcinoma of the urinary bladder is made. PBA occurs more frequently in schistosomiasis, endemic regions, and is associated with chronic irritation, obstruction, and cystocele. However, the present case had no known risk factors.

Grossly, bladder adenocarcinoma usually presents as a solitary lesion unlike urothelial carcinoma, which tends to be multifocal. It arises mostly from the trigone and posterior wall as a papillary, sessile, solid, or ulcerating lesion but can be found anywhere in the bladder [5]. The present case presented as a

solitary, sessile polypoidal mass in the anterior wall of the urinary bladder. Histologically, bladder adenocarcinoma exhibits various growth patterns as follows: (a) Enteric (colonic or intestinal); (b) mucinous (colloid); (c) signet ring cell; (d) not otherwise specified (NOS); and (e) mixed patterns [6]. PBA is usually well to moderately differentiate and frequently of enteric type, comprising of glands lined by cuboidal to columnar cells with basal vesicular nuclei, prominent nucleoli, and apical cytoplasm with or without mucin vacuoles.

PBAs usually have associated surface glandular metaplasia, or cystitis glandularis in the surrounding urothelial lining. Since we received only tumor with a very small portion of surrounding normal bladder, we did not find areas of metaplasia or cystitis glandularis. The most important and challenging differential diagnosis is MCA which is virtually indistinguishable on histology as well as on routine IHC. Many PBAs have been reported to show a CK20+ and CK7- profile, similar to colonic adenocarcinomas as was found in our case [3]. Expression of CDX2 was thought to be diagnostic of colonic adenocarcinomas. However, the recent studies have shown the immunopositivity of CDX2 in vesical adenocarcinomas as well [7]. Our case also showed nuclear CDX2 positivity. However, unlike the usual cytoplasmic reactivity for GATA-3 in 60% of cases of PBA, our case was found to be negative. The role of β -catenin in differentiating PBA from MCA was first reported by Wang et al. in 2001 [3]. β -catenin is abnormally accumulated in the nucleus of tumor cells of colorectal adenocarcinomas due to impaired adenomatous polyposis coli- β -catenin interaction. Nuclear expression of β -catenin was observed in 81% of colonic adenocarcinomas metastatic to the bladder, and membranous staining pattern was observed in 88% of PBA. Our case showed a membranous pattern of positivity for β -catenin. Thus, nuclear versus membranous staining pattern of β -catenin is a good marker for the distinction between MCA and PBA.

The majority of patients with PBA have a muscle-invasive disease, and these patients are usually treated with radical cystectomy and pelvic lymph node dissection. Primary radiation therapy may be useful in patients who have non-resectable tumors. The traditional cisplatin-based chemotherapy that is used commonly for urothelial carcinoma has been found to be less effective in adenocarcinoma. Several studies have reported bladder adenocarcinoma to have a poorer clinical outcome than urothelial carcinoma. Our patient had been planned for chemotherapy for which she was non-compliant. However, she is currently free of metastasis, 5-month postsurgery.

CONCLUSION

PBA is a rare and aggressive malignant neoplasm of the urinary bladder that resembles MCA at the morphological and immunohistochemical level to some extent. Thus, complete clinical details in conjunction with a panel of antibodies comprising of β -catenin, CK20, CK7, and CDX2 can be helpful in distinguishing PBA from MCA.

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