

Primary Urachal Mucinous Adenocarcinoma of the Urinary Bladder

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ABSTRACT

Urinary bladder cancer is the second most frequent tumour of the genitourinary tract with bladder adenocarcinoma comprising for about 0.5-2% of all malignant bladder tumours. Other primary sites for such tumours include rectum, stomach, endometrium, breast, prostate, seminal vesicles and ovaries. Such non-urothelial bladder tumours with intramural bladder tumour growth may delay the onset of symptoms which may lead to a delay in the diagnosis and thereby adversely affecting the prognosis as compared to urothelial

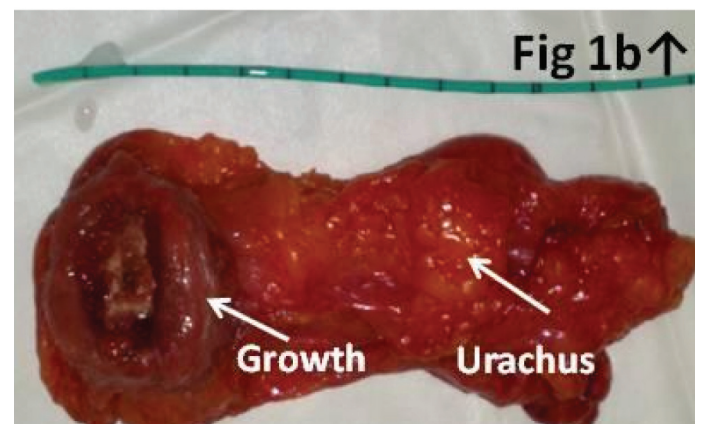
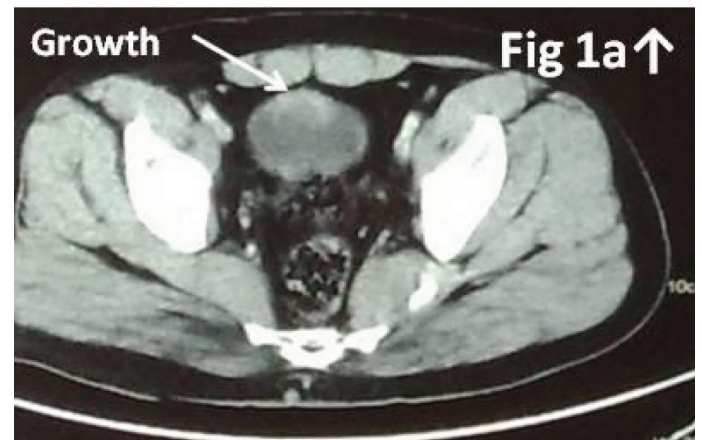
bladder tumours. Traditionally bladder adenocarcinomas were believed to be resistant to both chemotherapy and radiotherapy, but recent advancements have shown encouraging responses with adjuvant chemotherapy and radiotherapy. We present here a case of primary urachal mucinous adenocarcinoma of the urinary bladder highlighting their relative rarity of occurrence and the difficulties encountered in diagnosing primary bladder mucinous adenocarcinoma.

Key Words: Adenocarcinoma urinary bladder, Urachal adenocarcinoma, Cancer bladder

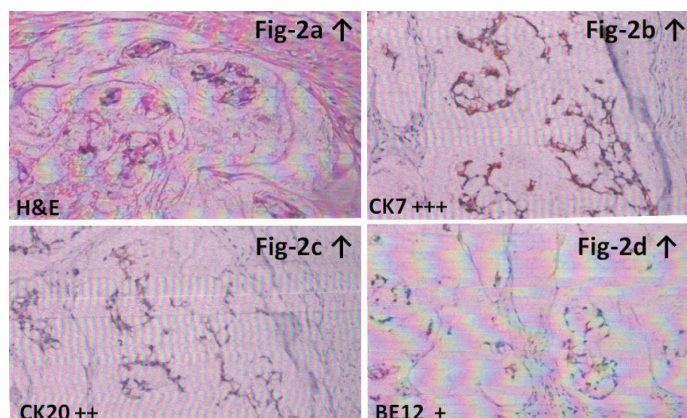
CASE HISTORY

A 40-year old non smoking, gentleman was admitted with complaints of gross intermittent painless hematuria for the preceding two months without any history of anorexia or weight loss. The general physical and urological/digital rectal examination was unremarkable. Urine cytology did not reveal any cytological atypia. Abdominal ultrasonography suggested a distended urinary bladder with irregular mass lesion of size about 2.60x2.27x2.94 cm projecting from the bladder dome along with a midline cystic lesion measuring 13.3x9.4 mm abutting the dome of urinary bladder from outside (suspected urachal cyst) without any peritoneal free fluid or signs of distant metastasis. A contrast enhanced computed tomography (CECT) of abdomen revealed a well defined partly cystic mass with wall enhancement and inhomogeneous contents projecting into the urinary bladder about 3.5 cms in size along with an extravesical mass about 2.5 cm protrusion in size [Table/Fig-1] with vesical fascia present on either side of the latter lesion confirming extraperitoneal localization. The mass was located along the mid anterior surface of the bladder and extends partly towards the umbilicus without any regional infiltration/metastasis (suspected urachal malignancy). PET CT images confirmed presence of a hypermetabolic soft tissue density lesion arising from the junction of antero-inferior and postero-superior bladder wall along with perivesical invasion suggesting an advanced urachal bladder tumor (T3NoMo Stage-III). Diagnostic cystopanendoscopy revealed a sessile ulceroproliferative solid lesion in the dome of the bladder with bilateral normal ureteric orifices. The patient underwent an uneventful transurethral resection of the bladder tumor and his histopathology was reported as transitional epithelial lining with squamous metaplasia, lamina infiltration with well formed glands lined by mucus secretory columnar epithelium with mild to moderate pleomorphism and occasional mitosis along with areas of papillary formation and large pools of extracellular mucin in the background with intracellular mucin with signet ring cells, suggestive of an invasive bladder adenocarcinoma. After informed

counseling the patient opted for an umbilical sparing open partial cystectomy with en-bloc excision of the urachal growth. The gross specimen revealed a polypoidal growth 3x3x2 cm on the luminal side with perivesical cystic mass extending perivesically into the



[Table/Fig-1]: [Table/Fig-1a] showing a contrast enhanced CT scan film depicting the bladder growth (arrow) in abutting in to the dome of the bladder. [Table/Fig-1b] depicting the excised en-bloc specimen of partial cystectomy



[Table/Fig-2]: [Table/Fig-2a] showing the H&E (10x) stained slide depicting histology of adenocarcinoma of urinary bladder, [Table/Fig-2b], [Table/Fig-2c] and [Table/Fig-2d] showing the immunohistochemistry of the specimen depicting cytokeratin CK7(3+strong), CK20 (2+strong) and B12(1+weak) positivity confirming primary urachal bladder adenocarcinoma

urachus. The histopathology was reported as primary mucinous adenocarcinoma of the urinary bladder invading the bladder muscularis propria, submucosa and urachus with perivesical fat margins being free of tumour [Table/Fig-2a]. Immunohistochemistry for CK7 [Table/Fig-2b], C20 [Table/Fig-2c] and BE12 [Table/Fig-2d] were 3+, 2+ and 1+ respectively which confirmed primary bladder adenocarcinoma. The patient was subsequently referred to a medical oncologist and is currently doing well on surveillance follow up of three months.

DISCUSSION

Primary adenocarcinomas of the urinary bladder usually arise in middle aged men from the base of the bladder (50-60%) and are associated with urachal remnants [1]. It is believed that majority of primary vesical adenocarcinoma may arise due to intestinal metaplasia, exsystrophy and persistent urachal remnants and while some may result from direct extension from adjacent organs (e.g., colon, prostate) [2] and rarely due to metastatic spread to bladder from distant organ (stomach or colon) [3]. Hematuria is the most common presenting symptom in about 90% of patients.

Urinary bladder adenocarcinoma, regardless of site, include the following histological variants: i) Adenocarcinoma (non-specific), ii) Adenocarcinoma of enteric type, iii) Adenocarcinoma with signet-ring cells, iv) Mucinous adenocarcinoma, v) Hepatoid adenocarcinoma, vi) clear cell carcinoma [4]. Mucinous adenocarcinoma of the urinary bladder includes extracellular mucin mixed with tumor cells. In some cases there is mixture of extracellular and intracellular mucin resulting in signet-ring configuration [5].

Prognosis varies with stage, with survival approaching 75-100% among patients whose tumors are confined to the urinary bladder [6]. Patients with urachal tumors tend to have better short-term survival rate than those with non-urachal cancers [7]. Immunoprofile of primary bladder and SRCC arising from the gastrointestinal tract overlaps, including positivity for CK7, CK20, CEA, EMA, CDX2, villin and E-cadherin. CK7 & CK20 are positive in contrast with colonic adenocarcinoma that express CK20 only.

At the time of diagnosis, about 25% of patients have distant metastases [8, 9], and approximately 50% have Stage IV disease (i.e., including node positivity, T4b primary tumour, as well as distant metastases) [8]. Prognosis of bladder adenocarcinoma is poor due to high tumour grade and the late presentation. Patients who receive no adjuvant therapy have an average survival of 3.5

months [10] with an overall 1-year reported survival rate of 60% [9] and five year reported survival rate of 75%, 38% and 12% respectively for stage II, III and IV tumours [11]. Another recent study [8] reported 5-years survival rate of 50% for stages I-III, with no stage IV patients surviving beyond two years.

Partial cystectomy or transurethral resection may be indicated for small, well-demarcated primary bladder or urachal adenocarcinoma with long-term survival [12, 13, 14]. Radical cystectomy is generally favoured over partial cystectomy, particularly for non-urachal tumours, because of the possibility of local invasion being undetected on imaging [13]. In a single site study reviewing 21 cases of primary vesical adenocarcinoma the authors concluded that radical cystectomy may be more crucial than chemotherapy with survival strongly correlating with the stage of disease [15]. Adjuvant chemotherapy (5FU, methotrexate, cisplatin, mitomycin, doxocycline, tegafur, cyclophosphamide and carboplatin) [8] has been used in limited studies [7, 8, 9] with variable efficacy. Patients with advanced/metastatic disease who undergo chemotherapy and or radiation may improve disease free survival [1, 8]. According to a recent clinical guide for treatment of urachal vesical adenocarcinoma the authors opined that due to a higher risk of post operative relapse reported especially in those with positive tumour margins, lymph node positivity, peritoneal involvement, or if an en-bloc resection of umbilicus was omitted predict a group of patients where one could consider adjuvant chemotherapy [16].

CONCLUSION

Primary adenocarcinoma of urinary bladder is an uncommon malignancy which may not be easy to differentiate from adenocarcinoma arising from the colon and prostate without immuno-histochemistry. We advocate early partial/radical cystectomy for localised bladder adenocarcinoma.

Key Messages: The present case highlights the diagnostic difficulties which are encountered in the establishment of a clinical and a histological diagnosis in a case of primary bladder adenocarcinoma.

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