Urachal Carcinoma: Diagnosis by combined Laparoscopy and Cystoscopy

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Abstract
Urachal tumors are rare bladder cancers with non-specific presentations. A great deal of suspicion is needed for early diagnosis. We report a case of Urachal Adenocarcinoma in a 33 year old male diagnosed by combined cystoscopy and laparoscopy. This case illustrates the need for concomitant laparoscopy when an anterosuperior bladder lesion is encountered on cystoscopy.

Key words: hematuria, urachal tumor, partial cystectomy, bladder tumor, laparoscopy, cystoscopy

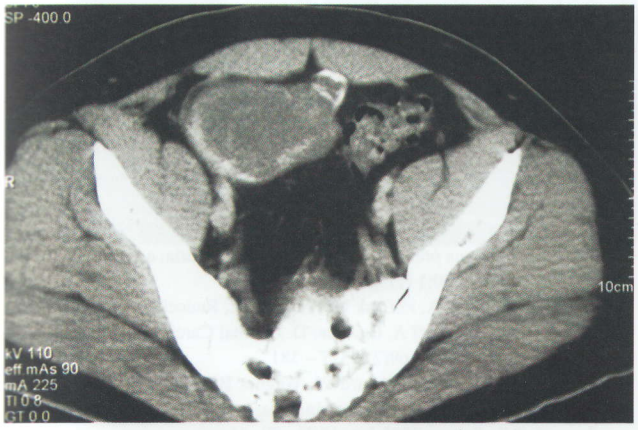
Introduction

Early diagnosis is associated with improved survival and increased cure rates in urachal carcinoma. [1,2] However, it is often diagnosed late because of its location, its rarity and relatively non-specific symptoms. We report a case where cystoscopic visualisation of a lesion at the bladder dome combined with concomitant laparoscopy demonstrating extension along the median umbilical ligament, led to the diagnosis and appropriate wide resection.

Case Report

A 33 year- old male presented to the emergency department of the general hospital with intermittent episodes of painless hematuria of four (4) months duration. He had no other urinary complaints. He had seen a urologist who ordered a CT-scan which showed a "8.6 x 6.3 x 5.7 cm well circumscribed solid, heterogeneous, peripherally calcified enhancing mass within the mesenteric fat in the right lower quadrant of the abdomen extending to the pelvis, immediately subjacent to the caecum and separate from the urinary bladder and small bowel" (Fig 1).

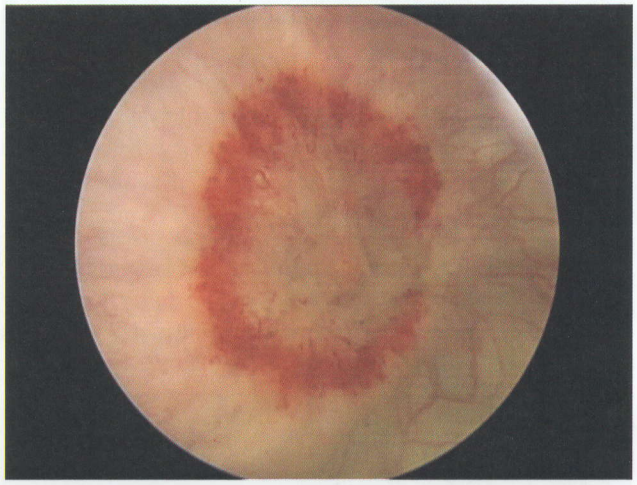
Figure 1. CT-Scan showing the right-sided intra-abdominal cystic mass with peripheral calcifications



He subsequently had an ultrasound- guided biopsy of this mass that was inconclusive but suggestive of pancreatic origin or a Gastro Intestinal Stromal Tumor (GIST).

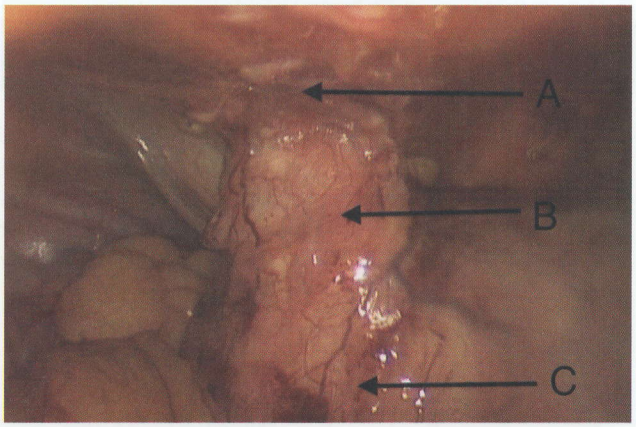
Cystoscopy revealed a flat white, fluffy mass surrounded by an area of erythema at the bladder (Fig 2)

Figure 2. Cystoscopy showing bladder tumour.



and concurrent laparoscopy revealed a large mass 7.5 cm x 7.5 cm arising from the anterior abdominal wall on the median umbilical ligament and extending onto the bladder with no involvement of the intraperitoneal structures (Fig 3).

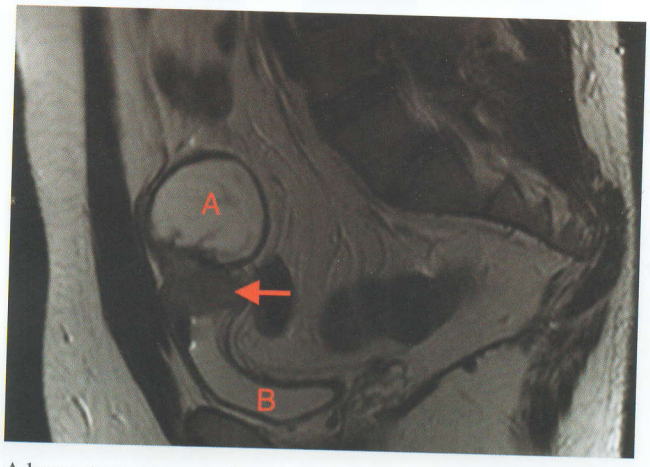
Figure 3. Diagnostic laparoscopy. A. Umbilical Attachment, B. Urachal Tumor, C. Attachment to the bladder



This finding was strongly suspicious for a urachal tumor. Bladder biopsy confirmed "an adenocarcinomatous infiltrate suggestive of urachal origin."

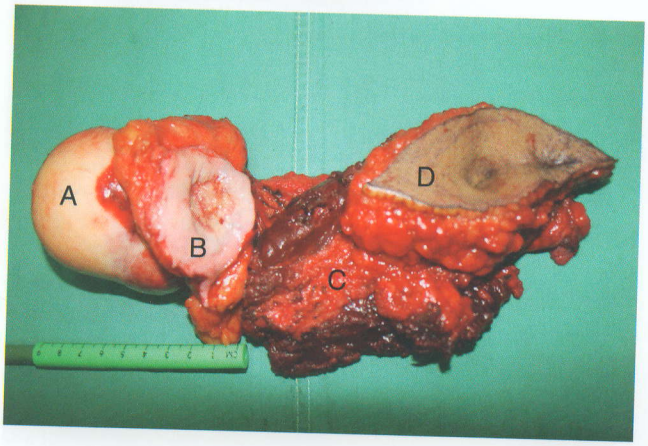
was done. This revealed a cystic urachal mass attached to the umbilicus and extending into the bladder with no involvement of the intraperitoneal viscera (Fig 4).

Figure 4. MRI scan. A. Urachal Tumor, B. Bladder, Arrow – invasion of the urachal tumour into the bladder



A bone scan was negative.
A diagnosis of locally advanced urachal adenocarcinoma was made and the patient was booked for partial cystectomy with en bloc resection of the urachal tumour, urachus and umbilicus (Fig 5).

Figure 5. Specimen of urachal tumor removed en bloc together with the urachus, umbilicus and cuff of bladder. A. Urachal Tumour, B. Cuff of bladder containing the tumour as seen on cystoscopy, C. Urachus with wide margin of rectus muscle and sheath, D. Umbilicus



The patient had uncomplicated surgery with primary closure of the abdominal wall and a 1 cm wide margin resection around the bladder tumour. Histology confirmed urachal carcinoma involving the dome of the urinary bladder. In view of the clear margins and absence of obvious metastases, adjunctive therapy was withheld pending meticulous follow-up.

Discussion

Poor prognosis in urachal carcinoma is related to positive surgical margins, high tumour grade, positive local lymph nodes, metastases at diagnosis, advanced tumour stage, failure to perform umbilectomy and primary radiation therapy.[2] It is uncertain whether lymphadenectomy and chemo radiation offer any benefit. [3,4] Thus, the best chance of improved survival would be provided by early diagnosis and aggressive surgery with en bloc resection of the umbilicus, urachus and involved bladder with clear margins. [1,3,4]However, this aggressive malignancy is often overlooked for a long time prior to diagnosis because of its non specific symptoms (often mistaken for lower urinary tract infections such as prostatitis, urethritis, cystitis), its site and its rarity. [5,6,7]

Early diagnosis requires a high index of suspicion and focused investigations. The presence of mucusuria, haematuria and a palpable, infra umbilical midline mass are the commonest clinical features. [2,7] The CT findings of an infra umbilical, mixed solid and cystic lesion with calcification in the supravesical or submucosal, mucosal or intramuscular layers of the bladder are well described.[8,9] In our patient, the CT suggested that the lesion was intraperitoneal (Fig 1) and needle biopsy was unable to confirm the diagnosis. The addition of laparoscopy to cystoscopy facilitated identification of the mass as being related to the median umbilical ligament and confined to the extraperitoneal position, thus suggesting the diagnosis of urachal carcinoma. MRI was subsequently done to provide details of the extent of spread and invasion in order to plan complete radical resection with clear margins.

Since adenocarcinoma of the bladder is rare (< 1%) and urachal malignancies are adenocarcinomas, any biopsy, confirming adenocarcinoma, especially if it is at the dome or anterosuperior position, should raise the suspicion of urachal origin. Moreover, if at initial cystoscopy, a tumour is seen involving or indenting the dome of the bladder addition of laparoscopy can facilitate the diagnosis both by identifying the site and extent of the tumour as well as permitting biopsy of the lesion if it is extramucosal on cystoscopy.

Conclusion

Early diagnosis and prompt, wide surgical resection is the best hope for patients with urachal carcinoma. Addition of laparoscopy to cystoscopy for any lesion in the antero-superior region of the bladder could facilitate early confirmation of this diagnosis.

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