



A RARE CASE OF MATURE CYSTIC TERATOMA OF THE URINARY BLADDER

Radiodiagnosis

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ABSTRACT

Introduction: Mature cystic teratomas or dermoid cysts are benign "tumors" which arise from more than one germ cell layer. These occur most commonly in the ovaries. Urinary bladder is an extremely rare site. Only few cases of urinary bladder dermoid cysts have been documented in the literature.

Case report: We present a rare case in which a 29-year-old female patient presented with hematuria, passage of hairs in urine and painful micturition. Urinary bladder dermoid cyst along with vesicular calculus was diagnosed on imaging and cystoscopy and confirmed after surgery by histopathological examination.

Conclusion: Bladder dermoids mimic bladder calculus and neoplastic mass lesion both clinically and radiologically. Correct diagnosis can be achieved by multimodality imaging, cystoscopy and confirmed on histopathology.

KEYWORDS

Dermoid cyst, urinary bladder, hematuria, CT Urography, imaging, mature cystic teratoma

INTRODUCTION

Dermoid cysts are benign 'tumours', which are considered developmental anomalies. They consist of tissue from more than one germ cell layer and occur most commonly in the ovaries but may also be found at other sites, especially in the midline and para-axial locations. They are rare in the urinary bladder.¹ Only few cases have been reported in the literature. The most widely accepted theory of dermoid cyst origin is the parthenogenetic theory.²

We report an extremely rare case of urinary bladder dermoid cyst infiltrating the bladder fundus with vesicular calculus and cystitis, and multiple similar looking lesions in the liver. To our knowledge, no case report with occurrence of bladder dermoid cyst with similar hepatic lesion on imaging has been reported.

Case report

A 29-year-old female patient presented in the urology department with complains of gross hematuria, passage of hairs in urine and painful micturition for 6 months. There was suprapubic tenderness on clinical examination. The patient had had cystolithotripsy in the past for bladder calculus. Urine examination showed hazy colored urine with 40-45 RBC/HPF, 80-100 WBC/HPF, 8-10 epithelial cells/HPF with +1 proteinuria. Routine blood parameters were within normal limits. Viral markers for HIV, HBV and HCV were negative. Ultrasonography (USG) of whole abdomen was prescribed which revealed a heterogenous soft tissue mass lesion with echogenic areas and peripheral calcifications attached to the bladder wall, a large echogenic mobile lesion with posterior acoustic shadow and thickened, trabeculated bladder wall [Figure 1A, 1B]. Gall bladder sludge with a stone was noted. Rest of the viscera were unremarkable.



Figure 1A: The USG of the bladder shows heterogenous, echogenic mass lesion with focal areas of calcification casting posterior acoustic shadows attached to the bladder wall.



Figure 1B: The USG of the bladder in same patient shows another well defined, highly echogenic, mobile lesion lying in dependent part of the bladder casting strong posterior acoustic shadowing. The lesion is separate from the mass lesion in Figure 1A.

Following ultrasound, computed tomography (CT) urography was suggested which showed an heterogenous mass lesion with fat density and coarse calcifications, attached to the postero-superior bladder wall, measuring (4.5 X 4.1 X 4.4) cm [Figures 2A, 2B]. Minimal wall

enhancement was noted on postcontrast images. The lesion was seen to be infiltrating the fundus of the bladder with extraluminal extension into the supravescical space, closely abutting bowel loops, with focal calcifications [Figure 3]. The lesion was separate from the ovaries which were unremarkable.



Figure 2A: Contrast enhanced axial CT in the portal venous phase through the pelvis shows a relatively well defined heterogenous mass lesion within the urinary bladder lumen containing both fat density and calcifications within it.

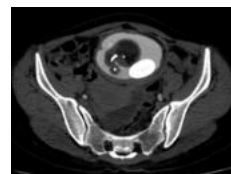


Figure 2B: Delayed phase axial CT section shows two separate lesions; one on the right side shows same findings as in Figure 2A; the left one shows high density (Hounsfield units 500-700).



Figure 3A: Coronal CT section through the abdominopelvic area shows that the heterogenous mass lesion is attached to the postero-superior wall of the urinary bladder with extension of soft tissue through the wall into the supravescical space, closely abutting the bowel loops.



Figure 3B: Sagittal CT section shows focal calcification within the soft tissue in the supravescical space.

Another ovoid, hyperdense calcified mobile lesion, Hounsfield units 500-700 measuring (3.6 X 2.1 X 3.2) cm was noted in the dependent part of the bladder [Figure 4]. The bladder wall was thickened, irregular and trabeculated as can be seen in Figure 3.

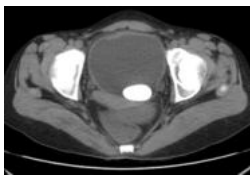


Figure 4: Non-enhanced axial CT through the pelvis shows a well-defined, hyperdense (Hounsfield units 500-700), oval lesion with smooth margins lying in the dependent part of the urinary bladder lumen.

There were multifocal small fat density lesions with calcific foci noted in the right lobe of the liver [Figure 6A]. No enhancement was noted on contrast administration [Figure 6B].

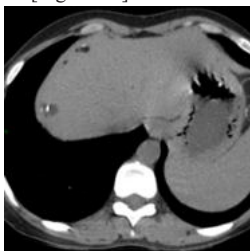


Figure 6A: Unenhanced axial CT section through the upper abdomen shows multiple small rounded to oval, well-defined lesions in right lobe of the liver containing both fat density and calcifications within.



Figure 6B: On contrast administration, no enhancement was noted within the hepatic lesions.

The patient underwent cystoscopy and transurethral resection of bladder tumor (TURBT) for the mass lesion and cystolithotripsy for the bladder calculus. On gross examination, the resected lesion was hard with hairs and calcifications on surface and yellowish colored fat at the core. Histopathology revealed structures from ectodermal and mesodermal origin. Skin with epidermis having stratified squamous epithelium and dermis was seen with adnexal structures including sweat glands and sebaceous glands. In other areas, lobules of mature fat and fibrotic stroma was seen.

Based on clinical, biochemical, imaging and histopathological findings diagnosis of dermoid cyst of urinary bladder with bladder calculus and cystitis was made. The hepatic lesions were followed up and showed no change after 6 months on imaging.

DISCUSSION

Dermoid cyst of the urinary bladder is extremely rare.³ They usually contain hair and calcified material.⁴ They may also be associated with bladder diverticula and vesical stones.⁵ In our case dermoid cyst was associated with vesical calculus and cystitis. In literature, mature teratomas of the urinary bladder invading the bladder wall and extending outside the lumen have been described.⁶ This was seen in our case as well.

Dermoid cysts can mimic bladder calculus both clinically and on imaging. Hence if a "bladder stone" appears to be covered by mucosa, appears to be stuck to the anterior bladder wall and fails to roll around in the bladder at ultrasound or cystoscopy, a dermoid cyst should be considered as a differential diagnosis.^{1,7} In our case, both dermoid cyst and bladder calculus were present and separate lesions.

Multifocal fat density lesions with calcific foci were noted in the right lobe of the liver which did not show any enhancement on post contrast study. No progression of these hepatic lesions was noted on follow up scan after 6 months. To our knowledge, no case showing association of bladder dermoid cyst with similar looking lesions in liver on imaging has been described.

CONCLUSION

Dermoid cysts or mature cystic teratoma of the urinary bladder is extremely rare. These mimic bladder calculus and neoplastic mass lesion both clinically and radiologically. Correct diagnosis can be achieved by multimodality imaging, cystoscopy and confirmed on histopathology. Association of similar lesions in the liver and urinary bladder needs further prospective or retrospective study.

Abbreviations:

RBC: red blood cell
WBC: white blood cell
HPF: high power field
HIV: human immunodeficiency virus
HBV: hepatitis B virus
HCV: hepatitis C virus
USG: ultrasonography
CT: computed tomography
TURBT: trans-urethral resection of bladder tumor

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