

## CASE REPORT

# A rare case of epidermoid cyst in urinary bladder

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## Abstract

Epidermoid cyst in urinary bladder is a rare pathology with only one known case published prior to this study. In this article, we described imaging findings of epidermoid cyst in the urinary bladder and other parts of urogenital system. Plain CT KUB was performed on Multidetector 16 slice computed tomography scanner-GE Bright speed Elite and plain magnetic resonance imaging on 1.5 T Siemens Magnetom Avanto.

**Key words:** Diffusion weighted images; epidermoid cyst; renal; testis; ureter; urinary bladder

## Introduction

Epidermoid cyst is a benign lesion. They are rarely seen in solid organs. We report an unusual case of histopathological proven epidermoid cyst in the posterior wall of urinary bladder in a female patient. Epidermoid cyst in urinary bladder is a rare pathology with only one known case published prior to this study.

## Case History

A 45-year-old female patient who had a past history of total abdominal hysterectomy with bilateral salpingo-oophorectomy for carcinoma cervix came with complaint of lower abdominal pain, increased frequency of micturition, and left flank pain.

Patient was referred to ultrasound which revealed a focal soft tissue thickening with a calcific speck in the posterior wall of urinary bladder, later she was referred to CT scan of kidney, ureters and urinary bladder (CT KUB).

CT KUB revealed focal nodular thickening of posterior bladder wall in the midline with a calcific focus and bulging into the perivesical plane.

On magnetic resonance imaging (MRI), a well-defined lesion in the posterior wall of bladder which was T1 FS hyperintense and T2 hypointense showed diffusion restriction. Most probable diagnosis was considered to be neoplastic -likely malignancy based on diffusion characteristics.

Cystoscopy revealed a submucosal lesion of  $\sim 2 \times 2$  cm at supratrigonal area away from ureteric orifice with normal overlying mucosa.

Laparoscopic excision of lesion was done.

On histopathological examination, pale brown nodular tissue of  $2 \times 1 \times 0.5$  cm with smooth surface. On cross section it showed a uniloculated cyst which yielded pultaceous material.

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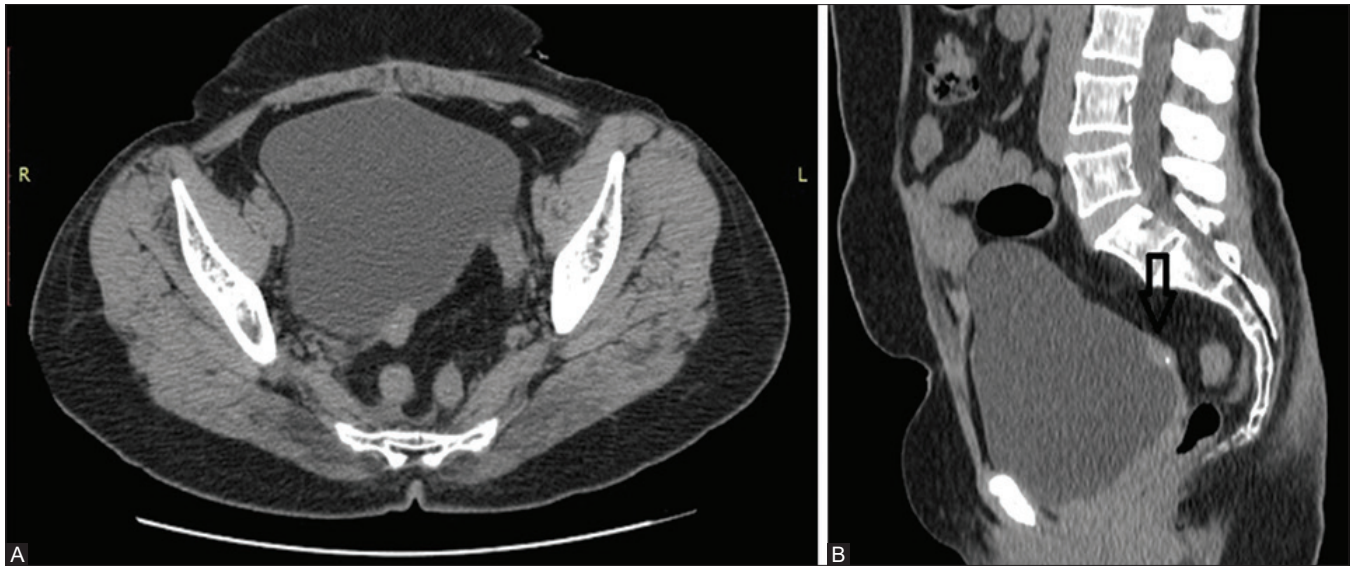
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**Figure 1 (A and B):** (A) Focal nodular soft tissue thickening of the posterior bladder wall (~1.8 × 0.9 cm) with calcific focus, bulging into perivesical plane. (B) Focal nodular soft tissue thickening of posterior bladder wall in the midline with calcific focus, bulging into perivesical plane

Microscopy revealed cyst lined by stratified squamous epithelium with underlying fibrocollagenous stroma, adipose tissue, smooth muscle cells, and focal hemosiderin laden macrophages seen in subepithelium suggestive of an epidermoid cyst.

## Discussion

Epidermoid cysts are either congenital or acquired. They contain trapped epithelial elements. The proteinaceous content, saponification of keratinized debris, leukocytes, and lipid debris results in high viscosity causing diffusion restriction on DWI. Because of high proteinaceous content in the cyst, it appears hyperintense on T1 and hypointense on T2.

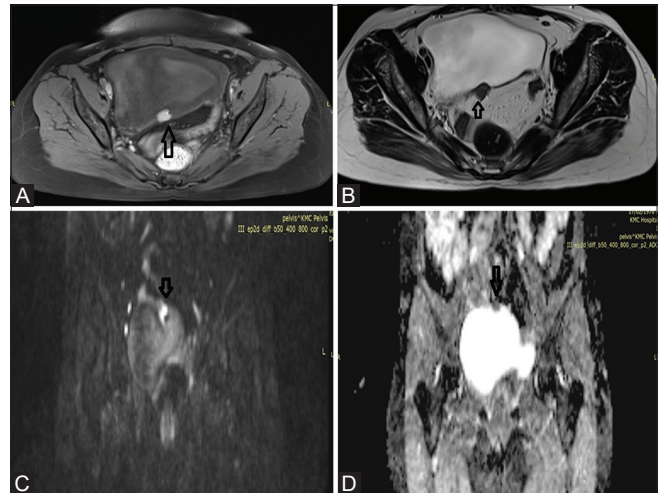
In our case –CT KUB [Figure 1A and 1B] revealed a well-defined focal nodular thickening of posterior bladder wall with calcific focus bulging into the perivesical plane.

MRI revealed a well-defined T1 fat suppression [Figure 2A] hyperintense, T2 [Figure 2B] hypointense lesion with diffusion restriction [Figure 2C and D] in the posterior bladder wall.

Epidermoid cysts can occur at various places -intracranial, spinal, epidermal inclusion cyst, testicular, and postoperative/procedural, traumatic, kidney, spleen, brain, and ureter. Epidermoid cysts are rarely seen in solid organs.

In this patient, the cyst might have arisen from surgical implantation.

Two different theories have been postulated for the presence of epidermoid cyst in urinary system.<sup>[1]</sup> It is suggested that



**Figure 2 (A-D):** (A) T1 fat suppression sequence reveals a well-defined T1 hyperintense lesion in the posterior wall of bladder with a hypointense focus. (B) Well-defined T2 hypointense lesion in posterior wall of bladder. (C and D) Reveals diffusion restriction of the lesion

this type of cyst could originate from the embryonic remnant of Wolffian ducts or by implantation.<sup>[1]</sup>

According to the literature, intrarenal epidermoid cysts are usually treated by nephrectomy because they cannot be differentiated from renal malignancy.<sup>[2]</sup>

Ureteric epidermoid cyst had been reported in literature.<sup>[3]</sup> The presence of keratinized material in the urine sample and calcification within the cystic lesion are useful markers that suggest a diagnosis of epidermoid cyst in the urinary tract.<sup>[3]</sup>

Testicular epidermoid cyst show characteristic ultrasound features of concentric hypo and hyperechogenic rings with central hyperechogenicity described as bulls-eye or onion

ring appearance. MRI shows concentric rings of low and high signal intensity on T1- and T2-weighted images. The central echogenic center seen at ultrasound corresponds to the lower signal intensity zone seen at MRI and is thought to represent the keratin debris.<sup>[4]</sup>

In our study T1 hyperintensity T2 hypointensity with diffusion restriction, presence of calcific speck, and previous surgical history are favoring epidermoid. However, malignancy has to be kept in mind since epidermoid cyst being very unusual in that location. There are few cases reported with malignant transformation. Squamous cell carcinoma has been noted originating from squamous epithelium. This was seen in the testis and intracranial epidermoid cysts.

Although a lesion such as this has not been demonstrated in the urinary bladder, excision of this cyst is the most appropriate management.<sup>[5]</sup>

#### **Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and

other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

#### **Conflicts of interest**

There are no conflicts of interest.

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