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A Rare Case: Vesicholithiasis with Dermoid Cyst of Bladder

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Introduction. Ovarian dermoid cyst, also known as mature cystic teratoma (MCT), is the most common ovarian germ cell tumor in young women. Teratomas have been reported to occur in various sites and organs. Bladder teratoma is a very rare extragonadal tumor, moreover in adults. Although teratomas are known as benign lesions in childhood, they may act as malignant tumors when detected during adulthood.
Case. A 64-year-old woman presented with left side low back pain and dysuria over a 6-month period. Kidney, ureter, and bladder (KUB) X-ray showed a large stone in the bladder with calcification on the left side of the abdomen. An ultrasonography revealed 4.1 cm x 3.1 cm ill-defined echogenic mass in the urinary bladder lumen. Cystoscopy revealed hair on the back of the stone. The diagnosis was made on cystoscopy and confirmed histopathologically. Complete excision was possible. The histopathology report showed a benign mature teratoma with ectodermal, mesodermal, and endodermal elements. The histopathological findings confirmed skin, adnexal structures (sweat glands, hair follicles), adipose, and fibroblastic tissue, which were consistent with those of a dermoid cyst.
Conclusion. A bladder teratoma mimics the presentation of a bladder stone, clinically and radiologically. A dermoid cyst should be considered as a differential diagnosis, especially when the stone appears to be confined to the bladder wall during examination.

Keywords: bladder, dermoid cyst, vesicolithiasis

Introduction

Ovarian dermoid cyst, also known as mature cystic teratoma (MCT), is the most common ovarian germ cell tumor in young women. Patients may be asymptomatic or may have chronic pelvic pain or a pelvic mass. Severe pain occurs when complications arise. About 20% of patients are asymptomatic when a tumor is found [1]. Dermoid cyst usually consists of skin and sweat glands, while other common components are tufts of hair, sebum pockets, blood, fat, bone, nails, teeth, eyes, cartilage, and thyroid tissue [2].

Tumors are formed from tissue derived from fully differentiated cells of the three germ layers: ectoderm, mesoderm, and endoderm [4]. Ectodermal tissue and sebum material are common and present in nearly all cases. Thirty-eight percent of tumors contained skin and neural tissue, 30% contained skin and body surface, while the remainder had other fully differentiated histological tissues. The most common ultrasound image of a mature teratoma is an echogenic cyst with echogenic nodules, characterized by echogenic sebum material and calcifications [5].

Dermoid cyst of the bladder are extremely rare. Thus, the number of published cases is not many. They may exhibit symptoms of cystitis and offer as a pathognomonic sign, the discharging of hairs on urination (Plimictio). [6] Teratomas are not infiltrative tumors, but are expansive. The primary approach is total removal of the tumor, while other alternatives are radiotherapy and chemotherapy for the tumors that show malignant characteristics. Primary urinary bladder germ cell tumors are exceedingly rare [7]. We present a case of vesicolithiasis with a dermoid cyst in the urinary bladder of a 64-year old woman.

Case Report

We reported a 64-year-old woman with dysuria. She had no other genitourinary or bowel complaints. There was no relevant past medical history of ovulation induction, nor any family

history of ovarian or breast malignancies. She previously had USG and was diagnosed with cystitis and vesicolithiasis. She was hospitalized six months ago with left side low back pain and dysuria. The intermittent low back pain that radiated from supra pubic was relieved by voiding. Clinical examination revealed no fever or hematuria. Laboratory tests showed normal hemoglobin, white blood cell count, and renal function tests. Urinalysis was negative for red blood cells, protein, white blood cells, and glucose. Kidney-ureter-bladder (KUB) X-rays show stones in the bladder with areas of calcification behind the stones. An ultrasonography revealed 4.1 cm x 3.1 cm ill-defined echogenic mass in the urinary bladder lumen (Fig. 1). Cystoscopy revealed hair on the back of the stone.

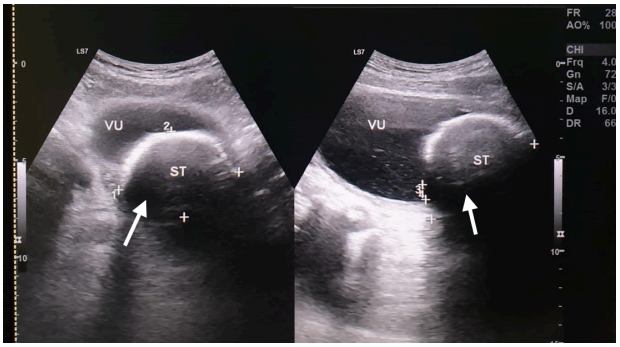

Figure 1. USG showing an ill-defined echogen (4,1 x 3,1 cm) in the urinary bladder lumen

Under regional anesthesia, a suprapubic incision disclosed a hard, brown stone of 3-4 cm in diameter, with a sac. This was extracted from the bladder. The wound was sutured with the exception of the cystostomy opening into which a catheter was placed. After the operation, it was found that there were stones with a diameter of 3-4 cm in the bladder and a sac containing teeth and hair (Fig. 2). The teratoma was reported to be confined to the bladder wall, with no extension outside.

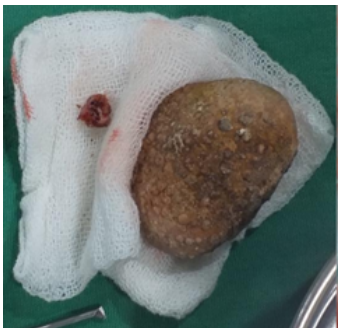

Figure 2. Calculus of bladder tract with a piece of tooth

At an open bladder exploration, a single grey sessile polypoid mass, of about 4 cm wide, covered with grains of whitish deposits was found arising from the midline of the anterior bladder wall. The rest of the bladder mucosa was normal. The mass was excised with a 1 cm rim of normal bladder mucosa and sent for histological examination.

The specimen measured 4×3×2 cm and was greyish-brown in appearance after immersion in 10% buffered formalin. It weighed 10 g. Its cut surface showed a yellowish appearance with a calculus. A sample was taken for histopathology examination. The histopathology report showed a benign mature teratoma with ectodermal, mesodermal, and endodermal elements (Fig. 3).

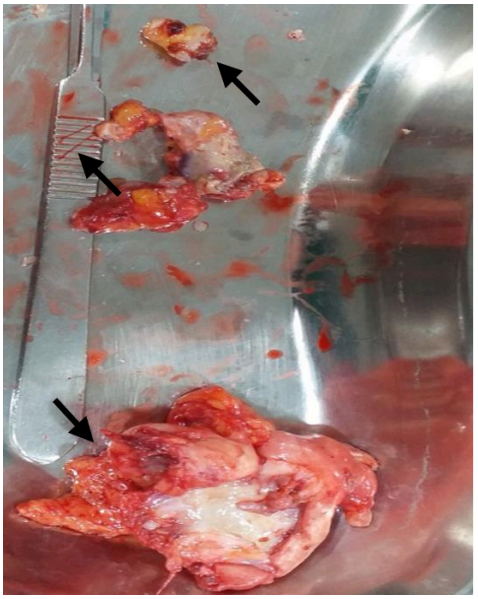

Figure 3. Teeth and hair found inside the sac after oophorectomy sinistra

The histopathological findings (Fig. 4) confirmed skin, adnexal structures (sweat glands, hair follicles), adipose, and fibroblastic tissue, which were consistent with those of a dermoid cyst.

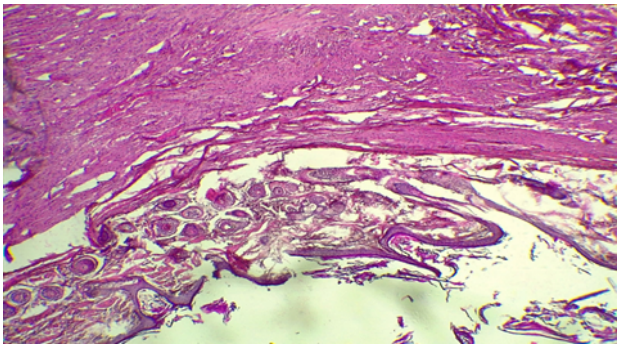

Figure 4. Histopathology of the mass, showing hair follicle, sebaceous glands and adipose tissue

The symptoms of cystitis had ceased and the patient, who had been bereft of sleep and had frequently had low back pain accompanied by dysuria, began to pass a clear odorless urine five to six times during 24 hours. The patient had an uneventful postoperative period with a sudden disappearance of urinary symptoms. The urine became normally colored, and urine culture revealed no growth.

Discussion

Dermoid cyst of the urinary bladder is among one of the extremely rare causes of calcification in the bladder, and only a few cases have been reported in the literature. Dermoid cysts or teratomas are the most insidious and controversial of the germ cell tumors. Dermoid cyst, or cystic teratomas, are encapsulated tumors which are composed of well-differentiated derivations from at least two of the three germ layers (i.e, ectoderm, mesoderm, and endoderm). The theory of parthenogenesis suggests that the origin of the dermoid cyst is from primordial germ cells [3]. Well-differentiated tumors are benign and have features of mature teratomas. Presenting complaints are irritative lower urinary tract symptoms, pyuria, the passage of seborrhoeic gravels, and the passage of hairs (pilimiction). The passage of hairs is a pathognomonic sign [8]. This case presented a 64 year old woman with left flank pain and dysuria from 6 months ago, no fever or hematuria was found on the clinical examination.

Calcification in the urinary bladder is a common finding in vesical calculi, inflammatory etiologies, and neoplastic lesions. Calcification can occur within the lumen or within the bladder wall. Chronic inflammation and irritation of the bladder wall or mucosa can lead to subsequent fibrosis and eventually calcification. Tuberculosis and schistosomiasis (caused by *Schistosoma haematobium*) are common causes of fibrosis and calcification of the bladder wall. In these cases, calcifications can also extend into the distal ureter. Other infectious causes of bladder calcification, such as B. proteus, are rare because they require alkaline urine and deactivated bladder tissues to be able to grow. Amyloidosis and schistosomiasis, both of which occur in the submucosa, are among the few other causes of bladder wall calcification [4].

Although the development of squamous cell carcinoma in the bladder, which is secondary to infection, is well known, de novo bladder tumors are also known to calcify often. These tumors usually present as sessile or a pedunculated intraluminal growth. Histological calcification occurs commonly in neoplasma of the bladder. However, the individual calcium deposit is usually too small to be visualized radiographically. Calcification is seen in epithelial (squamous and transitional cell carcinoma) and mesenchymal (leiomyosarcoma, neuroblastoma, hemangioma, osteosarcoma) lesions, being the most common area of stone forming reported. Bladder calcification is usually dystrophic (occurring in the necrotic tissue) which can also occur post radiation therapy [4].

Ultrasound imaging will visualize a mature dermoid cyst as a thick-walled cystic mass with echogenic contents and calcification [9]. CT scan diagnostic is preferred as it clearly demonstrates fats with calcification [10]. Diagnosis of mature cystic teratomas is straightforward using computed tomography (CT) and magnetic resonance imaging (MR), as these modalities are more sensitive in detecting fat. Fat thinning within the cyst, with or without wall calcification, can be seen on CT images and is a diagnostic feature of mature dermoid cyst [4].

In managing the cases of mature dermoid cyst, the surgical approach remains very important, especially if the patient is young women in whom fertility has to be retained [11]. Nowadays, the most preferred surgical approach is laparoscopy, but there are a good number of patients who prefer a mini laparotomy procedure [12]. Nevertheless, the complete enucleation of the masses to avoid rupture during surgical procedure is essential as recurrence of dermoid cyst may occur due to the incomplete enucleation [11]. In the reported case, we preferred an open surgery as the cyst was infiltrating into the bladder, making the case complicated. As explained in the case report, the bladder was open and the part of the bladder wall (4x3 cm) was removed to ensure the total enucleation.

Histopathological examination is essential to exclude malignant transformation. A high index of suspicion along with the help of imaging modalities are needed to arrive at the correct preoperative diagnosis [9]. A dermoid cyst can mimic the presentation of a bladder stone, clinically and radiologically. A dermoid cyst should be considered as a differential diagnosis, especially when the stone appears to be confined to the bladder wall during examination [13].

Conclusion

Dermoid cyst of bladder wall can be used as a differential diagnosis for patients with

vesicolithiasis. This case report communicates some of the issues and concerns associated with teratoma in urinary bladder found in adults.

Conflict of interest

The authors define no conflict of interest.

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