CASE REPORT

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Mullerianosis: A Rare Tumor Like Lesion of the Urinary Bladder

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ABSTRACT Mullerianosis is a very rare condition and involves the coexistence of 2 or more different types of mullerian lesions such as endometriosis, endocervicosis and endosalpingiosis in the extrauterine area. It involves the bladder more frequently in the urinary system and is more common in women of reproductive age. In urinary system involvements, it may present clinically with hematuria, dysuria and pelvic pain. It can mimic malignant lesions of the bladder histopathologically and clinically. Therefore, although they are usually benign lesions, malignancy should be excluded. In this article, we presented a 41-year-old mullerianosis case who presented with gross hematuria and vaginal bleeding.

Keywords: Mullerianosis; bladder; surgical treatment

The majority of bladder tumors are transitional cell cancers originating from the urothelium. However, some variant tumors can be seen, which can cause difficulties in diagnosis and treatment due to their very rare nature. Sarcomas, malignant fibrous histiocytoma, malignant peripheral nerve sheath tumors, small cell, micropapillary, nested variant, sarcomatoid carcinoma, hemangiopericytoma, paraganglioma are rare tumors.[1,2] Mullerianosis was first described by Young and Clement in 1996.[3] Bladder mullerianosis is a very rare condition and histologically, the affected tissue has glands associated with endometrial, endocervical and tubal epithelium. Although the lesions mimic malignancy, they are benign and involve the lamina propria and muscularis propria in the bladder. It can be seen radiologically and macroscopically as a polypoid mass in the bladder dome or posterior wall. Clinically, there may be hematuria, dysuria, and pelvic pain related or unrelated to menstruation. Although the pathogenesis is not fully clear, implantation and metastatic origin are shown are causes.[4]

CASE REPORT

A 41-year-old multiparous female patient was admitted to our outpatient clinic 2 years ago with complaints of vaginal bleeding and gross hematuria. Previous history was consistent with 3 caesarean and tubal ligation. Abdominal and speculum examination were normal. In pelvic ultrasonography, nodular lesion of approximately 3 cm in diameter was observed in the posterior wall of the bladder. Urine culture, hemogram and biochemical parameters were normal. Transurethral resection was performed on the lesion in the bladder. In addition, endometrial curettage was performed because it was in close relationship with the anterior endometrial wall and there was vaginal bleeding. Histopathological diagnosis was negative for malignancy and was reported as compatible with mullerianosis in the bladder. The patient, who had no postoperative complaints and was followed up, presented again 2 years later with gross hematuria and vaginal bleeding. In the pelvic ultrasonography and magnetic resonance imaging, a polypoid mass with a diameter of 1.5 cm on the posterior wall of the blad-

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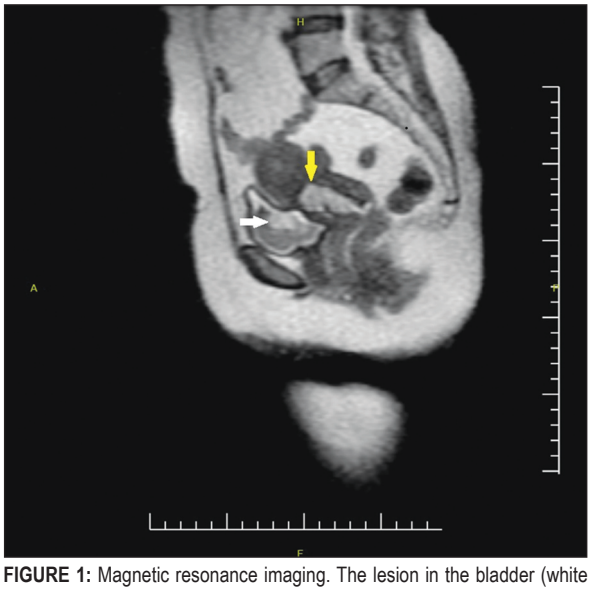

FIGURE 1: Magnetic resonance imaging. The lesion in the bladder (white arrow) and the lesion originating from the endocervical canal and extending towards the anterior wall of the uterus (yellow arrow) is observed. It is observed that the integrity of the bladder wall is impaired.

der and a cystic mass with a diameter of 3 cm on the anterolateral of the uterine corpus were observed (Figure 1). In the cystoscopy, a cystic, polypoid mass of approximately 1.5 cm in size was observed on the posterior wall of the bladder. Therefore, transurethral resection was performed for the pathological diagnosis. Resection was performed on the lesion in the endometrium by hysteroscopy, and endometrial curettage was performed. Pathological diagnosis was reported as mullerianosis and endometrial polyp for bladder and uterus, respectively. After excluding the possibility of malignancy, the patient underwent total hysterectomy and partial cystectomy. The patient whose pathological diagnosis was reported as endometrial/endocervical polyp and bladder mullerianosis was followed up (Figure 2, Figure 3). The patient allowed the use of photographs and all medical documents related to her illness and signed an informed-consent agreement.

DISCUSSION

Bladder mullerianosis is defined as the involvement of at least 2 of the mullerian origin tissues such as endosalpinx, endometrium and endocervix in the lamina propria and muscularis propria of the bladder.[3] The most common of mullerian-derived tissues is endometriosis, while the rarest one alone is endocervicosis.[5] It has been reported that it can also be seen in other areas such as the spinal cord, inguinal lymph nodes, ureter and mesosalpinx apart from the urinary system.[6] The bladder is more affected in the urinary system, and half of the cases have undergone cesarean section or pelvic surgery. Often seen in women in the reproductive period.[7] No cases of mullerianosis have been reported in men. However, it has been reported that endometriosis can be seen in men receiving estrogen therapy for prostate cancer and postmenopausal women receiving exogenous estrogen therapy.[4]

Clinical symptoms such as hematuria, pelvic pain, dysuria and renal colic may be seen in bladder mullerianosis. These symptoms are often concurrent with the menstrual cycle. On cystoscopy, it can be

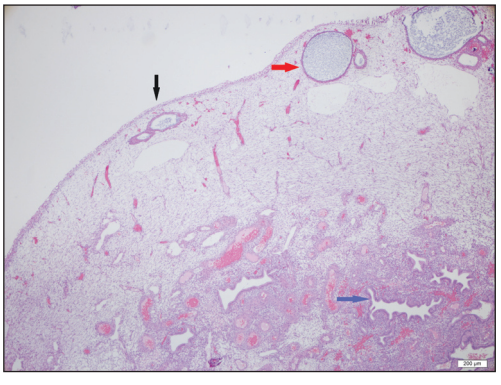

FIGURE 2: In the bladder transurethral resection material, polypoid tissue lined with urothelial epithelium (black arrow), single-layered and pseudostratified epithelium in the mucosa, locally cystic enlarged endometrial (blue arrow), endocervical gland (red arrow) structures, and thick-walled vascular structures with stroma were observed (H&E, 4x10).

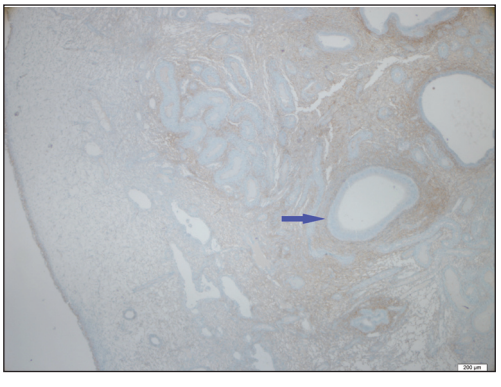

FIGURE 3: In immunohistochemical studies; positive (+) staining was observed in the endometrial stroma (blue arrow) with CD10 (4x10).

seen as a 1-4.5 cm polypoid mass or a cystic lesion, usually covered with hyperemic mucosa located on the dome or posterior wall of the bladder.[6,7] Benign and malignant conditions such as cystitis cystica and glandularis, urachal remnants, nephrogenic adenoma, bladder adenocarcinoma and cervical adenocarcinoma metastasis should be kept in mind in the differential diagnosis.[6,8] Cystitis cystica, cystitis glandularis, and nephrogenic adenoma are superficial and do not involve the muscularis propria. Also, estrogen and progesterone receptors are not painted. Urachal remnants are usually observed in the bladder dome and appear as tubular structures covered with mucinous epithelium, surrounded by loose peritubular fibromuscular tissue. It can be differentiated histologically by the presence of endometrial stroma through CD10 immunostaining. However, unlike mullerianosis, adenocarcinoma affects older individuals, and malignant transformation findings such as significant atypia, increased mitotic activity, and stromal reaction are observed in the glands in the urothelial epithelium.[6,7,9] Malignant transformation of mullerianosis is a very rare condition, and Garavan F et al. reported such a case.[10]

Although the pathogenesis of bladder mullerianosis has not been clearly explained, two main theories have been proposed. According to the implantation theory proposed by Young and Clement, mullerian tissues are implanted in the bladder during pelvic surgery or cesarean section.[3] The fact that most of the cases with mullerianosis have a history of cesarean section or pelvic surgery supports this theory. However, this theory is insufficient to explain its presence in people who have not undergone pelvic surgery or in other parts of the body away from the uterus.[11,12] Donne et al. proposed the metaplastic theory.[13] Accordingly, endometrial, endocervical and tubal components of mullerian origin may proliferate in the bladder. The fact that mullerianosis occurs in the posterior wall, which is an area covered by the peritoneum and sensitive to female hormones, supports this theor.[13] Branca and Barresi suggested that the secondary mullerian system forming the peritoneal mesothelium may preserve its ability to differentiate into endometrial, endocervical, and tubal tissues.[6] On the other hand, Koren et al. described a small tubal-type metaplastic ciliary epithelial focus in cystitis glandularis that is continuous with the urothelium and stained immunohistochemically positive for estrogen and progesterone receptors. Therefore, they stated that mullerianosis may occcur through urothelial metaplasia in the setting of chronic inflammation.[14] In this case, there was a history of 3 cesarean section operations, supporting the implantation theory.

Initial treatment for mullerianosis is transurethral resection. After the histopathological diagnosis is made, medical and surgical treatments can be applied according to the age of the patient, size, number, location and depth of infiltration in the bladder. Medical treatment options such as combined estrogen-progesterone contraceptives, progestins, and gonadotrop releasing hormone agonists may provide regression of symptoms. Repeated transurethral resections can be performed in cases that do not respond to medical treatment or have recurrences. Lesions on the serosal surface of the bladder can be removed laparoscopically. If the lesion has involved all layers of the bladder with the uterus, partial cystectomy and hysterectomy should be performed to prevent recurrence.[6,7,15]

In conclusion, bladder mullerianosis is a very rare benign lesion. However, it is important to define mullerianosis, detailed histopathological analysis, appropriate treatment, and careful differential diagnosis with malignant conditions.

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Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

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Data Collection and/or Processing: *Fatih Akdemir, Asuman Çelik;* ***Analysis and/or Interpretation:*** *Fatih Akdemir, Asuman Çelik;* ***Literature Review:*** *Fatih Akdemir;* ***Writing the Article:*** *Fatih Akdemir, Asuman Çelik;* ***Critical Review:*** *Fatih Akdemir;* ***References and Fundings:*** *Fatih Akdemir;* ***Materials:*** *Fatih Akdemir;* ***Other:*** *Fatih Akdemir, Asuman Çelik.*

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