CASE REPORTS
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SPONTANEOUS URINOMA DIAGNOSED BEFORE RADICAL CYSTECTOMY
– A CASE REPORT

SPONTANI URINOM DJAGNOSTIKOVAN PRE RADikalNE CISTEKtomije – Prikaz slUčaja

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Summary
Introduction. Rupture of the urinary collecting system, associated with perirenal or retroperitoneal extravasation of the urine, is a rare condition usually associated with the obstruction of the urinary system. A urinoma is a localized collection of urine in the retroperitoneum, outside the urinary tract, and occurs after injury to the wall of the urinary system. Ureteral obstruction caused by a bladder tumor is a rare cause of urinoma. Case Report. We report a case of a 62-year-old patient who was admitted to the Clinic of Urology of the Clinical Center of Serbia, due to an invasive bladder cancer. A computerized tomography scan of the abdomen and pelvis revealed a massive bladder tumor dominant on the left side, invading the vagina, uterus and significantly obstructing both kidneys. Intraoperatively, a mass of 18 cm in diameter was identified in the right retroperitoneal space and it was dissected from the peritoneum. Two liters of clear fluid were aspirated from the mass, and the walls of urinoma were resected. The site of perforation was not identified. The patient underwent anterior pelvic exenteration. The pathological analysis revealed a high grade transitional cell carcinoma of the bladder. Treatment is individual and involves surgical and interventional radiology treatment. Conclusion. A spontaneous retroperitoneal urinoma is a very rare condition. In this case report it appeared most likely due to right ureteral obstruction and perforation. The growth of urinoma was slow, due to the absence of acute symptoms and the thickness of the urinoma wall.

Key words: Urinoma; Retroperitoneal Space; Urinary Bladder Neoplasms; Ureteral Obstruction; Diagnosis; Treatment Outcome; Cystectomy

Sažetak
Uvod. Ruptura mokraćnih puteva, udružena sa perirenalnom ili retroperitonealnom ekstravazacijom urina je retko stanje, najčešće izazvano opstrukcijom urinarnog trakta. Urinom predstavlja lokalizovanu kolekciju urina u retroperitoneumu, izvan urinarnog sistema koja nastaje nakon povrede urotela. Opstrukcija uretera izazvana tumorom mokraćne bešike je redak uzrok nastanka urinoma. Prikaz slučaja. Prikazujemo slučaj pacijentkinje stare 62 godine, koja je primljena na Klinku za urologiju, Kliničkog centra Srbije, zbog invazivnog tumora mokraćne bešike. Kompjuterizovanom tomografijom abdomen a male karlice uočeno je prisustvo masivnog tumora mokraćne bešike sa zahvatanjem vagine i ute rusa uz značajnu opstrukciju oba bubrega, dominantno sa leve strane. Intraoperativno, identifikovana je masa, promera 18 cm u desnom retroperitonealnom prostoru. Aspirirano je dva litra bistre tečnosti iz mase, a zidovi urinoma su resecirani. Mesto perforacije nije identifikovano. Kod bolesnice je učinjena prednja egzente racija karlice. Patohistološki pregled je potvrdio da je karcinom prelaznog epitelia mokraćne bešike visokog gradusa, sa infiltracijom prednjeg zida vagine i ute rusa; zid urinoma je bio sačinjen od peritoneuma. Zaključak. Spontani retroperitonealni urinom nastaje veoma retko. U prikazanom slučaju, spontani urinom je nastao najverovatnije zbog opstrukcije i perforacije desnog uretera. Usled odsustva akutnih simptoma i na osnovu debljine zida urinoma, urinom se verovatno formirao veoma sporo.

Ključne reči: urinom; retroperitonealni prostor; karcinomi mokracne bešike; ureterana opstrukcija; dijagnoza; ishod lečenja; cistektomija

Introduction
Rupture of the urinary tract, associated with urine extravasation into the perirenal or retroperitoneal spaces is a rare condition, usually associated with the obstruction of the urinary system. The perforation can occur from the renal pelvis to the bladder; however, it is most frequent at the level of renal fornix and upper segment of the ureter [1]. The urinary system obstruction is followed by an increase of intraluminal pressure, which can cause rupture of the urinary tract, urinary extravasation and development of urinoma. A urinoma...
is a localized collection of urine in the retroperitoneum, outside of the urinary tract that occurs after an injury of the urinary system wall [2]. Congenital anomalies, calculus formation and malignancies of the urinary tract can also cause perforation. Furthermore, degenerative renal diseases, endoscopic manipulations, retroperitoneal fibrosis, tumors of the abdomen and pelvis and post radiation strictures may also lead to this condition [3]. Ureteral obstruction caused by a bladder tumor is a rare cause of urinoma [2]. Extravasation of urine can be asymptomatic, but the most common symptoms are abdominal pain, vomiting, fever, oliguria and ileus. The treatment is individual; in some cases, endoscopic insertion of ureteral Double-J stent, or percutaneous nephrostomy are sufficient [4], while some cases require surgical treatment [5].

Case Report

The presented patient was a 62-year-old woman admitted to the Clinic of Urology, Clinical Center of Serbia, due to invasive bladder cancer. The patient was examined by a gynecologist and a colorectal surgeon and vaginal involvement was confirmed. Computerized tomography (CT) scan revealed a massive bladder tumor, invading the vagina and uterus and significantly obstructing both kidneys, mostly on the left side (Figures 1 and 2). The patient was scheduled for anterior pelvic exenteration and ileal conduit urinary diversion. The abdominal mass was noted on the operating table, after administration of general anesthesia (Figure 3). A portable ultrasound was used in the operating theatre and it revealed a massive, anechoic abdominal lesion. The mass was absent on the CT scan performed a few weeks before. After the surgery, the patient said that she had noticed...
A lesion, 18 cm in diameter, was identified intraoperatively in the right retroperitoneal space and it was dissected from the peritoneum (Figure 4). Two liters of clear fluid were aspirated from the mass, and it was completely resected (Figure 5). The site of perforation was not identified. The pathological analysis confirmed that walls of the retroperitoneal mass originated from the peritoneum. In addition, the examination revealed a high grade transitional cell cancer of the bladder, with the invasion of the anterior vaginal wall and the uterus.

Discussion

Spontaneous urinoma is defined as urine extravasation through the perforation of the urinary tract caused by high hydrostatic pressure due to urinary obstruction. The most common causes of spontaneous urinoma are urinary stones [6], while bladder tumors are rare [1, 2, 7]. Other causes are congenital anomalies, tumors of the abdomen and pelvis, retroperitoneal fibrosis, iatrogenic and post radiation strictures and connective tissue disorders [5]. Few cases of fornical rupture in pregnancy were described in the literature [8].

Acute spontaneous urinoma is usually the consequence of acute urinary obstruction. In such cases, a rupture at the level of calyceal fornix provides decompression and protects the kidney from a high-pressure injury. Acute urinoma is associated with ipsilateral abdominal pain, nausea, and vomiting, symptoms reminding on diverticulitis, cholecystitis, or appendicitis [7]. On the other hand, chronic spontaneous urinoma grows slowly, due to gradual urinary obstruction, sometimes without specific symptoms [9]. It is the mechanism often seen in malignant tumors of the pelvis. Rarely, urinoma is associated with unusual symptoms, as spontaneous drainage through the scrotal wall [10]. The diagnosis of urinoma is based on ultrasound, which usually reveals liquid collection and hydronephrosis. However, CT scans are more precise and determine the level of obstruction, localization of rupture, dimensions of the collection and its relationship with other structures [11, 12].

The incidence of spontaneous urinoma in patients with bladder cancer is very low, even in cases of bladder cancer associated with marked hydronephrosis. On the other hand, the incidence of hydronephrosis in patients with bladder cancer is relatively high, accounting for 13.7% of cases in large series [9] Bilateral hydronephrosis is a common sign of bladder cancer local invasion in more than 90% of cases [13].

Cooke and Bartucz [14] described 14 cases of spontaneous urinoma. The most common causes of urinoma was ureteral calculus. Koga et al. [15] reported 11 cases of spontaneous urinoma. The most common cause was also an ureteral stone, while sigmoid and ureteral cancer was the cause in the remaining two patients. Rectal cancer was the cause of spontaneous urinoma in the case report published by Garg [3]. Other pelvic malignancies, like cervical and ovarian cancer were also found as causes of urinoma [2, 3, 14]. Very rare causes of spontaneous urinoma include B-cell lymphoma of the omentum [16], neurogenic bladder [5] and dermatomyositis [17]. In children, urinoma may be the consequence of congenital anomalies, like posterior urethral valves or uretero-pelvic junction obstruction [18].

In the case presented herein, spontaneous urinoma appeared due to advanced invasive bladder cancer and ureteral obstruction. The evolution of urinoma was slow, so the patient did not complain of any pain. A few days before surgery, the woman noticed an abdominal mass in the right half of the abdomen, but she did not report it to the medical staff. The mass was discovered on the operating table, under general anesthesia and muscle relaxation. The therapy included surgical exploration, complete resection of the urinoma and anterior pelvic exenteration.

Conclusion

Spontaneous retroperitoneal urinoma is a very rare condition. In this case report, the spontaneous urinoma appeared most likely due to right ureteral obstruction and perforation. The absence of acute symptoms and the thickness of the urinoma wall pointed to a slow-growing urinoma.

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