Introduction

Ureteral endometriosis (UE) is an important gynecologic clinical disorder characterized by the ectopic presence and growth of functional endometrial tissue, glands, and stroma, outside the uterus, and is clinically associated with pelvic pain and infertility. Urinary tract endometriosis occurs in 1–5.5% of women with endometriosis; it involves the bladder in 70–85% of cases and the ureter in 9–23% of the cases (1). Although severe ureteral obstruction may lead to hydronephrosis and renal failure, it is rather difficult to diagnose UE because of the frequent lack of signs or symptoms and the absence of physical findings pathognomonic of this condition. The surgical treatment of UE aims to relieve ureteral obstruction and avoid disease recurrence. It includes conservative ureterolysis or radical approaches like ureterectomy with end-to-end anastomosis or ureteroneocystostomy performed in relation to the type of ureteral involvement (2). Finding the optimal diagnostic and therapeutic management for UE is difficult owing to the fact that most studies enroll a small number of patients, are uncontrolled and not randomized, and have short-term follow-up.

In the case reported here, a 23-year-old unmarried woman with no history of sexual intercourse was admitted to the hospital due to menstrual changes for 4 months, left ovarian cyst, and right hydronephrosis for 1 month. Clinical examination results are described below.

Anal examination: the vulva was normally developed and the rectal mucosa was smooth, while the uterus was in a horizontal position, evenly enlarged to the size of over 2 months of pregnancy, slightly tender, and a little hard. A tumor, poorly movable, with a diameter of 5 cm could be found in the left adnexa. Bilateral uterosacral and cardinal ligaments were not thickened or tender.

Pelvic and urinary ultrasound: there was a left ovarian cyst, adenomyosis, and right-sided hydronephrosis. The right upper ureter was distorted, and the proximal lumens were dilated, of which the wider part was about 10 mm wide.

Computed tomography urography (CTU): the right kidney and ureter were dilated with the occurrence of hydronephrosis. The right distal ureter was narrowed and could not be clearly seen.

Magnetic resonance imaging (MRI): there was endometrioma of the left ovary. Adenomyosis could be
seen invading and surrounding the pelvic segment of the right ureter resulting secondarily in right ureter, renal pelvis, calyces that were significantly dilated. The renal parenchyma was thinned under slight compression.

Finally, she was diagnosed with (I) endometrioma of the left ovary, (II) right ureteral obstruction, (III) and adenomyosis; she was treated by right ureter double-J stent insertion plus laparoscopic right ureter dissociation plus laparoscopic deep infiltrating endometriosis (DIE) resection (Figure 1). GnRH-a was applied for 4 months after surgery and double-J tube was withdrawn 2 months later. CT examination suggested the hydronephrosis had not been improved.

**Surgical technique**

Under general anesthesia with intubation, the patient underwent the surgery in a cystolithotomy position with the buttocks higher than the head, with standard technique including the use of 10-mm operative laparoscope and three 5-mm ancillary trocars in the presence of 12-mmHg intra-abdominal pressure. The surgical incision was selected as shown in Figure 2. Before laparoscopic surgery, the right ureteral double-J tube implantation was performed under cystoscope with slight resistance but was nonetheless successful. As the patient had no history of sexual intercourse, the uterus could not be lifted through the vagina. The uterus was suspended to expose the surgical field as shown in Figure 3. The surgical exploration of the pelvic and abdominal cavity revealed that the uterus was full, mobile, and slightly enlarged. The left ovarian cyst was 5 cm in diameter, no abnormalities were found in the right adnexa, and a mild endometriosis lesion was visible in the peritoneum of the Douglas cul-de-sac.

In the uterine artery, the ureter was indistinctly demarcated from the surrounding tissue resulting in stenosis due to compression, as shown in Figure 6. The ectopic lesion tissue
 autour de la voie urinaire a été dissociée et enlevée complètement et soigneusement afin de ne pas endommager l’artère utérine, comme montré dans la Figure 7. L’endométriose périnéale a ensuite été refermée.

**Commentaires**

Selon la localisation de la lésion UE, la condition peut être divisée en deux catégories (4-6). La première est l’endométriose extrinsèque représentant environ 80% des cas, la plupart de ceux-ci étant causés par des lésions ectopiques impliquant le ligament cardiaque-utéro-sacral et le rétroperitoineum se propageant à l’artère utérine. Ces lésions infiltrent les tissus périphériques, entraînant la fibrose et la compression des tissus périphériques, en particulier conduisant à l’obstruction urinaire et la hydronephrose. La deuxième est l’endométriose intrinsèque, représentant environ 20% des cas, la plupart de ceux-ci étant caractérisés par une thèse fibreuse de l’artère urinaire, de la hyperplasie submucuseuse, ou des polypes néoplasiques qui pénètrent la couche muqueuse de la lumière urinaire.

La chirurgie doit être considérée comme la première option pour l’obstruction urinaire causée par l’UE. Le principe de la chirurgie est de retirer l’obstruction, éliminer les symptômes, et préserver la fonction rénale (7). La principale gestion chirurgicale inclut la lysis urinaire conservatrice ou l’abord radical comme la néphroureterectomie, la nérophronéocystostomie, ou la nephroureterectomie (2). La chirurgie dépend de l’extension de l’UE et de la fonction rénale.

Il n’existe pas de consensus actuel sur lequel est le meilleur traitement chirurgical, car la plupart des médecins professionnels se basent sur leur expérience personnelle et la technologie qui contribue à deux problèmes communs : (I) il est difficile d’atteindre l’effet thérapeutique désiré en raison de la removal incomplète de la lésion, provoquant des inquiétudes au sujet d’une éventuelle blessure à l’artère et au bladder, qui est un potentiel trigger pour la récidive ; (II) la removal partielle de l’organisme peut causer des dommages inutiles à l’organisme. Parce que l’incidence des cas extrinsèques est beaucoup plus élevée que celle des cas intrinsèques, la majorité des chercheurs recommandent l’approche chirurgicale préférée pour libérer les adhésions urinaires (8). Cependant, d’autres chercheurs croient que la lysis urinaire est seulement indiquée pour les patients avec endométriose avec une hydronephrose modérée et sans obstruction urinaire confirmée par l’examen de l’imagerie. Pour les patients avec une obstruction urinaire modérée-à-sevère, il est recommandé de retirer la lésion stricte et d’effectuer une anastomose end-to-end pour éviter d’autres dommages à la fonction rénale (9). Pour les sous-groupe de femmes avec une hydronephrose urinaire modérée, pour lesquelles les résultats chirurgicaux sont encore controversés, nous suggérons que des essais contrôlés randomisés (RCTs) bien conçus soient réalisés pour enquêter plus précisément sur l’efficacité des traitements chirurgicaux.
optimal management and outcomes.

Our experience is that if the double-J stent can be successfully placed before surgery, ureterolysis is preferable to the partial removal of the ureter. Meanwhile, the so-called release of adhesions can be done to not only completely detach the ureter from the pelvic wall, but also to thoroughly remove the lesions and scar tissues around the ureter. From the perspective of surgical difficulty, the release of severe periureteral compression requires higher surgical skills and rich clinical experience without damaging the ureter.

In our case, the double-J stent was successfully placed preoperatively, and the intraoperative exploration showed serious periureteral fibrosis, obviously compressing the ureter. The surrounding ectopic lesions were fully excised, the ureter was dissociated, and GnRH-a was applied postoperatively. CT reexamination 3 months after the operation showed the hydronephrosis remained unsatisfactorily improved. This case proves that it is not advisable to choose the surgical method for UE relying on personal experience alone. The appropriate surgical treatment depends on more detailed clinical examination, the individual patient condition, lesion location, lesion degree and technical characteristics. A close follow-up with regularly scheduled clinical evaluation and imaging should also be arranged in order to compare the relative risks of persistent and recurrent disease of the surgical options available.

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Footnote

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Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. Written informed consent was obtained from the patient for publication of this manuscript and any accompanying images.

References