

Updates in Management of Mid Ureteric Stricture

Essay

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By

Ahmed Osama Abdelmalek Elawam

M. B. B. Ch

Ain Shams University

Under Supervision of

Prof. Dr. Abdelhamed Abdelkader Youssief

Professor of Urology

Faculty of Medicine

Ain Shams University

Dr. Mohamed Ahmed Gamal Eldien

Lecturer of Urology

Faculty of Medicine

Ain Shams University

Faculty of Medicine

Ain Shams University

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*First and before all, I thank **ALLAH**. I thank him for his great mercy, generous blesses, and for his continuous gifts.*

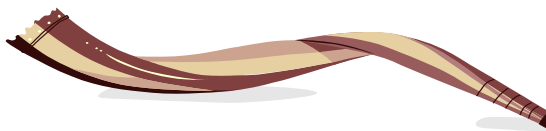
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List of Contents

Title	Page No.
▪ List of Tables.....	I
▪ List of Figures.....	II
▪ List of Abbreviations	VI
▪ Introduction.....	1
▪ Aim of the Work.....	4
▪ Chapter (1): Anatomy & Physiology of the Ureter.....	5
▪ Chapter (2): Etiology & Pathophysiology of Mid Ureteric Stricture.....	25
▪ Chapter (3): Assessment & Diagnosis of Mid Ureteric Stricture.....	48
▪ Chapter (4): Management of Mid Ureteric Stricture.....	92
▪ Summary	1444
▪ References	153
▪ Arabic Summary	

List of Tables

Table No.	Title	Page No.
Table (1):	Radiation exposure of different imaging modalities.....	72
Table (2):	Intravenous urography (IVU) versus computed tomography (CT).....	73

List of Figures

Fig. No.	Title	Page No.
Figure (1):	Anatomy of the ureter.....	7
Figure (2):	The retroperitoneal space with the anatomical structures surrounding the left and the right ureter.....	9
Figure (3):	The pelvic space in the male, with neurovascular structures surrounding the pelvic segment of the right ureter.....	11
Figure (4):	The pelvic space in the female with neurovascular structures surrounding the pelvic segment of the right ureter	12
Figure (5):	The intramural segment of the ureter with the bladder wall and the muscular layer of Waldeyer in the male.....	13
Figure (6):	Areas of relative narrowing.....	14
Figure (7):	The arterial supply to the abdominal segment and the descending portion of the pelvic segment of the ureter.	15
Figure (8):	Arterial supply of the bent portion of the pelvic segment of the ureter in the male.....	16
Figure (9):	Arterial supply of the terminal ureter in the female	17
Figure (10):	Autonomic innervation of the abdominal segment and the descending portion of the pelvic segment of the ureter.	20
Figure (11):	Nutrient vascular structures and ureteric wall layers near the bladder.....	22

List of Figures (Cont...)

Fig. No.	Title	Page No.
Figure (12):	Pictures of cross section of ureter showing stages of ureter opening upon urine flow in it.....	24
Figure (13):	Photomicrograph showing two ova of parasite – toward the left of a lumen lined by transitional epithelium – against a fibrotic background	35
Figure (14):	Higher magnification shows papillary cores covered by tall columnar epithelium.....	47
Figure (15):	Transverse US image through the bladder.....	59
Figure (16):	IVP is showing left hydronephrosis with the left ureter dilated till the left sacroiliac joint.....	60
Figure (17):	Bilateral obstructed midureter.....	61
Figure (18):	MRI urography, can be depicted an obstruction of the middle third of the ureter, with upstream hydro-urethronephrosis.....	62
Figure (19):	Intrasurgical retrograde ureteropyelogram	63
Figure (20):	KUB x ray showing: - a) Radiopaque stone laying at lower part of right ureter - b) Radiopaque stone laying at upper part of right ureter (opposite transverse process of L3)	66

List of Figures (Cont...)

Fig. No.	Title	Page No.
Figure (21):	IVP showing:- a) right nephrogram and contrast coming down to the level of the stone at upper part of right ureter (opposite transverse process of L3). - b) right nephrogram and contrast coming down to the level of the stone at mid part of the ureter (opposite lower sacro-iliac joint)	68
Figure (22):	Non-contrast computed tomography (CT) showing :- a) two stones at mid part of right ureter. – b) stone at upper part of left ureter.	70
Figure (23):	Bilharzial ureteral strictures are noted along with polypoidal filling defects	76
Figure (24):	IVP shows ureteric TCC as filling defect with hydroureter proximal to the site of the tumor	86
Figure (25):	CT scan shows enhancing TCC in the wall of the right ureter with periureteric stranding and tumor extension	88
Figure (26):	Coronal MRU image shows low-signal-intensity tumors in the distal right and Axial gadolinium-enhanced T1-weighted MR image obtained with fat saturation shows enhancement of the right ureteric tumor.....	89
Figure (27):	RP image shows a long irregular stricture of the left distal ureter with proximal hydronephrosis and “shouldering”	91
Figure (28):	Resected specimen showing ureteric tumor	91

List of Figures (Cont...)

Fig. No.	Title	Page No.
Figure (29):	Ureterouretrostomy	118
Figure (30):	Trans uretero-ureterostomy	120
Figure (31):	Psoas Hitch Procedure	122
Figure (32):	Boari flap procedure	126
Figure (33):	Ureteral replacement utilizing ileum	130
Figure (34):	Ileovesical anastomosis.....	131
Figure (35):	A long cecal appendix is used for replacement mid part of left ureter	134

List of Abbreviations

Abb.	Full term
3D	Three dimensional.
APR	Abdominal perineal resection.
ATT	Antituberculous drugs.
CA	Cancer antigen.
CDC	The Centers for Disease Control and Prevention .
CEA	Carcino Embrionic Antigen.
CK	Cytokeratins.
CKD	Chronic kidney disease.
CT	Computed tomography.
DTPA	Diethylenetriamine pentaacetic acid.
EGFR	Epidermal growth factor receptor.
ESR	Erythrocyte sedimentation rate.
GFR	Glomerular filtration rate.
GUTB	Genito-urinary tuberculosis.
HU	Hounsfield unit.
IFN	Serum interferon.
IVP/U	Intravenous pyelography/ urography.
KTP Nd:YAG .:	Potassium titanyl-phosphate neodymium:yttrium–aluminum-garnet .
KUB	A plain radiograph of the kidney, ureter and bladder.
LAR	Low anterior resection.
MAG	Mercaptoacetyltriglycine.
MIP	Maximum intensity projection.
MRU.....	Magnetic resonance urography.
MSI	Microsatellite instability.
NCCT	Non-contrast helical computed tomography.
Nd:YAG	Neodymium : yttrium–aluminum-garnet .

List of Abbreviations (Cont...)

Abb.	Full term
Ng/dL	Nanogram per deciliter.
PCR	Polymerase chain reaction.
PUJ	Pelviureteric junction.
RI	Resistive index.
RP	Retrograde pyelography
TB	Tuberculosis.
Tc 99	Technetium.
TCC	Transitional cell carcinoma.
TUU	Transureteroureterostomy .
UPJ	Ureteropelvic junction .
US	Ultrasound.
UTI	Urinary tract infections .
VUJ	Vesicouretric junction.
VUR	Vesico-ureteic reflux.

INTRODUCTION

Ureteral stricture is defined as a narrowing of the lumen of the ureter which causes functional obstruction. Strictures of the upper urinary tract are either congenital or acquired. Ureteral strictures may be subdivided into extrinsic or intrinsic, benign or malignant, and iatrogenic or noniatrogenic (*Hafez and Wolf, 2003*).

Benign ureteral strictures can be intrinsic or extrinsic. Intrinsic strictures, which may be congenital (eg, congenital mid ureteral fibrosis), iatrogenic follows ureteroscopy, open or laparoscopic procedures, radiation therapy & urinary diversions, or non-iatrogenic (eg, those that follow passage of calculi or idiopathic retroperitoneal fibrosis, chronic inflammatory ureteral involvement [eg, tuberculous and schistosomiasis, malignant ureteral strictures that are caused by recurrence of primary malignancy transitional cell carcinoma (TCC) or extrinsic mechanical compression e.g lymphoma, testicular, breast, or prostate cancer, may cause mid ureteral obstruction]) (*Hafez and Wolf, 2003*).

Ureteral strictures typically arise from ischemia, resulting in fibrosis & collagen deposition, whereas the stricture is considered nonischemic if it is caused by spontaneous stone passage or congenital abnormality. Less commonly, the etiology may be mechanical, such as from a poorly placed permanent suture or surgical clip (*Andonian et al., 2005*).

The resulting ureteral obstruction may vary widely from mild, causing no symptoms, to severe, causing complete obstruction and subsequent loss of renal function; recovery depends on the time interval of ureteral obstruction. Obtain a detailed patient history of prior malignancy, surgery, or radiation therapy. Most patients with significant strictures are symptomatic. They present with flank pain, flank fullness, or abdominal fullness. Important physical examination findings include abdominal pain, fullness associated with fever if there is co-existing infection (pyelonephritis) (*Pantuck et al., 2000*).

Indications for intervention include pain, infection, or obstruction, which may threaten a patient's renal function. Less common indications may be stone formation proximal to an obstruction or hematuria. The most common initial management of benign ureteral strictures is balloon dilation, followed by stent placement for 4-6 weeks. It is best suited for very short, nonischemic strictures (*Kwak et al., 2005*).

Under endoscopic vision a full thickness of stricture is cut through the ureteral wall until the periureteral fat can be seen. Visualization is possible with retrograde (ureteroscope) or antegrade (nephroscope) techniques. Different technical solutions exist for the ureterotomy: cold knife (without cauterization), laser fibers (holmium or Neodym:YAG) (*Chung, 2004*).

Open surgical management for midureteral strictures, includes various treatment options such as ureteroureterostomy, transureteroureterostomy (TUU) & intestine interposition (part of ilium or appendix). All open procedures carry an increased risk of morbidity, increased recovery time, and increased hospitalization when compared with endoscopic approaches. A primary ureteroureterostomy may be appropriate for short benign strictures with minimal tension. TUU may be used if the donor ureter is of adequate length and the recipient ureter is not diseased. All these techniques could be done laparoscopically or Robotics assisted (*Meng et al., 2003*).

A current controversy involves the usefulness of intralesional injection of steroids to inhibit stricture recurrence. The future of ureteral stricture management may involve extraurinary tissue used as grafts or vascular pedicle flaps to replace damaged portions of ureter. Recently, it is reported that the successful use of buccal mucosal grafts with omental wrap. An artificial ureter crafted from silicone-polyester was used. Innovative tissue engineering technology may produce ureteral tissue that closely mimics native ureteral tissue for ureteral replacement. Currently, some groups have used xenogenic acellular collagen membranes such as porcine small intestine submucosa for ureteral reconstruction (*Naude, 1999*).

AIM OF THE WORK

To highlight an update knowledge on the incidence, etiology, diagnosis of mid ureteric strictures. Also, to shedlight clinical outcomes of different techniques used in management of these cases.

Chapter One

ANATOMY & PHYSIOLOGY OF THE URETER

Introduction:

Injury to the urinary tract can be caused by any surgeon operating in or around the pelvis and the retroperitoneal abdominal space, with a general incidence of 0.3–1.5%. This includes gynaecologists, general surgeons, urologists, vascular surgeons, neurosurgeons and orthopaedic surgeons. In addition, the impact of technological advances within the surgical field, such as the use of laparoscopy for general surgical and gynaecological procedures, and the application of endoscopic approaches to urological disease (*Hairstone et al., 2003*).

The urinary tract is extremely vulnerable to intraoperative injury for a variety of reasons. Operating in a hostile environment, such as that encountered with repeat surgery, significant inflammation and a large neoplasm, puts the urinary tract at even greater risk. Injuries to the ureter are the most common, because the ureter is similar in appearance to vascular structures, is difficult to identify as a result of its close adherence to the posterior peritoneum, and can be encountered at virtually any level in the retroperitoneum and upper pelvis. When these points are considered it is easy to understand how the ureter can be vulnerable to injury (*Anderson et al., 2007*).