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Original research article

A Study Of Ureteric Strictures Aetiology, Pathology And Management

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Abstract

Patients who have ureteric strictures might not present with any symptoms at all, or they might have symptoms such as flank pain, fever, infection, and so on. In most cases, there is only a weak correlation between the symptoms and the level of ureteric blockage. In some patients, urinary tract infections are the only symptom that is currently being presented. In this study, we looked at the aetiology, pathology, and treatment options for ureteric strictures at a tertiary care hospital in India.
Keywords: Aetiology, pathology, management, ureteric strictures

Introduction

The length of the ureter ranges from 22 to 30 centimetres, depending on the height of the individual, and it is segmented into an upper, middle, and lower third. Strictures of the ureter can develop in any of these three areas, and the incidence is roughly the same.

Patients who have ureteric strictures might not present with any symptoms at all, or they might have symptoms such as flank pain, fever, infection, and so on. In most cases, there is only a weak correlation between the symptoms and the level of ureteric blockage. In some patients, urinary tract infections are the only symptom that is currently being presented. Pyelonephritis and variations in back pressure are symptoms that may be experienced by certain people. It is possible to develop end-stage renal disease (ESRD) as a result of a unilateral or bilateral stricture in the kidney ureter (End Stage Renal Disease). The stricture segment underwent histopathological examination, which demonstrated abnormal collagen deposition, fibrosis, and variable degrees of inflammation, as well as possible TB symptoms. It is possible for a partial ureteric stricture to generate a minor proximal ureteric dilatation, and it is possible for a total ureteric blockage to cause reduced renal function. There are many potential causes of ureteric obstruction, some of which include tuberculosis, iatrogenic causes such as instrumentation, congenital causes such as obstructive megaureter, secondary to impacted calculus, ureteric perforations, or ischemia resulting from previous surgeries, or due to extrinsic causes such as tumours, pelvic masses, gynecologic malignancies, or retroperitoneal fibrosis. Inflammatory abdominal aortic aneurysms, retrocaval ureter, urinary diversions, post-renal transplant, and rare reasons such as schistosomiasis or sarcoidosis can also result in ureteral strictures. Strictures are a secondary complication that can arise as a result of abdominal lymphadenopathy brought on by cancers such as

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lymphomas, testicular cancers, breast cancer, or colonic carcinoma. It is also possible for ureteral stricture to develop as a side effect of radiation treatment for one of several pelvic cancers. In this study, we looked at the aetiology, pathology, and treatment options for ureteric strictures at a tertiary care hospital in India.

Materials and Methods

In the Department of Urology at the Govt. Kilpauk Medical College, Chennai, an investigation with a prospective focus has been carried out. The time frame for this investigation was two years from August 2014 to August 2016. Eleven patients with a possible diagnosis of ureteric stricture were included in the research. For the purpose of confirming the diagnosis, standard techniques such as abdominal ultrasound, intravenous pyelogram, abdominal and pelvic CT with CT urogram, magnetic resonance urogram, and endoscopic procedures such as ureteroscopy were carried out. All of the patients' medical histories were thoroughly investigated, including their past experiences with endourological operations and surgeries, their past experiences with tuberculosis, and their past experiences with stone illnesses.

The patients who were found to have ureteric stricture underwent treatment that was either endoscopic, laparoscopic, or open surgery. The continuity of the ureter was preserved with the use of ureteroureterostomy or ureteroneocystostomy in conjunction with a double J stent. Histopathology was performed on the excised parts of the ureteric stricture that were removed. In order to arrive at a diagnosis and determine what caused it, histopathology slides were analysed. All of the instances were monitored for a total of three years during the course of the investigation.

Criteria for Acceptance

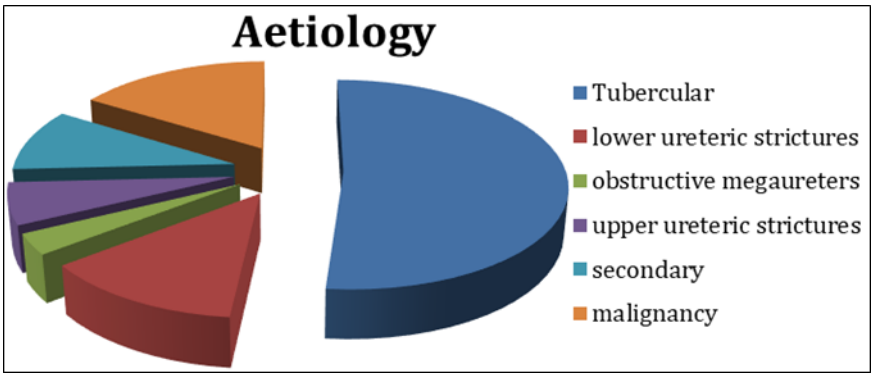
Participants in the study included all of the patients who presented to the Urology Outpatient Department (OPD) with radiographic evidence of a stricture. In order to gather evidence of a stricture for inclusion, we used ultrasonography and CT.

The criteria for exclusion

1. Patients who have undergone prior surgical treatment for ureteric stricture in another institution
2. Patients who were previously treated at our hospital and who are now experiencing a recurrence of their condition
3. Strictures due to extrinsic compression, uretero-vaginal fistula, retroperitoneal fibrosis, and pelvic malignancies such cancer of cervix.

Results

A total of 31 cases of Ureteric stricture were studied.



Graph 1: Aetiology

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Table 2: Management

Investigations	
IVP	31
CT urogram	31
urine culture for AFB	20 (16 confirmed)
histopathology study of excised segment postoperatively	31

Table 3: Treatment

Anti-tubercular drugs	16
Stricture segment excision with ureteric reimplantation	8
Psoas hitch	1
Laparoscopic ureteric reimplantation.	3
Open ureteroureterostomy over DJ stent	2
Endoscopic ureteric dilatation using serial ureteric dilators	1
Endoscopic ureteric balloon dilatation	1
Holmium laser	2

- No recurrence in follow up was found.

Discussion

A narrowing of the ureteric lumen that results in functional obstruction is what defines a ureteral stricture. It is possible to categorise ureteric strictures as extrinsic or intrinsic, benign or malignant, iatrogenic or noniatrogenic. There are two types of cancer that can cause extrinsic malignant strictures: primary and metastatic. Cancers of the cervix, prostate, bladder, and colon are the primary types of malignancies that can occur in the pelvic region. Retroperitoneal lymphadenopathy may be the source of proximal to midureteral blockage. This obstruction may be caused by lymphoma, testicular carcinoma, breast cancer, or prostate cancer. It is possible for renal failure to result from bilateral ureteric strictures. There is a possibility that ureteral TCC will develop as ureteral blockage. TCCs of the ureter have an uneven pattern on the mucosa and are accompanied with dilation of the ureter below the lesion (goblet sign). The surface of benign strictures is typically smooth, and there is no distal dilatation. Biopsies, which can be obtained ureteroscopically or with a fluoroscopically directed ureteral brush, are sometimes necessary in order to distinguish benign strictures from malignant ones. This can be the case in certain situations. The primary focus of our research is on benign intrinsic strictures, the causes of which might be congenital (congenital blocking megaureter), iatrogenic, or noniatrogenic (following passage of calculi), or be the result of chronic inflammatory ureteral involvement (tuberculosis and schistosomiasis). There is a 3% to 5% chance that urine diversion will be complicated by ureteral strictures. Gynecologic surgery is the leading cause of iatrogenic ureteral injuries, accounting for up to 75% of all such injuries. Iatrogenic ureteral strictures have become more common as a result of the extensive use of upper tract endoscopy, which ranges from 3 to 11% of cases. It has also been discovered that ureteral perforation during these procedures is a risk factor for stricture illness. Post-ureteroscopy strictures can be caused by a number of different causes, including but not limited to: large scope size; prolonged case duration; stone impaction; size; proximal position; perforation; and the use of intracorporeal lithotripsy. In a prospective study involving 479 patients who were

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undergoing hysterectomy for the treatment of benign diseases, Vakili *et al*. [3] found that iatrogenic ureteral damage occurred in 8 patients. Malignancy, pelvic radiotherapy, endometriosis, prior surgery, and surgery for prolapse are all considered risk factors for urinary tract injury following hysterectomy; however, at least half of all ureteral injuries are not caused by these causes. There are no recognised risk factors associated with injuries. Strictures can also be the result of ureteral injuries or repairs to ureteral injuries; however, strictures induced by injuries or repairs to the ureter are less common than strictures generated by endoscopy or anastomosis. Patients who have ureteric strictures might not present with any symptoms at all, or they might have symptoms such as flank pain, fever, infection, and so on. In most cases, there is only a weak correlation between the symptoms and the level of ureteric blockage. In some patients, urinary tract infections are the only symptom that is currently being presented. Pyelonephritis and changes in back pressure are symptoms that patients may come with on a less frequent basis. It is possible to develop end-stage renal disease (ESRD) as a result of a unilateral or bilateral stricture in the kidney ureter (End Stage Renal Disease). This investigation was carried out with the goals of determining the origin of ureteric strictures, the pathological process that takes place at the stricture section, and the best way to treat ureteric strictures. In each of these situations, we made an effort to determine the etiological factor that led to the stricture. There have been a great number of previous research that have attempted to determine the various causes of the ureteric stricture. In 1998, research conducted by Robert *et al*. [4] demonstrated that impacted calculus was one of the causes of ureteric stricture. Endometriosis was shown to be a cause for ureteric stricture in a study that was conducted in 1992 by Patel *et al*. [5]. Murphy *et al*. [6] conducted research on the role TB plays in the development of ureteric stricture. In their study from 1997, Lacquet *et al*. [7] demonstrated that an inflammatory abdominal aortic aneurysm can be a contributing factor in the development of ureteric strictures.

In 1982, Goodman M. and colleagues [8] demonstrated that the radiation treatment of pelvic cancers is a prevalent factor in the development of ureteric stricture. In 1997, Wolf J.S. *et al*. [9] divided benign ureteric strictures into two categories: ischemia strictures and non-ischemic strictures. In the course of our research, we performed endoscopic procedures on three patients, and we were successful in treating all three of those patients (which constitutes 27%). According to research carried out in 2010 by Periera *et al*. [10], a stricture length of less than 2 centimetres had an 84% success rate. If the stricture section was more than 2 centimetres in length, the success rate dropped below 50%. In the course of our research, every single instance that was endoscopically treated had a stricture section that was shorter than 2 cm. In the course of our research, there were three instances of tuberculous strictures that required open surgical procedures for treatment. However, Murphy *et al*. [6] published their findings in 1982, stating that transurethral dilatation of ureteric strictures was successful in the treatment of 64 percent of instances of tuberculous stricture.

Conclusion

Ureteric strictures are not rare in urological practise. In India, tuberculosis continues to be one of the leading causes of ureteric stricture. Another significant contributor to the development of ureteric stricture is the insertion of ureteral catheters. Ureteric stricture can also be caused by congenital conditions, such as obstructive megaureter, which is a common cause. It is impossible to determine the cause of ureteric stricture in a significant proportion of the cases. When dealing with tuberculous strictures, histopathological examinations can be helpful. There are a few different treatment options available for ureteric strictures, including open surgical procedures, laparoscopic reimplantation, and endoscopic management.

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