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ORIGINAL ARTICLE

Ureterovaginal Fistula: An Audit of Treatment Options in an Underdeveloped Area of Pakistan

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ABSTRACT

Throughout 2021, we were requested to assess and treat 10 women who had suffered ureterovaginal fistulas after caesarean sections at separate remote hospitals. We describe our experiences diagnosing and treating uninsured patients at a hospital with minimal resources. A three-swab test was conducted on each of the 10 patients, and an abdominal and pelvic ultrasound was utilised to help locate the afflicted ureter.

The patient had transvesical ureteral stent insertion. The stent was removed after two weeks. No wetness in the 10 patients.In the middle of today's complicated health care system, we must continuously remind ourselves of the common develops after a caesarean section and a well-known and simple diagnostic technique management in resource-poor communities

INTRODUCTION

Gynecological surgery, particularly hysterectomy, is the most common cause of ureterovaginal fistulas in nations with high levels of affluence. However, obstetric treatment is frequently below par in countries with a lower level of living. Caesarean sections (36 percent) and caesarean hysterectomies (36 percent) were reported to be the most prevalent causes of ureteric damage leading to ureterovaginal fistula in a study that was conducted in Lahore (27 percent). These two methods accounted for a total of 36 percent and 27 percent of the total cases, respectively. There have been cases that have been documented by medical professionals that specialise in the treatment of urogenital fistulas in which patients had both a vesicovaginal and a ureterovaginal fistula. Obstetric difficulties are the leading contributor of vesicovaginal and ureterovaginal fistulas in nations that are still building their healthcare systems. This takes place when the head of the foetus pushes through the space between the trigone, also known as the bladder neck, and the anterior arch of the pubic symphysis. This syndrome has the potential to lead to ischemia, necrosis, and ultimately a fistula. It is also possible for it to be brought on by an injury to the bladder that goes unnoticed following a traumatic hysterectomy or caesarean delivery. In the process of uterine vascular ligation or dissection of the infundibulopelvic ligament, the ureter could sustain an injury. Unanticipated bleeding in the pelvis can obscure the surgeon's view, which can lead to ureteral damage and a delayed ureterovaginal fistula. When examining the vagina with a speculum, a doctor can assist in the diagnosis of vesicovaginal fistula; however, ureterovaginal fistula is more challenging to identify. Cystoscopy, intravenous pyelography, and retrograde ureteropyelography are the three diagnostic procedures that need to be performed in order to make a diagnosis of ureterovaginal fistula. Although a good preoperative and intraoperative diagnosis is important for preventing operational failure, the absence of these procedures in most developing countries and the low wealth of the patients indicate the need for low-cost ureterovaginal fistula diagnosis methods that are equally sensitive. This study demonstrates the effectiveness of a straightforward diagnostic method as well as subsequent therapy in a regional hospital in the treatment of ureterovaginal fistula following caesarean delivery. Additionally, ureterovaginal fistulas following caesarean sections are covered in this paper.

MATERIAL AND METHODS

We studied ten individuals who underwent caesarean sections in remote hospitals. These individuals exhibited normal desire and voluntary micturition but continuous urine leakage. They were all referred to a district hospital that International assists with VVF repair. The initial evaluation included a vaginal speculum examination to check for fistulous openings in the anterior and posterior vaginal walls. Then the three-swab test was used to identify if the patient had vesicovaginal or ureterovaginal fistulas, as well as stress incontinence. After inserting three dry sterile swabs into the vagina, a urethral catheter was used to administer 100 ml of a diluted methylene blue solution into the bladder. The solution was diluted 1:5 and the concentration 1:5. After 15 minutes of free roaming while swabs were obtained from their mouths, the patient was examined further. Stress incontinence is indicated by wetness and a blue stain on the bottom swab. The upper swabs should be moist but not stained blue to indicate ureterovaginal fistula, whereas moist but not stained blue indicates vaginal vesicovaginal fistula. In order to rule out hydroureter or hydronephrosis, an abdominal ultrasound was conducted prior to surgery. The ureter was divided above the thick adhesion, followed by ureteric reimplantation over a stent fitted with an antireflux device on the affected side. No reconstructive interpositions or psoas hitches were required in any of the patients. The urethral catheters were removed a week after the stents.

RESULTS

Table 1 summarises the findings of the 10 patients treated. Out of ten advised patients, just one was under the age of 19. The remaining members were aged 20-40. The findings of the three-swab test showed that none of the 10 patients' swabs were stained, but the top swab was wet with pee, indicating that there was no contact between the bladder and the vagina. Further testing revealed that the pee soaking the top swab came from the ureter. Intraoperative ultrasonography of the kidneys revealed two patients with dilated pelvis and upper ureter, confirming statsis. The right and left ureters were affected in the same number of individuals (two each), according to our findings. Internal adhesions tightened around the ureteric hole and closed it intraoperatively. The ureter was injured, allowing these effects. At three months following surgery, all patients could pass urine regularly and had no complaints when the ureteric stent and urethral catheter were withdrawn. An abdominal ultrasound revealed normal kidneys, upper ureters, and bladder. No hydroureter or hydronephrosis.

Table 1 Post surgery Findings

Patient	Age	Duration of leakage	Preoperative Ultrasound	Main intraoperative findings	Ureter involved	State of ureteric opening on affected side	Outcome of surgery
1	25-32 years	4 months	Dilated left upper ureter and pelvis	Distal end of distended left ureter was surrounded by dense adhesions.	Left ureter	closed	Leakage had stopped.
2	18-22 years	3 months	Normal kidneys and ureter	Distal end of right ureter was surrounded by dense adhesions.	Right ureter	closed	Leakage had stopped
3	22-24years	9 months	Dilated left upper ureter and pelvis	Distal end of distended left ureter was surrounded by dense adhesions.	Left ureter	closed	Leakage had stopped
4	33-35 years	5 months	Normal kidneys and ureter	Distal end of right ureter was surrounded by dense adhesions.	Right ureter	closed	Leakage had stopped

DISCUSSION

The formation of a ureterovaginal fistula is a typical risk associated with pelvic surgery. The pelvic adhesions that resulted from several caesarean sections were the primary cause of ureteral damage. Other contributing factors were an enlarged uterus following abdominal hysterectomy as well as significant bleeding that occurred during the surgical procedure. During pelvic surgery, ureter transection is the most common type of ureter injury. It is possible for fistulas to develop between the afflicted portion of the ureter and the vagina, the uterus, or the skin. The majority of the damage was brought on by unsuccessful attempts to stop the bleeding without first locating the ureter. The presence of dense fibrous tissue surrounding the distal end of the afflicted ureters and the involvement of nearby tissues provides strong evidence that this was the underlying cause in each of our ten individuals. In order to rule out the possibility of ureterovaginal fistula, a comprehensive cystoscopy, vaginoscopy, intravenous pyelogram, and retrograde ureterography should be performed. Several pieces of evidence point to the possibility that history is misleading. In the research that we conducted on a total of 10 patients, we did not employ any of these methods. Both the presence of fistulas and their locations were discovered thanks to a comprehensive preoperative evaluation as well as two intraoperative findings. In this particular instance, the preoperative referral note that indicated the location of the technical issue encountered during the prior procedure was quite helpful in locating the ureter that was in question. When urine stasis was evident, preoperative abdominopelvic ultrasonography was able to identify the affected portion of the ureter. The presence of a small hole at the vaginal apex and clear fluid seeping at the fistula location, both of which point to the involvement of the ureter as the most likely culprit, can be found by doing a comprehensive speculum pelvic examination. It is possible to see the vaginal apex of the patient. In order to evaluate whether or not a ureterovaginal fistula was present, the researchers performed a series of tests, the last of which was a three-swab test. On the other hand, it does not specify which of the ureters is affected by the condition. It has been thoroughly investigated whether or not the three-swab test is able to differentiate between vesicovaginal and ureterovaginal fistulas. In addition, the ureteric opening in the bladder is closed; it is depicted as a dimple and is incapable of being canulized. This means that urine does not gush out of it and that it cannot be canulized. During the operation, it was determined that there was a problem with the ureter. With the help of all of these tests, we were able to pinpoint the position of the ureterovaginal fistula in relation to the trigone and ureteral orifices in each of the ten patients. Because they were late for their appointments, everyone of the ten patients in this study experienced a delay in the completion of their repairs. Three months was the earliest presentation possible, while nine months was the longest. The ureteroneocystostomy was the patient's final treatment for the correction of their condition. Psoas hitch surgery was not performed on any of the patients. Due to the fact that ureteroneocystostomy goes around the injured portion of the ureter, direct identification of the injury site was not performed. This was done to ensure that the procedure would go off without a hitch. Patients who had their ureterovaginal fistulas repaired experienced no symptoms of the condition after the procedure. These conditions include the leakage of urine and the constriction of the ureter. None of the ten patients had VVF, despite the fact that two of the patients had a tough labour previous to their caesarean section. On the other hand, all of the patients experienced ureteric damage, which could be seen in the fibrous tissue that surrounded the terminal ureter that was implicated. This suggests that there were some technical difficulties during the surgery, possibly as a result of a flaw in the surgical procedure itself. Surgeons should have the appropriate training and employ precise procedures in order to prevent these injuries. The ureterovaginal fistula and its sequelae, such as hydroureter, can be successfully diagnosed with the help of the three-swab test, abdominal and pelvic ultrasonography, and a comprehensive clinical examination.

CONCLUSION

A simple, affordable diagnostic procedure like the three-swab test and abdominal and pelvic ultrasonography can eliminate the need for referrals when resources are limited.

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