

# Robotic Assisted Laparoscopic Repair of Vesicovaginal Fistula Secondary to a Large Retained Foreign Body

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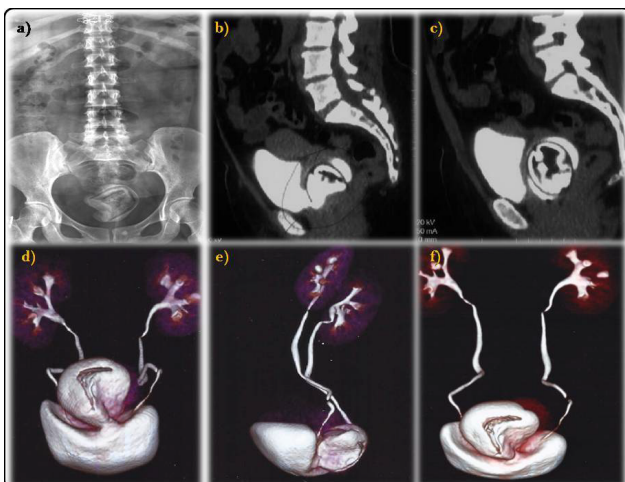
## Introduction

The most common acquired fistula of the urinary tract are Vesicovaginal fistulae (VVF) [1] posing social stigmata for the patient as well as a surgical challenge for the urologist. Although the most common cause of VVF in developing and developed countries is prolonged obstructive labor and pelvic surgeries (iatrogenic) respectively, foreign body (FB) as its cause is uncommon [2]. The most common complaint in these patients is constant urine leak per vagina. Careful examination combined with CT urography are the cornerstone for the diagnosis as well planning for the management. The best chance to achieve successful repair is by using the type of surgery which the surgeon is most familiar with and which befits the patients' clinical scenario [1].

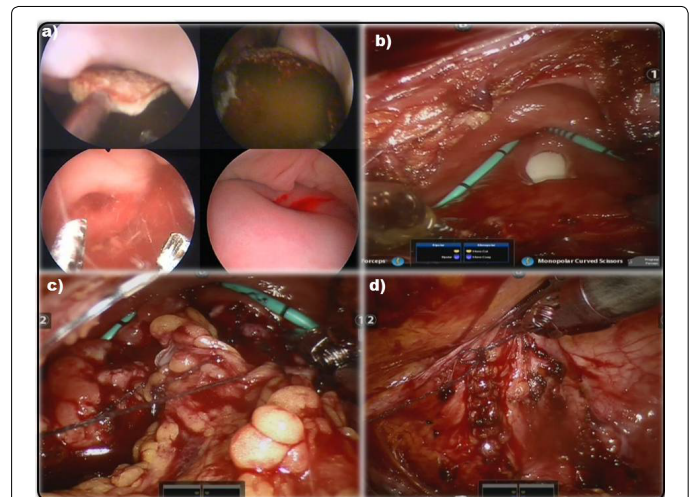
## Case History

A 40 years old divorced menopausal female patient presented with complaints of urinary frequency, urgency, continuous incontinence and thinning of stream since 2 years. Patient underwent low segmental cesarean sections (LSCS) 24, 22, 21 years back. Though general and abdominal examination were within normal limits (other than presence of scars of LSCS), per vaginal examination revealed a large calcified solid mass at the introitus. The patient denied any knowledge of a vaginal foreign body or any sexual dysfunction.

All routine hematological and biochemical investigations were within normal limits. A plain pelvic radiograph showed an opacified object within the pelvic cavity (Figure 1a) later confirmed by ultrasonography of abdomen and pelvis. CT urography revealed a large well defined calcified lesion measuring 6.2 x 5.5 x 4.6 cms in vagina. It



**Figure 1:** Radio opaque shadow in pelvic cavity. b) and c) CT (Sagittal section) showing VVF with large well defined calcified lesion measuring 6.2 x 5.5 x 4.6 cms in vagina. d, e and f) 3 D reconstructive image of CT urogram showing bilateral normally excreting kidneys with position of VVF.



**Figure 2:** a) Calcified brown colored vaginal foreign body with cystoscopic and vaginoscopy appearance of VVF; b) View after posterior cystostomy displaying bilateral pig tail catheter with vaginal defect; c) Omental interposition after completion of fistula repair; d) final look after cystostomy closure.

appeared to communicate with the posterior wall of urinary bladder through a defect of around 1.8 cms (Figure 1b-1f).

On cystoscopy and vaginoscopy, a large stone was present in bladder near the bladder neck extending into the vagina, filling it in entirety and having acquired a dumbbell shape. On fragmenting the stone with lithoclast a brown colored foreign body was recovered which the patient might have used for sexual gratification. After clearing the stone both from bladder and vagina, around 2 cms defect was appreciated connecting the both cavities (Figure 2a). Due to inflammatory and unhealthy surrounding tissue, patient was planned for definitive repair after three months. After this management of foreign body, the patient accepted the use of sex toys for sexual gratification. Patient was discharged on oral antibiotic and was advised to apply estrogen cream locally.

Repeat Cystoscopy and vaginoscopy after three months revealed around two cm fistula just proximal to level of bladder neck (infratrigonal) and about 3-4 cms from vaginal orifice, it was deemed operable. Bilateral pig tail ureteric catheters were placed before undertaking definitive repair to prevent inadvertent injury to ureters. Robotic VVF repair was performed by a team comprising of a

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**Figure 3:** Post-operative urography done at three months.

console surgeon (urologist) having a vast experience of robot assisted reconstructive surgeries, a patient side assistant and a scrub nurse. A lithotomy with trendelenburg position with four arm approach was utilized, with the latter helping to retract the uterus. Five-ports in a fan shaped manner were inserted transperitoneally. First, a 12-mm port was placed 3 cms above the umbilicus which served for the camera, followed by insertion of three 8mm ports, one each on either side at the level of umbilicus on the pararectal line and one for the fourth arm, which was placed above and medial to the right iliac crest. An additional 12 mm port was used by the assistant for suction and passage of clip applier, which was placed about four finger breadths above and to the left of the camera port. Robotic instrumentation comprised of robotic monopolar curved scissors, fenestrated bipolar forceps, prograsp forceps and two needle drivers.

The plane was developed between the posterior wall of bladder, and cervix and vagina. Once the fistula was identified, the bladder was opened posteriorly (Figure 2b). Omental docketing (Figure 2c) was done after vaginal closure but prior to the closure of bladder. The suturing was done with 2-0 v-lock sutures (Figure 2d). Total operative time was 148 minutes with minimal blood loss. Foleys catheter was removed after four weeks and patient was fully continent. Postoperative urography done at three months revealed a good capacity round shaped bladder without any evidence of leak (Figure 3).

## Discussion

Vesicovaginal Fistula is usually a complication of obstructed labor or pelvic surgery [2]. VVF secondary to foreign body is a rare entity and more so when FB is inserted for sexual gratification. Due to social stigmas associated with this condition and denial of any knowledge of existence of foreign body in vagina, presentation in these cases is delayed as happened in our case. At times the increasing encrustations over the foreign body leads to its apparent enlargement, which over a period of time leads to bladder erosion and subsequent ureteric obstruction or can erode into rectum causing rectovaginal fistula [3-5].

On review of literature we found that the mean age of presentation is 37 years (ranges from 9-98 years) and the most common clinical feature being persistent vaginal leak or continuous incontinence as was seen in our patient [3]. Though rare, genital self-harm is a possibility in these patients, which highlights the need of psychiatric consultation. Computed tomography scan is the prime radiological investigation

to diagnose and plan for the management of VVF and to rule out associated surrounding visceral injuries. For definitive diagnosis in case of retained FB cystoscopy and vaginoscopy are imperative. They quantify the amount of damage and aid to further plan out management.

The use of topical estrogen preparation is recommended specifically in post-menopausal patients (unless contraindicated) which by increasing vascularity and improving tissue quality may aid in proper healing of approximated tissue after definitive repair [2]. If there is evidence of infection, a prolonged antibiotic therapy (3-6 months) is recommended before proceeding for any repair [2]. Once acute inflammation has settled, it is better to resort to surgery rather than waiting for prolonged intervening period. There is no single “best” approach for all patients with VVF and approach should be individualized with open, laparoscopic and robotic means, all being successfully utilized and reported in literature.

The best chance to achieve successful repair is by using the type of surgery which the surgeon is most familiar with [1] (open/laparoscopic/robotic vs transabdominal/transvaginal/extravesical). In our case we did robotic assisted laparoscopic transperitoneal VVF repair, as robotic da Vinci platform provides superior 3D magnified view needed for proper identification of tissue planes and technical advantage during suturing combined with all benefits of minimal invasive surgery (MIS).

## Conclusion

Any patient presenting with history of continuous incontinence with no history of surgical intervention in past, possibility of VVF secondary to FB should be kept in mind. A detailed sexual history should always be sought to rule out any sexual or psychiatric disorder. We recommend staged repair of VVF secondary to FB to allow inflammation around the fistula to settle down and the use of estrogen locally within this interval. If the surgeon is well versed with robotic technique then repair should be done using robotic platform as it combines technical advantage during dissection and suturing; and 3D magnified vision with benefit of MIS for excellent results.

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