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Living with obstetric fistula for ten years: a delayed diagnosis and review of pertinent surgical technique

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Abstract

Obstructed labor is a common cause of vesicovaginal fistula in the developing world. Those fistulae occurring after labor and its complications are called obstetric fistula. We report a case of complex obstetric fistula in a 32 y woman who was having continuous leakage of urine for the last 10 y following cesarean section for obstructed labor. A successful fistula repair was done with a transvaginal approach with Latzko technique and interposition with Martius flap.

Keywords: Latzko repair, Martius flap, obstetric fistula, vesicovaginal fistula

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Introduction

Vesicovaginal fistula (VVF) is an abnormal epithelialized or fibrous connection between the bladder and vagina, which results in continuous and unremitting urinary incontinence (UI).[1] Urogenital fistula is a global healthcare problem, predominantly associated with obstetric complications in low-resourced countries.[2] The genitourinary or rectovaginal fistula occurring after labor and its complications are called obstetric fistula (OF).[3] It is estimated that more than 2 million young women live with untreated OF in Asia and sub-Saharan Africa. And preventing and managing OF contributes to the sustainable development goal 3 of improving maternal health.[4] It is estimated that there are 4,000 to 5,000 women living with fistula, and 200-400 new cases each year in Nepal.[5] We report a 32 y woman with complex vesicovaginal fistula repaired surgically who had developed a following despite emergency cesarean section for obstructed labor. This case report ensures that the complex OF can happen which needs to be identified and referred for surgical correction by an expert.

Most OF resulting from VVF are accessible via a transvaginal approach. Latzko procedure is a common vaginal approach of repairing proximal VVF.[1,6] Transvaginal repairs achieve comparable success rates with the abdominal route while minimizing operative complications, hospital stay, blood loss, and postsurgical pain. Interposition graft/flap is used to prevent surgical failure in case of complex fistula repair. Martius bulbocavernosus muscle-fat flap may be interposed between the bladder and vagina to help prevent re-fistulation. Goh's classification of the fistula is commonly used in OF for its high correlation with successful repair rate.[7,8]

Care Report

A 32 y woman was referred to Kathmandu Model Hospital, Nepal, with a history of involuntary leakage of urine for the last 10 y. She noticed leakage following a cesarean section in a nearby hospital as she was unable to deliver at home even after four days of labor. The continuous leakage started after few days of the cesarean delivery of an intrauterine dead fetus. The undergarments and clothes were continuously soaked. She never had the urge to void. It was associated with a urine smell and itching at the perineum. She had no associated abdominal pain, burning urine, sexual discomfort, or menstrual abnormality. We did not inquire in detail about the sexual experience which is usually may be affected by being wet due to dribbling affecting the family life. She thought it was normal, kept changing clothes, and did not seek medical consultation. She was advised by her neighbor about the free treatment of similar cases at the hospital, hence the admission for the repair. Consent was taken from the patient for publication of this case report.

Pelvic examination and cystourethroscopy revealed, urine smell and pooling of clear liquid in the posterior fornix. There was tissue loss over the bladder neck exposing the trigone with a left ureteric orifice about 1 cm from fistula and right ureteric orifice about 4 cm from fistula margin. The fistula was about 4 cm in size with mild scarring of the vagina and bladder wall. Goh's classification was 1Ciii, Figure 1. Due to financial constrain, we do not routinely perform contrast imaging of the upper urinary tract before surgery unless there is a history suggestive of urinary tract infection, flank pain, etc.

During surgery, she was placed in an exaggerated lithotomy position with shoulder rest, with buttocks over the edge of the operating table. The labia were retracted with a Galaxy II retractor. She underwent transvaginal repair of her fistula using modified Latzko's method with Martius graft. The same findings were confirmed intraoperatively. Bilateral 6 French ureteric catheters were placed from the fistula and the distal ends were brought out from the external urethral meatus. Fistula closure was done using the Latzko technique. The patient was put in a steep Trendelenburg position for better

visualization. Using an inflated 20 French Foleys catheter inserted from the fistula as traction, an incision was made around the fistulous tract in the anterior vaginal wall. Vaginal mucosa was dissected from the endopelvic connective tissue until it was able to approximate the bladder mucosa without tension. The bladder wall was closed in two layers using vertical mattress absorbable sutures. The water seal tight closure was confirmed with methylene blue dye test, Figure 2.

A Martius flap was created from the skin of the right labia majora. A 5 cm incision was made over the skin on labia majora, Figure 3. Subsequent fat pad along with underlying bulbocavernosus muscle was dissected leaving the posterior attachment intact to maintain the vascular pedicle. A tunnel was created between the labial incision and the vaginal mucosa over the fistula margin. The Martius graft was tunneled to the fistula closure site and was fixed there with endopelvic fascia to provide the interposition. The dissected vaginal mucosa was closed.

A vaginal pack was kept. Both ureteric catheters were drained which were removed on day five. The bladder was drained through the urethral Foley catheter which was fixed with tape over the thigh for continuous free drainage for 14 days.

Postoperatively intravenous fluid was started, opioids for analgesia and injection ceftriaxone were given. From the second postoperative day antibiotic was changed to cefixime till day seven, paracetamol for analgesia, vaginal pack removed, started ambulating and was encouraged to maintain a high oral fluid intake level to enable her to produce two to three liters of urine per 24 hours. She was requested to check for Foley's kinking and ensure proper drainage, and the receptacle is always at a lower level than the bladder.

The immediate post-operative period was uneventful.

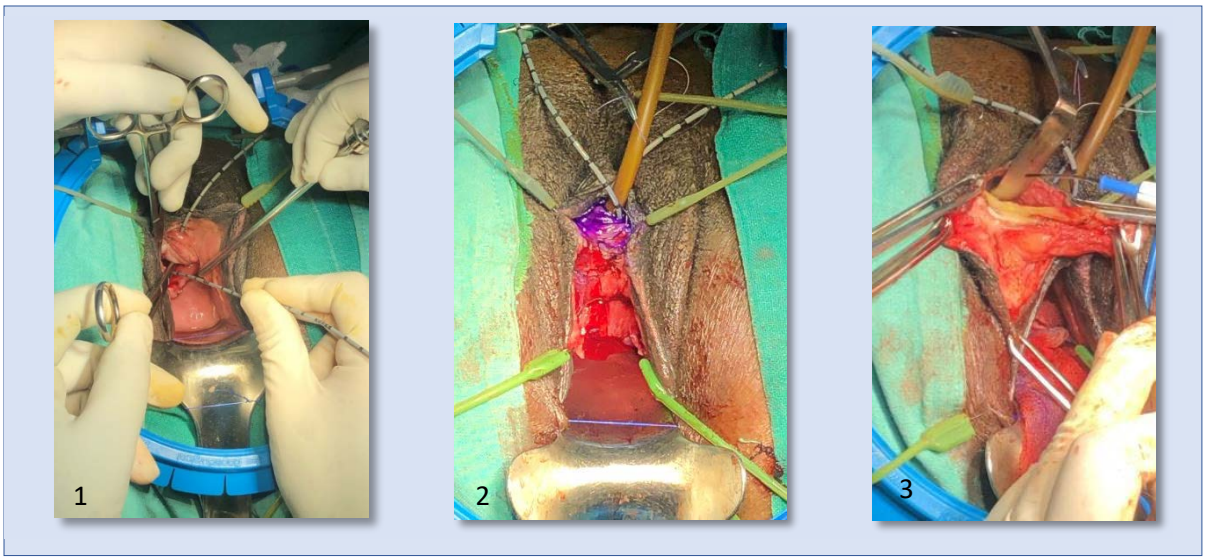

Figure 1. The vesicovaginal fistula (VVF) with cannulation of the bilateral ureter; Figure 2. Fistula after closure before Martius graft; Figure 3. Dissection of the fibro-fatty tissue with a vascular pedicle of bulbocavernosus in Martius graft

At 2 mo postoperative follow up the patient was free of urine leakage, with the sensation of bladder filling and voiding voluntarily with the healing of the fistula closure site.

Discussion

The patient suffering from complex vesicovaginal fistula following cesarean section for obstructed labor was finally dry

after the Latzko's repair combined with Martius graft. A complex OF can occur after an emergency cesarean section and needs to be referred for surgical correction. Patients should be evaluated post-cesarean section for possible development of fistula. More than 95% VVFs in underdeveloped countries are due to obstructed labor.[2] The vascular compromise due to compression of bladder wall pressing between the fetal head and pubic bone along with the soft tissue edema, compounded by poor general health, and genital infection are common predisposing causes for fistula development.[9] When Foley catheterization for continuous bladder drainage doesn't prevent or heal small fistulas, surgery is the primary method of repairing OF. These types of fistula are generally complex fistulas.[1] Vaginal route can be used in the repair of simple and complex OFs, and success can be more than 90%.[1,10]

For any approach, the best chance for closure of the fistula is at the first attempt.[2] Success rate is greater than 89% in the first attempt.[11] Couvelaire in 1953 had suggested the key to successful repair of VVF: good visualization, good dissection, a good approximation of the margins, and good urine drainage.[12] And also successful fistula surgeons follow Symmonds with, wide mobilization of the bladder, excision of all scar tissue, a tension-free layer closure of the bladder and the vagina, non-traumatizing technique, and good hemostasis with complete bladder drainage postoperatively. The intervention could be primary repair anatomical repair only or with interposition tissue.[13] Martius in 1928 presented the interposition tissue flap from the bulbocavernosus muscle accompanied with fibro adipose tissue from labia majora.[14,15]

Goh's system of classification of the OF is used commonly.[15] It uses external urinary meatus for the fixed reference for genitourinary fistula and the hymen for genito-anorectal fistula. Special circumstances are noted which may have a negative impact on the surgical closure of the fistula. Goh's classification divides genitourinary fistulae into four main types, depending on the distance of the distal edge of the fistula from the external urinary meatus. These four types are further sub-classified by the size of the fistula, the extent of associated scarring, vaginal length, or special considerations, Figure 4.

Type 1: Distal edge of fistula > 3.5 cm from external urinary meatus
Type 2: Distal edge of fistula 2.5–3.5 cm from external urinary meatus
Type 3: Distal edge of fistula 1.5 − < 2.5 cm from external urinary meatus
Type 4: Distal edge of fistula < 1.5 cm from external urinary meatus

(a) Size < 1.5 cm, in the largest diameter
(b) Size 1.5–3 cm, in the largest diameter
(c) Size > 3 cm, in the largest diameter

i. None or only mild fibrosis (around fistula and/or vagina) and/or vaginal length > 6 cm, normal capacity
ii. Moderate or severe fibrosis (around fistula and/or vagina) and/or reduced vaginal length and/or capacity
iii. Special consideration e.g., post-radiation, ureteric involvement, circumferential fistula, previous repair

Figure 4. Goh's system of classification of obstetric fistula[15]

The patient should be ideally placed to ease the surgical approach with the use of self-retaining devices. This eliminates crowding, expressed by a famous surgeon as "one surgeon in the vagina is already a crowd". The suturing on the narrow and difficult areas was done by sutures on a 5/8 circle needle. The vesical edges of the fistula were not denuded. As the bladder musculature is not sutured to itself there is no tension across the suture lines. To support the suture line, obliteration of the dead space, and to provide vascularity to surrounding tissue, an interposition using Martius graft was done. It is used when the

closure lines or the vaginal tissues are of questionable quality or in a complex fistula.[9] In addition, rotated vascularized pedicle flaps increase the success by enhancing granulation tissue formation, and provide a barrier layer between the urethral and bladder suture line and the vaginal suture line.

Conclusion

The patient with 10 y of complex vesicovaginal fistula after cesarean section for obstructed labor had a satisfactory outcome following Latzko's repair combined with Martius graft. Ureteric catheterization protects against inadvertent iatrogenic ureteral injury during the repair.

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Conflict of Interest

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Author contribution

AP and GD are involved equally in concept, design, literature review, data collection, draft, and final manuscript. Both the authors are accountable for the work.

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