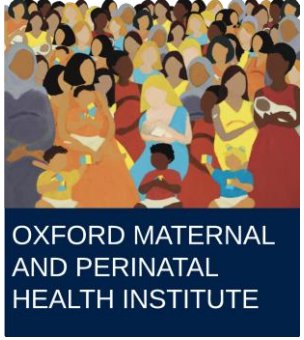
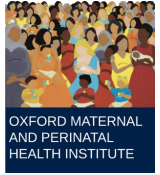


Obstetric Fistula

Module 3
Management of Obstetric Fistula

2024 update



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Course Outline:

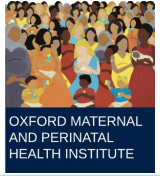
Module 1. Definition, Epidemiology, Pathogenesis, Causes, Risk Factors, and Prevention of Obstetric Fistula

Module 2. Diagnosis and Classification of Obstetric Fistula

Module 3. Management of Obstetric Fistula

Module 4. Social Reintegration

Module 5. Sexual Health and Obstetric Fistula



By the end of this module, the learner should be able to:

- Identify and address immediate needs of a patient presenting with or likely to develop obstetric fistula
- Understand modalities of conservative management and which patients can benefit from them
- Understand the preoperative checklist for a fistula patient
- Understand the basic principles of surgical technique
- Understand the post-operative management of a fistula patient
- Analyze, challenge, critique or discuss the current evidence on any of the subtopics covered in the module, with the aim of improving research geared towards eradication of the problem.

Management

Remembering that obstetric fistula is often an endpoint of the three delays, systemic efforts should be made in ensuring early identification of cases, through postnatal maternal care as recommended by WHO (see Fig 3.1).

The “WHO recommendations on maternal and newborn care for a positive postnatal experience” aims to improve the quality of essential, routine postnatal care for women and newborns with the ultimate goal of improving maternal and newborn health and well-being (Wojcieszek 2023).

The guideline recognizes a “positive postnatal experience” as a significant end point for all women giving birth and their newborns, laying the platform for improved short- and long-term health and well-being. Notably, while skilled antenatal care and delivery is one way of preventing obstetric fistula, disrespectful and abusive obstetric care within the healthcare system are counterintuitive, and has been associated with women shying away from visiting health facilities, for antenatal care and even delivery itself, this in itself potentially contributing to obstetric fistula (Bohren 2014, Wojcieszek 2023)

A positive postnatal experience is defined as one in which women, newborns, partners, parents, caregivers and families receive information, reassurance and support in a consistent manner from motivated health workers; where a resourced and flexible health system recognizes the needs of women and babies, and respects their cultural context (Wojcieszek 2023).

Bohren MA, Hunter EC, Munthe-Kaas HM, Souza JP, Vogel JP, Gülmezoglu AM. Facilitators and barriers to facility-based delivery in low- and middle-income countries: a qualitative evidence synthesis. Reprod Health. 2014 Sep 19;11(1):71.
Wojcieszek AM, Bonet M, Portela A, Althabe F, Bahl R, Chowdhary N, Dua T, Edmond K, Gupta S, Rogers LM, Souza JP, Oladapo OT. WHO recommendations on maternal and newborn care for a positive postnatal experience: strengthening the maternal and newborn care continuum. BMJ Glob Health. 2023 Jan;8(Suppl 2):e010992.

Management

The care provided during the first six weeks in the postnatal period contributes to improved maternal and child health and well-being by helping to establish healthy practices, prevent disease including obstetric fistula where labour was obstructed, and detect and manage complications (Wojcieszek 2023).

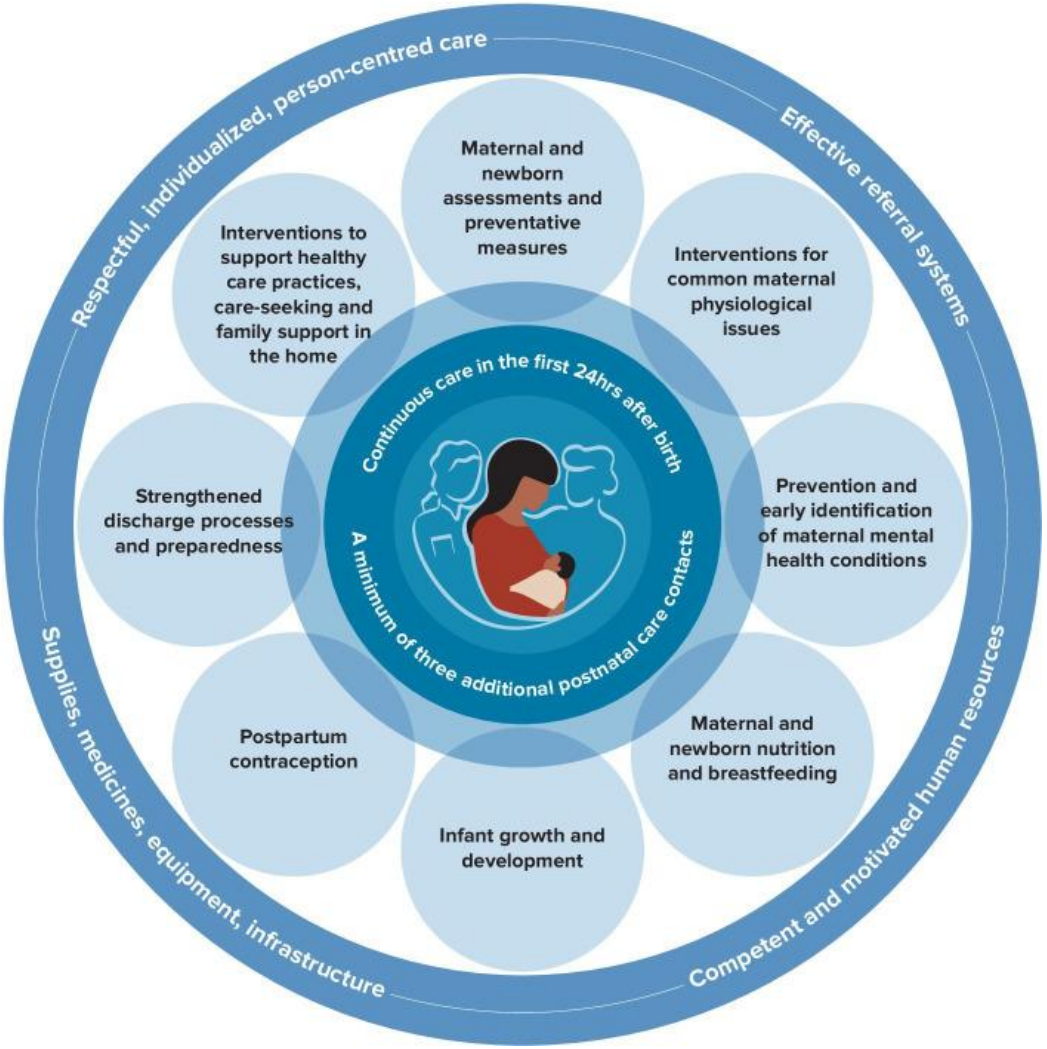
To provide the essential postnatal care package, at least four postnatal care contacts are recommended. Continuous facility- or home-based monitoring within the first 24 hours following delivery is key. A minimum 24-hour length of stay following a facility-based vaginal birth is recommended to allow sufficient time to complete comprehensive maternal and newborn assessments, and to provide orientations for the transition of the woman and the baby to care in the home (Wojcieszek 2023).

The second contact occurs between 48 and 72 hours after birth; the third between days 7 and 14, and the fourth during week six after birth. Postnatal care contacts can occur at home or in outpatient services. These periods coincide with the recommended follow-up periods for the woman with obstetric fistula on conservative management especially for the women identified as high risk for development of obstetric fistula (Fistula Care 2013, Wojcieszek 2023).

Positive postnatal experience is especially important for women with fistula whose situation, with say leaking urine and feces may appear undesirable to some healthcare workers.

Fistula Care. Urinary Catheterization for Primary and Secondary Prevention of Obstetric Fistula: Report of a Consultative Meeting to Review and Standardize Current Guidelines and Practices, March 13-15 at the Sheraton Hotel, Abuja, Nigeria. New York: EngenderHealth/Fistula Care; 2013.
Wojcieszek AM, Bonet M, Portela A, Althabe F, Bahl R, Chowdhary N, Dua T, Edmond K, Gupta S, Rogers LM, Souza JP, Oladapo OT. WHO recommendations on maternal and newborn care for a positive postnatal experience: strengthening the maternal and newborn care continuum. BMJ Glob Health. 2023 Jan;8(Suppl 2):e010992. doi: 10.1136/bmjgh-2022-010992. PMID: 36717156; PMCID: PMC9887708.

Figure 3.1: Maternal and newborn care for a positive postnatal experience



Wojcieszek AM, Bonet M, Portela A, Althabe F, Bahl R, Chowdhary N, Dua T, Edmond K, Gupta S, Rogers LM, Souza JP, Oladapo OT. WHO recommendations on maternal and newborn care for a positive postnatal experience: strengthening the maternal and newborn care continuum. BMJ Glob Health. 2023 Jan;8(Suppl 2):e010992. doi: 10.1136/bmjgh-2022-010992. PMID: 36717156; PMCID: PMC9887708.

Management

From the preceding maternal and newborn care for a positive postnatal experience framework therefore, findings from history and examination plus preliminary investigations are important in informing management pathways and options. These should be explained to the patient and family, including the husband. Counseling may be necessary for both the patient and family before considering the different options (De Bernis 2007).

The comprehensive history, physical examination and other diagnostic tests first help in identifying and addressing immediate needs of the patient. Some of the issues may include:

- Mental complications such as post-traumatic stress disorder, postpartum depression especially following fetal loss associated with the obstructed labour complex
- Hematologic: anaemia
- Metabolic: undernutrition, high blood sugars
- Infections: UTI, helminthic infections
- Though not obstetric, immediate care such as post-exposure prophylaxis for the patient presenting after sexual assault with fistula

It is important to note that as part of postpartum care, it is essential to identify women who have had obstructed labour for they could benefit from preventing the progress of a fistula developing through conservative management by early catheterization.

De Bernis L. Obstetric fistula: guiding principles for clinical management and programme development, a new WHO guideline. Int J Gynaecol Obstet. 2007 Nov;99 Suppl 1:S117-21.
Tayler-Smith K, Zachariah R, Manzi M, Boogaard W van den, Vandeborne A, Bishinga A, Plecker ED, Lambert V, Christiaens B, Sinabajije G, Trelles M, Goetghebuer S, Reid T, Harries A. Obstetric Fistula in Burundi: a comprehensive approach to managing women with this neglected disease. BMC Pregnancy and Childbirth. 2013 Aug 21;13(1):164.

Conservative management for at-risk and fresh vesicovaginal fistula cases

Consequently, as part of maternal postnatal assessment and preventive measures, the patient who has had prolonged obstructed labour and is at risk of a fresh VVF either with or without signs of urinary incontinence, should benefit from conservative management. Early catheterization of the urinary bladder with an indwelling Foley catheter can promote healing and prevent the need for a surgical repair at a later stage .

Whilst conservative management by catheterization is not guaranteed to completely close a vesicovaginal fistula, importantly it can reduce the diameter of the fistula, thereby facilitating subsequent surgical repair. All health facilities should have a protocol in place for conservative management of at-risk and fresh vesicovaginal fistula cases and any trained staff, including medical or clinical officers, midwives and nurses can provide this critical care.

It is important to note however that sometimes the Foley catheter can act as a foreign body in the fistula, thereby preventing closure. As such, the placement of the catheter should always be checked.

International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022.

Conservative management after prolonged obstructed labour for at-risk cases (no urinary leaking through the vagina) (1)

At-risk women are those who have suffered prolonged obstructed labour and in particular women who had a stillbirth irrespective of mode of delivery, and who are likely to have ischemic compression injuries in situ, but who are **NOT** yet experiencing urinary leakage from the vagina. These women should receive the following treatment as soon as possible after labour:

- ❑ Insert an indwelling Foley catheter (size 16–18), which should be kept on free drainage and should stay in place for 14 days.
- ❑ The patient can be managed as an inpatient during this time or as an outpatient if they live nearby and if communication via telephone is possible. In all cases rehydration through oral intake of sufficient fluids is a key management instruction to patient and caregivers. A measure of this is clear urine throughout and after the management period.
- ❑ Manage intercurrent infections, according to local protocols.

International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022.

Conservative management after prolonged obstructed labour for at-risk cases (no urinary leaking through the vagina) (2)

- After removal of the Foley catheter, if the patient has no urinary leaking through the vagina in the next 24 hours and can pass urine normally, it can be assumed that the conservative management was successful, and the patient can return home with routine predischarge advice.

- If on removal of the Foley catheter the patient experiences urinary leaking from the vagina, a new Foley catheter should be inserted. It is important to meticulously check the correct placement of the catheter to ensure it is not sited in the vagina or through the fistula, thereby keeping it open and the bladder kept on free drainage for a further 14 days.

- If on removal of the Foley catheter after the second period of 14 days the urinary leakage persists through the vagina, it can be assumed that the patient has a vesicovaginal fistula and she should be referred to a trained, skilled fistula surgeon for surgical repair. The referring facility should keep a record of the patient's contact details so that she receives appropriate support and care.

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Conservative management after prolonged obstructed labour for fresh vesicovaginal fistula (1)

It has been demonstrated that some carefully-selected patients with VVF may benefit from conservative management with early bladder catheterization, by-passing the need for surgery and the extra burden this puts on strained resources. Some experts estimate this figure to be about 25% of the women (Fistula Care 2013). Tayler-Smith (2013) and colleagues reported an 11% success rate at a fistula center.

Conservative management for a fresh vesicovaginal fistula is most effective when it is:

- Implemented for smaller vesicovaginal fistulas.
- Started immediately or as soon as possible after prolonged obstructed labour, while the injuries are fresh, before tissue granulation takes place (FIGO 2022).

Experts agree that four weeks after initial injury is the window of opportunity after which chances of success progressively diminish. Four weeks is also the duration after which failure of closure is considered (Fistula Care 2013; Sung 2007). However, even if a patient presents four to five weeks after delivery with a recently acquired vesicovaginal fistula, conservative management should always be attempted (FIGO 2022).

Fistula Care. Urinary Catheterization for Primary and Secondary Prevention of Obstetric Fistula: Report of a Consultative Meeting to Review and Standardize Current Guidelines and Practices, March 13-15 at the Sheraton Hotel, Abuja, Nigeria. New York: EngenderHealth/Fistula Care; 2013. Sung VW, Wohlrab KJ. Chapter 26 - Urinary Tract Injury and Genital Tract Fistulas. In: Sokol AISR, ed. General Gynecology. Philadelphia: Mosby; 2007:639-61.
International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022.
Sung VW, Wohlrab KJ. Chapter 26 - Urinary Tract Injury and Genital Tract Fistulas. In: Sokol AISR, ed. General Gynecology. Philadelphia: Mosby; 2007:639-61.
Tayler-Smith K, Zachariah R, Manzi M, Boogaard W van den, Vandeborne A, Bishinga A, Plecker ED, Lambert V, Christiaens B, Sinabajije G, Trelles M, Goetghebuer S, Reid T, Harries A. Obstetric Fistula in Burundi: a comprehensive approach to managing women with this neglected disease. BMC Pregnancy and Childbirth. 2013 Aug 21;13(1):164.

Conservative management after prolonged obstructed labour for fresh vesicovaginal fistula (2)

Fistula Care has developed a treatment pathway to assist healthcare workers in the provision of conservative treatment for fistula. In implementing this strategy, it is important that the healthcare worker is skilled and approved to insert a Foley catheter, the patient presents within four weeks after injury/labor and that the process is explained to the patient and consent obtained.

Patients with fistulae falling under the following categories are excluded from this pathway:

- Isolated rectovaginal fistula.
- Fistula resulting from pelvic malignancy, radiation therapy, or infection (such as lymphogranuloma venereum).
- Women suffering from incontinence after a failed attempt at fistula repair.
- A woman with a known fistula between the ureter and vagina would not benefit from this treatment.

Vulvar dermatitis and irritation during conservative management can be treated with zinc oxide barrier ointment or sitz baths (Fistula Care 2013, Sung 2007).

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Sung VW, Wohlrab KJ. Chapter 26 - Urinary Tract Injury and Genital Tract Fistulas. In: Sokol AISR, ed. General Gynecology. Philadelphia: Mosby; 2007:639-61.

Conservative management after prolonged obstructed labour for fresh vesicovaginal fistula (3)

For a woman who has suffered prolonged obstructed labour (with or without a caesarean section), and who is experiencing urinary leakage from the vagina afterwards, it can be assumed that the patient has a fresh vesicovaginal fistula. As previously stated, there is a limited window of opportunity to provide conservative management for such cases. It is therefore extremely important that the patient receives the following treatment as soon as possible after labour:

- ❑ Observing sterile procedures, insert an indwelling size 16 or 18 Foley catheter (ballooned with 10cc of normal saline), which should be kept on free drainage ('open-drainage system') for **4–6 weeks** and should be carefully replaced with a new catheter every 10–14 days. If the Foley catheter falls out or is found to be in the vagina, it can be assumed that the patient has a large vesicovaginal fistula resulting from extensive compression damage and subsequent tissue loss. In this situation, the patient should be offered the recommended care and hygiene measures, following which the patient should be referred to a trained, skilled fistula surgeon for assessment and surgical repair.

- ❑ The patient should remain in hospital during this time and should be encouraged to drink sufficient fluids to ensure her urine is clear at all times (up to 5 L of fluid/ day or 250 mL each hour), as well as to be active.

- ❑ The patient should take sitz baths with salty water twice daily to clean the perineum and vagina.

Fistula Care. Urinary Catheterization for Primary and Secondary Prevention of Obstetric Fistula: Report of a Consultative Meeting to Review and Standardize Current Guidelines and Practices, March 13-15 at the Sheraton Hotel, Abuja, Nigeria. New York: EngenderHealth/Fistula Care; 2013.
International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022.

Conservative management after prolonged obstructed labour for fresh vesicovaginal fistula (4)

- Under aseptic conditions, a speculum examination of the vagina should be carried out by a surgeon or health professional who has been trained in fistula care. Any necrotic tissue should be carefully excised. The debriding may need to be repeated until the vagina is healthy, with no further evidence of sloughing or necrotic lesions.

- Treat any intercurrent infections treated, and give routine antibiotic prophylaxis for urinary tract infections, according to local protocols.

- Remove the Foley catheter **after 4–6 weeks**. If the patient has no urinary leaking through the vagina in the next 24 hours and is able to pass urine normally, it can be assumed that the conservative management has been successful and the vesicovaginal fistula has healed. In this case, the patient can return home with routine predischarge advice. This should cover family planning and future pregnancies, including the importance of antenatal care and delivery by elective caesarean section.

- If on removal of the Foley catheter the patient leaks urine from the vagina, insert a new Foley catheter, and keep the bladder on free drainage for a further **14 days**.

- If on removal of the Foley catheter after the additional period of **14 days** the urinary leakage returns through the vagina, it can be assumed that the vesicovaginal fistula is still present. In this case, refer the patient to a trained, skilled fistula surgeon for surgical repair.

International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022.

Conservative management after prolonged obstructed labour for fresh vesicovaginal fistula (5)

- Even where conservative management has failed, it is hoped that it will have reduced the diameter of the fistula, thereby making a successful surgical repair more likely subsequently.
- The referring facility should keep a record of the patient's contact details to ensure that she receives appropriate support and care.
- There is no clear consensus on the optimal timing for fistula surgery if conservative management fails. While some fistula surgeons prefer to operate as soon as the vagina is clear of necrotic tissue and the patient is fit for surgery, most prefer to wait for 2–3 months after the development of the fistula.
- During the last visit, the patient is educated on the importance of delayed resumption of sexual activity (preferably 6 months), family planning options and advised that the preferred mode of delivery for subsequent pregnancies is Caesarean Section.
- Facilities implementing this protocol should document how many women are treated with catheter as first option, are dry after the conservative management, and are referred to facilities capable of repairing the fistula.

Fistula Care. Urinary Catheterization for Primary and Secondary Prevention of Obstetric Fistula: Report of a Consultative Meeting to Review and Standardize Current Guidelines and Practices, March 13-15 at the Sheraton Hotel, Abuja, Nigeria. New York: EngenderHealth/Fistula Care; 2013.
International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022.

Conservative management: Minimally invasive techniques

The use of non-surgical techniques as sole treatment options have been described in many studies. They include Transvaginal injection of fibrin sealant, Nd:YAG laser welding, Cystoscopic electrofulguration followed by fibrin sealant, Endo-vaginal cyanoacrylate glue, Platelet Rich Plasma with or without fibrin glue, Curettage of fistula tract and Rubber/ metal ball placement. The reported success rates were high (67-100%), but most fistula were small (<1cm) (Cardozo 2023).

Fulguration, plugs and glue

For VVFs a few millimeters in diameter, fulguration may be useful. In fistulas less than 3.5 mm, Stovsky and colleagues reported success with fulguration as the sole treatment modality in 9 of 12 patients (75%) and as an alternative intervention after failure of an open surgical repair in 2 of 3 (66%). Fulguration is followed by decompression of the bladder with a Foley catheter for 2 weeks and anticholinergic medications (Stovsky 1994).

Small VVFs may also be managed with fibrin therapy (Dangal 2014, Rutman 2008).

For small rectovaginal fistulas with minimal fibrosis endoanal plugs may be an option. These alternative procedures should however be performed at fistula centers by an experienced fistula surgeon (Dangal 2014).

Cardozo L, Rovner E, Wagg A, Wein A, Abrams P. Incontinence: 7th International Consultation on Incontinence. ICUD ICS, 2023. 7th ed.
Dangal G, Thapa K, Yangzom K, Karki A. Obstetric Fistula in the Developing World: An Agonising Tragedy. Nepal Journal of Obstetrics and Gynaecology. 2014;8(2):5-15.
Rutman MP, Rodríguez LV, Raz S. Chapter 81 - VESICOVAGINAL FISTULA: VAGINAL APPROACH. In: Rodríguez SRV, ed. Female Urology (Third Edition). Philadelphia: W.B. Saunders; 2008:794-801.
Stovsky MD, Ignatoff JM, Blum MD, Nanninga JB, O'Conor VJ, Kursh ED. Use of electrocoagulation in the treatment of vesicovaginal fistulas. J Urol. 1994 Nov;152(5 Pt 1):1443-4.

Holistic care to treat associated conditions/co-morbidities (1)

As observed in Module I, many other organ systems are affected beyond the urogenital or gastro-genital, and a holistic care approach that addresses the fistula and associated health problems, as well as the emotional and economic well-being of the patient, is therefore recommended in fistula treatment.

Treatment for malnutrition

With poverty a common denominator, many fistula patients are malnourished. The initial comprehensive assessment could have identified short stature, as a result of stunting in childhood due to undernutrition, with consequent poor pelvic development, leading to an increased risk of cephalo-pelvic disproportion and obstructed labour.

Malnutrition can also be exacerbated by worsening poverty due to indisposition and subsequent loss of livelihoods, social isolation and depression often experienced by women with fistula.

Chronic malnutrition may not only increase the risk of developing an obstetric fistula through the lifecycle, it can also impede good postoperative healing and recovery following surgical repair. (FIGO 2022)

Pregestational over-nutrition and obesity on the other hand, can be a precursor to gestational diabetes mellitus and macrosomia leading to cephalopelvic disproportion and obstructed labour. While over-nutrition is of less concern in LMICs, it is important to recognize the emerging epidemiological shift in these countries. A higher risk for macrosomia has also been associated with gestational weight gain amongst underweight than normal- and overweight women (Goldstein 2017).

Goldstein RF, Abell SK, Ranasinha S, Misso M, Boyle JA, Black MH, Li N, Hu G, Corrado F, Rode L, Kim YJ, Haugen M, Song WO, Kim MH, Bogaerts A, Devlieger R, Chung JH, Teede HJ. Association of Gestational Weight Gain With Maternal and Infant Outcomes: A Systematic Review and Meta-analysis. JAMA. 2017 Jun 6;317(21):2207-2225.

International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022.

Holistic care to treat associated conditions/co-morbidities (2)

Treatment for malnutrition cont'd.

Moderate or severe malnutrition, if present should be managed as per existing protocols as well as nutrition-related conditions such as anaemia. Post-operative healing is also depended upon good nutritional status. A lower mortality rate and a higher fistula closure rate were reported in patients who received 1,500–2,000 calories per day compared with those who received <1,000 calories per day (Cardozo 2023).

For the undernourished patient, a high-protein, high-calorie diet that is rich in vitamins, and iron supplements if necessary, should be provided until a desirable weight target is achieved preoperatively and maintained postoperatively through the recovery period (FIGO 2022).

Physiotherapy

Physiotherapy is key in managing several obstetric-fistula related co-morbid conditions including foot drop, muscle contractures and weakness, neurological damage, chronic pain, small bladder capacity, pelvic floor weakness and ongoing incontinence after surgery.

Prolonged obstructed labour can lead to peroneal nerve injury caused by compression to the lumbosacral plexus, in particular the L4–5 and S1 roots, which may result in leg muscle weakness, loss of sensation and footdrop. It is important to remember this especially in the context of spinal anaesthesia for the intra-operative management of anesthesia.

Physiotherapy can significantly improve the quality of life of fistula patients. Individualized physiotherapy program should therefore be part of the multi-disciplinary approach to OF care.

Cardozo L, Rovner E, Wagg A, Wein A, Abrams P. Incontinence: 7th International Consultation on Incontinence. ICUD ICS, 2023. 7th ed.
International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022.

Holistic care to treat associated conditions/co-morbidities (3)

Psychological care and support

Due to the trauma of developing and living with an obstetric fistula, as well as having delivered a stillborn baby in many cases, a substantial number of patients require extensive psychological care and support.

While OF is considered a non-communicable disease, this is compounded by the psychological effect on OF patients. This is important because the burden of mental ill-health issues is on the rise, and settings in which OF occurs are often those where mental health issues are likely to be stigmatized or neglected, or mental healthcare is generally inaccessible.

Despite this gap, it is recommended that counselling should begin from the patient's first point of contact with health professionals as seen in the immediate care, and should continue throughout their hospital stay and, if needed, beyond. Psychological care should include helping the patient prepare for her future, beyond the hospital and adapting back into a positive and fulfilling life in her community. (FIGO 2022)

The greatest distress and frustration appears to result from the disintegration of the social support system around the woman due to isolation by those around her or self-isolation by the woman herself due to avoidance of social settings. As a result, some women have been reported to have attempted suicide while living with fistula (Nielsen 2009). Group therapy has been shown to have a significant therapeutic effect and the strong social connections developed as a result can greatly contribute to patients' well-being and Rehabilitation (FIGO 2022).

International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022.

Nielsen H, Lindberg L, Nygaard U, Aytenfisu H, Johnston O, Sørensen B, Rudnicki M, Crangle M, Lawson R, Duffy S. A community-based long-term follow up of women undergoing obstetric fistula repair in rural Ethiopia. BJOG: An International Journal of Obstetrics & Gynaecology. 2009;116(9):1258-64.

Holistic care to treat associated conditions/co-morbidities (4)

Psychological care and support cont'd.

At an MSF Fistula Treatment Center in Burundi for example, a social worker assesses the psychosocial impact of fistula on the woman on admission, and individual and group counselling was offered. Peer support activities such as singing were useful in restoring self-esteem (Tayler-Smith 2013).

Overall, closure of the fistula in itself alone has been shown to markedly improve mental health scores in those injured even despite the lack of any formal psychological or psychiatric input (Browning 2007).

Therefore, special enhanced psychological help and hygiene support are essential for the most vulnerable patients, including those who are left with some degree of ongoing incontinence and those with injuries that are deemed incurable. It is vital to help such severely affected patients understand, manage and adapt to their situation while in hospital and after discharge (FIGO 2022).

Education and income-generating activities

Given the economic impact on the woman who has suffered from obstetric fistula, optional, economic empowerment through practical skills development, can be crucial for overcoming economic hardship, as well as for developing a sense of well-being and social inclusion. Timing of initiation is usually postoperative, but for patients likely to need a long hospital stay, this can be integrated in the preoperative plan (FIGO 2022).

Browning A, Fentahun W, Goh J. 2007. "The Impact of Surgical Treatment on the Mental Health of Women with Obstetric Fistula." BJOG 114 (11): 1439–41
International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022.
Tayler-Smith K, Zachariah R, Manzi M, Boogaard W van den, Vandeborne A, Bishinga A, Plecker ED, Lambert V, Christiaens B, Sinabajije G, Trelles M, Goetghebuer S, Reid T, Harries A. Obstetric Fistula in Burundi: a comprehensive approach to managing women with this neglected disease. BMC Pregnancy and Childbirth. 2013 Aug 21;13(1):164.

Holistic care to treat associated conditions/co-morbidities (5)

Other considerations

In the holistic approach, it is important to consider all other co-morbidities associated with obstetric fistula, in the obstructed labour complex- **Table 1.1: The obstructed labour injury complex, Module I.**

These include long-term conditions such amenorrhoea and secondary infertility, and should be part of the follow-up plan.

Surgical management: General principles (1)

Timing of repair

Traditionally, fistulas were given about 3-6 months to mature before repair was undertaken. However, the psychosocial consequences accompanying fistula may not warrant this waiting period. Many surgeons have subsequently performed early repairs and reported excellent results (Rutman 2008, Sung 2007).

For example, of a total 1716 patients presenting with obstetric fistula between 3-75 days of injury, Waaldijik (2004) reported a 98.5% closure with early management: 1633 (95. 2%) through first attempt and 57 (3.3%) through repeat attempt(s). Of those with closed fistula, 1575 (93.2%) were continent while 115 (6.8%) were incontinent.

However, there is no consensus in the literature about what is considered an ‘early’ repair. Whilst some studies have defined early surgical intervention as ‘immediate’, less than two weeks’ or ‘less than 30 days’, most authors defined it as either less than 6 weeks or less than 3 months (Cardozo 2023).

Timing is also influenced by other co-morbid conditions such as malnutrition, helminthic infections, schistosomiasis, lymphogranuloma, tuberculosis, bladder stones and other infections that may require urgent attention before repair. Footdrop and hip contractures may mean prolonged physiotherapy before eventual repair (Creanga 2007).

Cardozo L, Rovner E, Wagg A, Wein A, Abrams P. Incontinence: 7th International Consultation on Incontinence. ICUD ICS, 2023. 7th ed.
Creanga AA, Genadry RR. Obstetric fistulas: a clinical review. Int J Gynaecol Obstet. 2007 Nov;99 Suppl 1:S40-6.
Rutman MP, Rodríguez LV, Raz S. Chapter 81 - VESICOVAGINAL FISTULA: VAGINAL APPROACH. In: Rodríguez SRV, ed. Female Urology (Third Edition). Philadelphia: W.B. Saunders; 2008:794-801.
Sung VW, Wohlrab KJ. Chapter 26 - Urinary Tract Injury and Genital Tract Fistulas. In: Sokol AISR, ed. General Gynecology. Philadelphia: Mosby; 2007:639-61.
Waaldijk K. The immediate management of fresh obstetric fistulas. Am J Obstet Gynecol. 2004 Sep;191(3):795-9.

Surgical management: General principles (2)

Timing of repair cont'd.

Timing should therefore be individualized, considering the following factors:

- ❑ No evidence of infection (systemic and local);
- ❑ No induration or inflammation;
- ❑ Mature fistula tract;
- ❑ Good tissue quality;
- ❑ Good nutritional status.

Fortnightly assessments should be made to inform when the timing is appropriate (Sung 2007).

Creanga AA, Genadry RR. Obstetric fistulas: a clinical review. Int J Gynaecol Obstet. 2007 Nov;99 Suppl 1:S40-6.
Sung VW, Wohlrab KJ. Chapter 26 - Urinary Tract Injury and Genital Tract Fistulas. In: Sokol AISR, ed. General Gynecology. Philadelphia: Mosby; 2007:639-61.

Surgical management: General principles (3)

The route of repair

The location of the fistula dictates its surgical approach. Juxta-urethral and mid-vaginal fistulas are repaired vaginally, whereas juxta-cervical fistulas are repaired vaginally or transabdominally (Rutman 2008).

The surgeon's own experience and the extent of injury are also important determinants of the route that is chosen. However, most vesico-vaginal fistulas are repaired vaginally. Advantages of the vaginal approach include less bladder dissection and blood loss, less postoperative pain, reduced hospital stay and improved patient satisfaction (Creanga 2007, Rutman 2008, Sung 2007).

In certain cases, a combined approach is decided preoperatively or during the procedure. A patient with a complex fistula should be always prepared and draped to allow a double access (Rochat 2011).

The abdominal approach gives the surgeon the ability to perform simultaneous procedures including augmentation cystoplasty, ureteral reimplantation, and repair of bowel fistulas (Rutman 2008, Sung 2007). A tubal ligation or tubectomy can also be performed in the same operation for women who no longer wish to be pregnant (FIGO 2022).

Creanga AA, Genadry RR. Obstetric fistulas: a clinical review. Int J Gynaecol Obstet. 2007 Nov;99 Suppl 1:S40-6.
International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022.
Rochat C-H, Gueye SM, Colas JM, Dumurgier C, Falandry L, Blanchot J, Eglin G, Tebeu PM. Fistules vésicovaginales et fistules obstétricales. EMC (Elsevier Masson SAS Paris), Techniques chirurgicales. Urologie. 2011 Jan 1:41-175.
Rutman MP, Rodríguez LV, Raz S. Chapter 81 - VESICOVAGINAL FISTULA: VAGINAL APPROACH. In: Rodríguez SRV, ed. Female Urology (Third Edition). Philadelphia: W.B. Saunders; 2008:794-801.
Sung VW, Wohlrab KJ. Chapter 26 - Urinary Tract Injury and Genital Tract Fistulas. In: Sokol AISR, ed. General Gynecology. Philadelphia: Mosby; 2007:639-61.

Surgical management: General principles (4)

The operative position

The most commonly used position for the vaginal route is the exaggerated lithotomy position with shoulder supports for comfort and to help prevent the woman from sliding from the table. The operating table should be tilted in the steep Trendelenburg position for better visibility. The woman's legs should be placed outside the lithotomy poles or padded supports, and supported in the stirrups of the poles, with a small pillow placed under her head (De Bernis 2007, Rutman 2008). The woman's buttocks should be considerably over the edge of the operating table (FIGO 2022).

Preventing infection

Many fistula surgeons use prophylactic antibiotics (single dose preop), or use them empirically, and the choice depends on local availability and clinician's judgment. However, the most common choice is an aminoglycoside. The benefit of prophylaxis in fistula repair has always been a gray area, with some surgeons not using antibiotics at all but with good results, and with few studies available to answer the concerns (Arrowsmith 2010).

In one randomized controlled study in Benin, there was no significant difference between one group that received a single dose of intravenous ampicillin before VVF repair and one group that did not in terms of operative failure. Even though there was reduced use of other antibiotics and urinary tract infections in the intervention group, the sample size in this study was small (n=79) and other studies have disputed the benefit of preoperative prophylaxis in post-operative urinary infection (Tomlinson 1998).

Arrowsmith SD, Ruminjo J, Landry EG. Current practices in treatment of female genital fistula: a cross sectional study. BMC Pregnancy and Childbirth. 2010 Nov 10;10(1):73.
De Bernis L. Obstetric fistula: guiding principles for clinical management and programme development, a new WHO guideline. Int J Gynaecol Obstet. 2007 Nov;99 Suppl 1:S117-21.
International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022.
Rutman MP, Rodríguez LV, Raz S. Chapter 81 - VESICOVAGINAL FISTULA: VAGINAL APPROACH. In: Rodríguez SRV, ed. Female Urology (Third Edition). Philadelphia: W.B. Saunders; 2008:794-801.
Tomlinson AJ, Thornton JG. A randomised controlled trial of antibiotic prophylaxis for vesico-vaginal fistula repair. Br J Obstet Gynaecol. 1998 Apr;105(4):397-9.

Surgical management: General principles (5)

Preventing infection cont'd.

In a larger, randomized controlled trial, there was no significant difference between the group that received a single dose of intravenous gentamycin (80 mg IV) before VVF repair and the group receiving extended use of either or a combination of Amoxicillin, Chloramphenicol and Cotrimexazole. Fistula closure (primary outcome) was not significantly different between the groups as well as hospital stay, proportion of women with fever, post repair infection and post operative stress incontinence (Muleta 2010).

Despite this paucity of data, some authors argue that a large, complex trial testing the benefit of prophylaxis before fistula repair would be a waste of resources, since research examining the use of antibiotics with "contaminated" wounds and other types of pelvic surgery already exists (Arrowsmith 2010).

However, strict asepsis should be ensured by using antiseptic wash, sterile drapes and employing an aseptic technique (De Bernis 2007, Rutman 2008).

Arrowsmith SD, Ruminjo J, Landry EG. Current practices in treatment of female genital fistula: a cross sectional study. BMC Pregnancy and Childbirth. 2010 Nov 10;10(1):73.

De Bernis L. Obstetric fistula: guiding principles for clinical management and programme development, a new WHO guideline. Int J Gynaecol Obstet. 2007 Nov;99 Suppl 1:S117-21.

Muleta M, Tafesse B, Aytenfisu H-G. Antibiotic use in obstetric fistula repair: single blinded randomized clinical trial. Ethiop Med J. 2010 Jul;48(3):211-7.

Rutman MP, Rodríguez LV, Raz S. Chapter 81 - VESICOVAGINAL FISTULA: VAGINAL APPROACH. In: Rodríguez SRV, ed. Female Urology (Third Edition). Philadelphia: W.B. Saunders; 2008:794-801.

Surgical management: General principles (6)

Once a decision to operate has been made, it is good practice for the surgeon to work within the limits of his/her skills, leaving cases beyond his/her grasp to more experienced fistula experts. This is because the first attempt at repair offers the best chance for success. This is the importance of a grading system, as earlier explained.

Preoperative evaluation includes identification of patients with coexisting stress urinary incontinence. Simultaneous sling procedure or bladder neck suspension can be performed, avoiding the need for a second procedure. Concomitant repair for stress incontinence does not increase the fistula recurrence rate. (De Bernis 2007)

Consent signed by the patient should be sought and recorded if she agrees to surgical management.

Preoperative management

- **The timing of washing and shaving of the perineum:** Timing of shaving may vary from one center to another sometimes being carried out just before the operation, or in some centers by the nursing staff before the patient is wheeled to theatre. The shaving of the surgical site should therefore be done according to local protocols and preference of the surgeon.

- **Bowel preparation before the operation:** While some surgeons do not use enemas before operations for simple VVF repair, the majority do, as spinal anesthesia relaxes the anal sphincter with resultant soiling of the operative field. Bowel preparation is recommended for the repair of RVF. Usually, this consists of fluid diet and enemas morning and evening on the day before surgery. (De Bernis 2007, FIGO 2022).

De Bernis L. Obstetric fistula: guiding principles for clinical management and programme development, a new WHO guideline. Int J Gynaecol Obstet. 2007 Nov;99 Suppl 1:S117-21.
International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022.

Surgical management: General principles (7)

Preoperative management cont'd.

- Some surgeons prefer the women to be 'nil by mouth' from midnight before the operation but others encourage a high fluid intake before surgery for those women who will be having their fistula repaired under spinal anesthesia.

- The optional use of preoperative sedation such as 10 mg midazolam or 100 mg phenobarbitone the night before and just prior to her surgery.

- A preoperative anesthetic check.

- An anthelmintic such as mebendazole should be offered to all patients.

De Bernis L. Obstetric fistula: guiding principles for clinical management and programme development, a new WHO guideline. Int J Gynaecol Obstet. 2007 Nov;99 Suppl 1:S117-21.
International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022.

Surgical management of vesico-vaginal fistula- General principles (1)

Vaginal approach

In general, excellent exposure with watertight, tension-free closure using multiple, non-overlapping suture lines provide an approximately 90% chance of cure on the first attempt (Rutman 2008).

The bladder should be drained continuously with a size 16-18 catheter. Larger sizes may cause urethral irritation and smaller sizes may be by-passed if urine output is high. The catheter should be held firmly but gently in place by tape on the thigh or sutures at the introitus to keep it in place and to avoid pulling on the repair site (De Bernis 2007, Rochat 2011).

The ureters should be protected. The bladder should be mobilized to enable tension-free closure and wide enough dissection of the bladder and vagina. The bladder and vagina should be closed separately, excluding the mucosa and inverting the bladder (De Bernis 2007).

Excision of fistulous tract is not necessary. Once thought to improve outcome, excellent results have been achieved without excision. Moreover, excision enlarges the tract, encourages bleeding and hemostatic techniques may be counter-productive to healing, and may cause ureteric damage if close (Rutman 2008).

De Bernis L. Obstetric fistula: guiding principles for clinical management and programme development, a new WHO guideline. Int J Gynaecol Obstet. 2007 Nov;99 Suppl 1:S117-21.
Rochat C-H, Gueye SM, Colas JM, Dumurgier C, Falandry L, Blanchot J, Eglin G, Tebeu PM. Fistules vésicovaginales et fistules obstétricales. EMC (Elsevier Masson SAS Paris), Techniques chirurgicales. Urologie. 2011 Jan 1:41-175.
Rutman MP, Rodríguez LV, Raz S. Chapter 81 - VESICOVAGINAL FISTULA: VAGINAL APPROACH. In: Rodríguez SRV, ed. Female Urology (Third Edition). Philadelphia: W.B. Saunders; 2008:794-801.

Surgical management of vesico-vaginal fistula- General principles (2)

Vaginal approach cont'd.

In the majority of the cases, one-layer closure for the bladder is used but some surgeons use a two-layered closure. The vaginal skin/ epithelia can be opposed either by minimal suturing to allow for drainage or closed more formally, but in either case haemostasis should be obtained (De Bernis 2007, Rutman 2008).

An interpositional graft is supposed to optimize the chance of cure if the integrity of the repair is in question. The Martius flap is used in vaginal repairs while the omentum is used in abdominal repairs (Rutman 2008, Sung 2007). Nevertheless, the recent tendency is to have very selected indication in the use of the Martius flap (Browning 2006).

It is also important to consider the sexual function of the patient and ensure preservation of vaginal depth in the sexually active patient. This can require cutaneous rotational flaps in patients with large fistulas and vaginal stenosis (Rutman 2008).

Browning A., Lack of value of the Martius fibrofatty graft in obstetric fistula repair. Int J Gynecol Obstet 2006;93:33-7
De Bernis L. Obstetric fistula: guiding principles for clinical management and programme development, a new WHO guideline. Int J Gynaecol Obstet. 2007 Nov;99 Suppl 1:S117-21.
Rutman MP, Rodríguez LV, Raz S. Chapter 81 - VESICOVAGINAL FISTULA: VAGINAL APPROACH. In: Rodríguez SRV, ed. Female Urology (Third Edition). Philadelphia: W.B. Saunders; 2008:794-801.
Sung VW, Wohlrab KJ. Chapter 26 - Urinary Tract Injury and Genital Tract Fistulas. In: Sokol AISR, ed. General Gynecology. Philadelphia: Mosby; 2007:639-61.

Surgical management of vesico-vaginal fistula- General principles (3)

Abdominal Approach

This can be intra- or extra-peritoneal. The intra-peritoneal approach is preferred because it gives a larger access and the uterus can be easily mobilized in order to better expose the bladder. The omentum can be mobilized if an interpositional flap is needed, and of course the ureters can be exposed.

Women who do not wish to be pregnant again should be asked about tubal ligation or tubectomy (also reduces the chance of ovarian carcinoma) so this can be done in the same operation (FIGO 2022).

Indications for this approach include:

- High fistulae that are fixed in the vault and are inaccessible through the vagina, usually following hysterectomy in nulliparous women, in endometriosis, or in those who have not delivered vaginally.
- When there is a need for simultaneous augmentation cystoplasty.
- In cases of a ureteric injury requiring reimplantation or simultaneous VVF and ureterovaginal fistula. (Cardozo 2023)

Browning A., Lack of value of the Martius fibrofatty graft in obstetric fistula repair. Int J Gynecol Obstet 2006;93:33-7
Cardozo L, Rovner E, Wagg A, Wein A, Abrams P. Incontinence: 7th International Consultation on Incontinence. ICUD ICS, 2023. 7th ed.
International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022.
Rutman MP, Rodríguez LV, Raz S. Chapter 81 - VESICOVAGINAL FISTULA: VAGINAL APPROACH. In: Rodríguez SRV, ed. Female Urology (Third Edition). Philadelphia: W.B. Saunders; 2008:794-801.
Sung VW, Wohlrab KJ. Chapter 26 - Urinary Tract Injury and Genital Tract Fistulas. In: Sokol AISR, ed. General Gynecology. Philadelphia: Mosby; 2007:639-61.

Basic surgical principles for a simple vesico-vaginal fistula repair (1)

The following are the basic surgical principles for the repair of a simple vesicovaginal fistula which if followed by a trained, skilled fistula surgeon should result in the successful repair of most simple fistulas.

1. Administer anaesthetic, as appropriate.
2. Administer suitable antibiotics, according to availability and preference of the surgeon, commonly given immediately preoperatively, at the same time as the anaesthetic.
3. Position the patient in the exaggerated lithotomy position with her buttocks considerably over the edge of the operating table and in a steep Trendelenburg position.
4. After preparing and draping, properly expose and delineate the fistula before proceeding with surgery.
5. Some surgeons carry out hydrodissection either with sterile saline or a mix of lignocaine and adrenaline, which if properly done will open the planes for easier dissection and reduces blood loss if adrenaline is used. It is important to infiltrate in the right plane.
6. Identify the ureters and, if lying close to the fistula margin, catheterise with ureteric catheter(s) to protect them from direct injury or ligation/inclusion within the suture.
7. Make an incision around the fistula through the vaginal epithelia and extend the incision laterally from each angle. Then, mobilise the bladder from the vagina, cervix and lateral pelvic wall. The mobility should be wide enough to ensure a tension-free closure.
8. Secure the angles of the fistula just laterally to each margin. Take adequate interrupted bites of the muscularis, ensuring that they are strong and that their size does not decrease the size of the bladder. The suturing of the muscularis will invert the bladder epithelia into the bladder lumen. A 2-0 polyglycolic acid suture is most commonly used.

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Basic surgical principles for a simple vesico-vaginal fistula repair (2)

10. Insert a Foley catheter if it has not already been inserted and inflate the catheter balloon with 5 mL sterile fluid. Perform a routine dye test after repair to confirm successful closure and exclude any additional fistulas. Leave the Foley catheter in situ to keep the bladder on free drainage.
11. Execute tension-free closure of the vagina, avoiding pulling on the urethral meatus. Usually, a 2-0 polyglycolic acid suture is used.
12. Insert a sterile vaginal pack (usually a gauze soaked in iodine or petroleum jelly) to reduce the risk of bleeding and haematoma formation and remove it the next day. The pack should not stick and should be firm enough to reduce bleeding, but not too firm to cause pain or tissue damage.

Complications

- Accidental injury to the ureter and bladder during dissection.
- Ligation or inclusion of the ureter in the suture line may lead to ureteric obstruction.
- Formation of haematoma if haemostasis is not properly secured, which may result in infection and even breakdown of the repair.
- Accidentally missing unidentified fistulas may leave the patient incontinent. This can be avoided with routine and careful dye tests.
- Rarely urethral incontinence may occur, and this may require further reconstructive procedures.

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Surgical management of recto-vaginal fistula (RVF) - basic principles

The principles of repair of a RVF are similar to those given for VVF except:

- The operating table should be slightly less tilted to ensure the rectovaginal fistula is in the operative field.
- After preparing and draping, the anal sphincter should be examined and its integrity assessed.
- Care should be taken not to cause an inadvertent stricture of the rectum, usually by repairing the fistula transversely.
- Preoperative bowel preparation should be more thorough than for VVF alone. This can be achieved by the use of enemas.
- A temporary colostomy may be required for large, high or severely scarred RVF.
- A previously failed repair may also require a colostomy.
- In the opinion of many surgeons, RVF repair requires prophylactic antibiotic coverage to prevent intra-operative infection, although no case-control studies have been undertaken to evaluate this. This should include 500 mg metronidazole intravenously.
- Postoperative women who have had an RVF repair that has not required a colostomy, should remain on a fluids-only diet for the first two days and then a low-residual diet but with a high fluid intake for a few more days. (De Bernis 2007, FIGO 2022)

Complications

- Accidental injury to the rectum and vagina during dissection.
- A concurrent high rectovaginal fistula may be missed. If in doubt, a rectal dye test should always be done in theatre. If bubbles of gas are seen coming into the vagina at operation, the presence of a high rectovaginal fistula is likely (FIGO 2022).

De Bernis L. Obstetric fistula: guiding principles for clinical management and programme development, a new WHO guideline. Int J Gynaecol Obstet. 2007 Nov;99 Suppl 1:S117-21.
International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022.

Surgical management of combined fistulas - basic principles

Combined vesico- and recto-vaginal fistula should be repaired at the same time, usually commencing with the vesico-vaginal fistula, but circumstances and common sense should determine the most practical approach.

De Bernis L. Obstetric fistula: guiding principles for clinical management and programme development, a new WHO guideline. Int J Gynaecol Obstet. 2007 Nov;99 Suppl 1:S117-21.

Post-operative care (1)

The immediate postoperative period

- The vital signs (blood pressure, pulse and temperature) should be regularly observed and recorded as per the unit protocol and continued into subsequent postoperative period as indicated.
- The woman should be observed for excessive blood loss both vaginally and through the catheter.
- Ensure that the bladder catheter is draining correctly and that connecting tubes are not twisted, kinked or compressed.
- Intravenous fluids should be given until fluids can be taken orally as per the unit protocol. Give sufficient hydration to ensure that the urine is always completely clear.
- The fluid balance should be regularly monitored, including both fluid input and output.
- The woman should be kept comfortable with adequate analgesia and antiemetic as required. The use of narcotics should be avoided in RVF patients as they cause constipation.
- Monitor and record any signs of urinary or faecal incontinence.
- The woman should be mobilized as soon as possible if she has had a simple repair, from the first postoperative day.
- Vulval toilet (lightly splash with clean water and pat dry) should be done 8-hourly, and as required.

Subsequent postoperative management:

- Fluid intake: The woman should be encouraged to maintain a high oral-fluid intake level to enable her to produce two to three litres of urine per 24 hours.
- The vaginal pack, if used, should be removed within 24 to 72 hours, according to the local protocol/ surgeon preference and daily vulval toilet started.

De Bernis L. Obstetric fistula: guiding principles for clinical management and programme development, a new WHO guideline. Int J Gynaecol Obstet. 2007 Nov;99 Suppl 1:S117-21.
International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022.

Post-operative care (2)

Catheter drainage: The duration that an indwelling catheter is retained postoperatively, to a good extent, determines the length of hospital stay. This duration has traditionally varied from one surgeon to the other, determined by the local protocol or the type of fistula. In a cross-sectional study, fistula surgeons reported to retain the indwelling catheter for 12 days on average (a minimum of five days to 21 days) for a "simple" fistula, while for a “difficult” fistula, the average was 21 days but could go as long as 42 days (Arrowsmith 2010).

However, a multicenter randomized controlled trial established that there is no significant difference in fistula repair breakdown between 8 days and 3 months, the trial's primary endpoint, between 7-day and 14-day bladder catheterization groups (ten [4%] of 250 patients in the 7 day group had repair breakdown vs eight [3%] of 251 in the 14 day group). There were also no significant differences in urinary retention after catheter removal, infections and febrile episodes potentially related to treatment, catheter blockage, extended hospital stay and residual incontinence at 3 months (Barone 2015). The importance of this finding is the possible reduction in hospital stay and associated costs and therefore, potential to serve more patients. Plus, on the patient’s side, it decreases the time of discomfort due to catheterization.

The recommendations according to FIGO is to leave the catheter in place and on free drainage for **10 to 14 days if the woman has had a vesicovaginal fistula or combined fistula repair. Following a rectovaginal fistula repair alone, then the catheter can be removed when the woman is mobile, usually the next day** (FIGO 2022).

Arrowsmith SD, Ruminjo J, Landry EG. Current practices in treatment of female genital fistula: a cross sectional study. BMC Pregnancy and Childbirth. 2010 Nov 10;10(1):73.
Barone MA, Widmer M, Arrowsmith S, Ruminjo J, Seuc A, Landry E, Barry TH, Danladi D, Djangnikpo L, Gbawuru-Mansaray T, Harou I, Lewis A, Muleta M, Nembunzu D, Olupot R, Sunday-Adeoye I, Wakasiaka WK, Landoulsi S, Delamou A, Were L, Frajzyngier V, Beattie K, Gülmezoglu AM. Breakdown of simple female genital fistula repair after 7 day versus 14 day postoperative bladder catheterisation: a randomised, controlled, open-label, non-inferiority trial. The Lancet. 2015 Apr.
International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022.

Post-operative care (3)

Diet: The woman can take a normal diet following a VVF repair. She should be encouraged to take sufficient fluids to ensure that her urine is clear. Daily check should be done to ensure that she is 'dry (dry bed), drinking (of enough water) and draining (of urine through the Foley catheter)'.

Following an RVF surgery, it is of utmost importance that the woman does not develop constipation. Any straining during defaecation can damage the healing tissues and cause a breakdown of the repair. Following a RVF repair, the patient should be hydrated intravenously until able to drink normally. A light diet can be started the next day and continued for 6 to 7 days, and then reintroduction of a normal diet. To prevent constipation, a laxative (bisacodyl) should be prescribed on the commencement of the light diet and be continued for about 1 week. The laxative should be stopped if the stool becomes too fluid. (FIGO 2022)

Assessment of surgical outcomes:

Meticulously assess repair outcomes as per standardised protocol based on evidence and best practices of expert fistula surgeons. This is a vital component of postoperative care to ensure correct and timely diagnosis as well as appropriate, high-quality treatment for those with ongoing challenges or failed repair. Careful documentation should be done, and time of assessment documented. The outcomes can be classified as:

- **closed and dry:** fistula closed and patient continent
- **closed and wet:** fistula closed and patient incontinent, and
- **open:** fistula not closed and patient incontinent (FIGO 2022, USAID n.d.).

Other aspects of fistula repair outcomes that should be documented are sexual function and social reintegration of the patient (Cardozo 2023).

Cardozo L, Rovner E, Wagg A, Wein A, Abrams P. Incontinence: 7th International Consultation on Incontinence. ICUD ICS, 2023. 7th ed.
International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022.
USAID Data for Impact. Obstetric fistula. United States Agency for International Development (USAID), no date [cited 2024 Oct 07].

Post-operative care (4)

Other considerations:

Many surgeons use open-drainage and it is important to ensure that neither the drainage tube or urinary catheter become kinked, and that the drainage receptacle is always at a lower level than the bladder (De Bernis 2011).

The woman should be encouraged to be mobile as soon as possible, depending on the type of repair she has received. Women who have had a simple repair can start to be mobilized within a day of operation; those who have undergone complicated fistula repairs, e.g. those requiring a ureteric re-implantation, will need bed rest for up to seven days after surgery depending on the type of operation and the surgeon's own preference (De Bernis 2011).

Bucket baths or showers should be encouraged once the woman is mobile to keep the vulvoanal area clean and dry (FIGO 2022).

Relevant physiotherapy exercises should be started the day after the operation. A physiotherapy and education program has been demonstrated to be integral in improving residual incontinence after surgery, and may also be important in closure of small residual fistulas when combined with proper nutrition (Castille 2015).

Any non-absorbable sutures should be removed when the tissues are healed. The woman should be observed for possible anemia and, if necessary, have a post-operative hemoglobin check (De Bernis 2011).

Castille YJ, Avocetien C, Zaongo D, Colas JM, Peabody JO, Rochat CH. One-year follow-up of women who participated in a physiotherapy and health education program before and after obstetric fistula surgery. Int J Gynaecol Obstet. 2015;128(3):264-6.
De Bernis L. Obstetric fistula: guiding principles for clinical management and programme development, a new WHO guideline. Int J Gynaecol Obstet. 2007 Nov;99 Suppl 1:S117-21.
International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022.

Module 3 knowledge tests

Answer 'True' or 'False'

1 All fistula patients should benefit from surgery.

2 Counselling for the patient who can benefit from conservative management via bladder catheterization is not required.

3 In conservative management of VVF via bladder catheterization, return to normal bladder function is an ideal outcome measure.

4 Timing of fistula repair should be adapted to each individual patient and should be planned as soon as possible.

5 There is sufficient evidence regarding administration and choice of prophylactic antibiotics as a preoperative procedure in fistula repair.

6 The first VVF repair increases the chance of success.

7 Enemas are recommended a night before for rectovaginal fistula repair and not for vesico-vaginal fistulas.

8 The vaginal route of fistula repair is always ideal in all fistulas.

9 Fistula repair should be achieved through a tension-free but overlapping sutures.

10 Evidence shows that shorter duration of catheterization for 7 days post-operatively after VVF repair is non-inferior to catheterization for 14 days.

Answers to Module 3 knowledge tests

Question 1

All fistula patients should benefit from surgery.

Answer: False

It is estimated that about 11-25% of some carefully-selected patients with VVF may benefit from conservative management with early bladder catheterization, by-passing the need for surgery. These women are likely to have small VVFs, and presenting within four weeks of initial injury. Even where conservative management has failed, it is hoped that it will have reduced the diameter of the fistula, thereby making a successful surgical repair more likely subsequently.

Question 2

Counselling for the patient who can benefit from conservative management via bladder catheterization is not required.

Answer: False

Besides being a management pathway for any brain health issues as elucidated before, counselling is necessary for consent, as well as the understanding that the success of conservative management comes with the patient adhering to certain instructions. The patient should remain in hospital during this time and should be encouraged to drink sufficient fluids to ensure her urine is clear at all times, and take sitz baths twice daily to clean the perineum and vagina.

Counselling should begin from the patient's first point of contact with health professionals, and should continue throughout their hospital stay and, if needed, beyond.

Answers to Module 3 knowledge tests

Question 3

In conservative management of VVF via bladder catheterization, return to normal bladder function is an ideal outcome measure

Answer: True

The Foley catheter is removed after 4–6 weeks. If the patient has no vaginal urinary leakage in the next 24 hours and is able to pass urine normally, conservative management is deemed successful and the vesicovaginal fistula has healed. A further 14 days of catheterization is instituted in the initially unsuccessful cases with same evaluation after 24 hours of removal.

Question 4

Timing of fistula repair should be adapted to each individual patient and should be planned as soon as possible.

Answer: True

Timing of repair is influenced by other co-morbid conditions such as malnutrition, helminthic infections, and hence should be individualized.

Question 5

There is sufficient evidence regarding administration and choice of prophylactic antibiotics as a preoperative procedure in fistula repair.

Answer: False

Suitable prophylactic antibiotics are administered, according to availability and preference of the surgeon, which in the case of RVF repair should include 500 mg metronidazole intravenously. These are usually given immediately preoperatively, at the same time as the anesthetic. However, despite paucity of data on prophylactic antibiotic use in fistula repair, strict asepsis should be ensured by using antiseptic wash, sterile drapes and employing an aseptic technique.

Answers to Module 3 knowledge tests

Question 6

The first VVF repair increases the chance of success.

Answer: True

Proportion of women who have had a successful first repair at each facility is a quality-of-care indicator. Ideally, the closure rate should be 85%, with continence achieved in 90% of women with a closed fistula (WHO, 2006).

it is imperative that only trained, skilled fistula surgeons provide fistula repairs, as the first attempt has the best chance of success. A surgeon who is new to VVF repair should definitely select cases with a favorable prognosis at first and refer those with a poorer prognosis to a more experienced colleague.

Question 7

Enemas are recommended a night before for rectovaginal fistula repair and not for vesico-vaginal fistulas.

Answer: False

Bowel preparation: some surgeons prefer the patient to have an enema preoperatively on the day of surgery. This is more common for rectovaginal fistula cases, but is optional for vesicovaginal fistula cases (according to the preference of the surgeon).

For all cases, the patient should always be asked to evacuate her bowel just before going to theatre.

Answers to Module 3 knowledge tests

Question 8

The vaginal route of fistula repair is always ideal in all fistulas.

Answer: False

Each route of repair, vaginal or abdominal has its advantages and disadvantages. For example, for a patient who desires tubal ligation, the abdominal approach would be most ideal. The surgeon's own experience and the extent of injury are also important determinants of the route of repair. However, most vesico-vaginal fistulas are repaired vaginally.

Question 9

Fistula repair should be achieved through a tension-free but overlapping sutures.

Answer: False

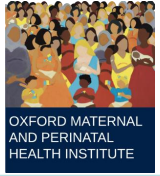
Using the vaginal route of repair, excellent exposure with watertight, tension-free closure using multiple, non-overlapping suture lines provide an approximately 90% chance of cure on the first attempt.

Question 10

Evidence shows that shorter duration of catheterization for 7 days post-operatively after VVF repair is non-inferior to catheterization for 14 day.

Answer: True

There has previously been no significant difference in fistula repair breakdown between 8 days and 3 months, between 7-day and 14-day bladder catheterization groups. However, FIGO recommends to leave the catheter in place and on free drainage for 10 to 14 days if the woman has had a vesicovaginal fistula or combined fistula repair. Following a rectovaginal fistula repair alone, then the catheter can be removed when the woman is mobile, usually the next day.



You have completed this module; you should now be able to:

- Identify and address immediate needs of a patient presenting with or likely to develop obstetric fistula
- Understand modalities of conservative management and which patients can benefit from them
- Understand the preoperative checklist for a fistula patient
- Understand the basic principles of surgical technique
- Understand the post-operative management of a fistula patient
- Analyze, challenge, critique or discuss the current evidence on any of the subtopics covered in the module, with the aim of improving research geared towards eradication of the problem.

References

- Arrowsmith SD, Ruminjo J, Landry EG. Current practices in treatment of female genital fistula: a cross sectional study. BMC Pregnancy and Childbirth. 2010 Nov 10;10(1):73. http://dx.doi.org/10.1186/1471-2393-10-73
- Barone MA, Widmer M, Arrowsmith S, Ruminjo J, Seuc A, Landry E, Barry TH, Danladi D, Djangnikpo L, Gbawuru-Mansaray T, Harou I, Lewis A, Muleta M, Nembunzu D, Olupot R, Sunday-Adeoye I, Wakasiaka WK, Landoulsi S, Delamou A, Were L, Frajzyngier V, Beattie K, Gülmezoglu AM. Breakdown of simple female genital fistula repair after 7 day versus 14 day postoperative bladder catheterisation: a randomised, controlled, open-label, non-inferiority trial. The Lancet. 2015 Apr. http://dx.doi.org/10.1016/S0140-6736(14)62337-0
- Bohren MA, Hunter EC, Munthe-Kaas HM, Souza JP, Vogel JP, Gülmezoglu AM. Facilitators and barriers to facility-based delivery in low- and middle-income countries: a qualitative evidence synthesis. Reproductive Health. 2014 Sep 19;11(1):71. http://dx.doi.org/10.1186/1742-4755-11-71
- Browning A, Lewis A, Whiteside S. Predicting women at risk for developing obstetric fistula: a fistula index? An observational study comparison of two cohorts. BJOG. 2014 Apr;121(5):604-9. http://dx.doi.org/10.1111/1471-0528.12527
- Cardozo L, Rovner E, Wagg A, Wein A, Abrams P. Incontinence: 7th International Consultation on Incontinence. ICUD ICS, 2023. 7th ed. Available from: https://www.ics.org/Publications/ICI_7/Incontinence-7th-Edition-15-03-2024.pdf
- Castille YJ, Avocetien C, Zaongo D, Colas JM, Peabody JO, Rochat CH. One-year follow-up of women who participated in a physiotherapy and health education program before and after obstetric fistula surgery. Int J Gynaecol Obstet. 2015;128(3):264-6. doi: 10.1016/j.ijgo.2014.09.028.
- Creanga AA, Genadry RR. Obstetric fistulas: a clinical review. Int J Gynaecol Obstet. 2007 Nov;99 Suppl 1:S40-6. http://dx.doi.org/10.1016/j.ijgo.2007.06.021
- Dangal G, Thapa K, Yangzom K, Karki A. Obstetric Fistula in the Developing World: An Agonising Tragedy. Nepal Journal of Obstetrics and Gynaecology. 2014;8(2):5-15. Available from: http://www.nepjol.info/index.php/NJOG/article/view/9759
- De Bernis L. Obstetric fistula: guiding principles for clinical management and programme development, a new WHO guideline. Int J Gynaecol Obstet. 2007 Nov;99 Suppl 1:S117-21. http://dx.doi.org/10.1016/j.ijgo.2007.06.032

References

- Fistula Care. Urinary Catheterization for Primary and Secondary Prevention of Obstetric Fistula: Report of a Consultative Meeting to Review and Standardize Current Guidelines and Practices, March 13-15 at the Sheraton Hotel, Abuja, Nigeria. New York: EngenderHealth/Fistula Care; 2013. Available from: http://www.fistulacare.org/pages/pdf/program-reports/Catheterization-Fistula-Prevention-Meeting-Report-Nigeria-8-21-13FINAL.pdf
- Goldstein RF, Abell SK, Ranasinha S, Misso M, Boyle JA, Black MH, Li N, Hu G, Corrado F, Rode L, Kim YJ, Haugen M, Song WO, Kim MH, Bogaerts A, Devlieger R, Chung JH, Teede HJ. Association of Gestational Weight Gain With Maternal and Infant Outcomes: A Systematic Review and Meta-analysis. JAMA. 2017 Jun 6;317(21):2207-25. http://dx.doi.org/10.1001/jama.2017.3635
- International Federation of Gynecology and Obstetrics. FIGO Fistula Surgery Training Manual: A standardised training curriculum and guide to current best practice. FIGO, 2022. Available from https://www.figo.org/sites/default/files/2022-10/AMA%20-%20Fistula%20Surgery%20Training%20Manual%20%20Full%20Final%20%20Covered-compressed.pdf
- Muleta M, Tafesse B, Aytenfisu H-G. Antibiotic use in obstetric fistula repair: single blinded randomized clinical trial. Ethiop Med J. 2010 Jul;48(3):211-7.
- Nielsen H, Lindberg L, Nygaard U, Aytenfisu H, Johnston O, Sørensen B, Rudnicki M, Crangle M, Lawson R, Duffy S. A community-based long-term follow up of women undergoing obstetric fistula repair in rural Ethiopia. BJOG: An International Journal of Obstetrics & Gynaecology. 2009;116(9):1258-64. http://dx.doi.org/10.1111/j.1471-0528.2009.02200.x
- Rochat C-H, Gueye SM, Colas JM, Dumurgier C, Falandry L, Blanchot J, Eglin G, Tebeu PM. Fistules vésicovaginales et fistules obstétricales. EMC (Elsevier Masson SAS Paris), Techniques chirurgicales. Urologie. 2011 Jan 1:41-175.

References

- Rutman MP, Rodríguez LV, Raz S. Chapter 81 - VESICOVAGINAL FISTULA: VAGINAL APPROACH. In: Rodríguez SRV, ed. Female Urology (Third Edition). Philadelphia: W.B. Saunders; 2008:794-801. Available from: http://www.sciencedirect.com/science/article/pii/B9781416023395501300
- Stovsky MD, Ignatoff JM, Blum MD, Nanninga JB, O'Conor VJ, Kursh ED. Use of electrocoagulation in the treatment of vesicovaginal fistulas. J Urol. 1994 Nov;152(5 Pt 1):1443-4.
- Sung VW, Wohlrab KJ. Chapter 26 - Urinary Tract Injury and Genital Tract Fistulas. In: Sokol AISR, ed. General Gynecology. Philadelphia: Mosby; 2007:639-61. Available from: http://www.sciencedirect.com/science/article/pii/B9780323032476100267
- Tayler-Smith K, Zachariah R, Manzi M, Boogaard W van den, Vandeborne A, Bishinga A, Plecker ED, Lambert V, Christiaens B, Sinabajije G, Trelles M, Goetghebuer S, Reid T, Harries A. Obstetric Fistula in Burundi: a comprehensive approach to managing women with this neglected disease. BMC Pregnancy and Childbirth. 2013 Aug 21;13(1):164. http://dx.doi.org/10.1186/1471-2393-13-164
- Tomlinson AJ, Thornton JG. A randomised controlled trial of antibiotic prophylaxis for vesico-vaginal fistula repair. Br J Obstet Gynaecol. 1998 Apr;105(4):397-9.
- USAID Data for Impact. Obstetric fistula. United States Agency for International Development (USAID), no date [cited 2024 Oct 07]. Available from: https://www.data4impactproject.org/prh/womens-health/obstetric-fistula/
- Waaldijk K. The immediate management of fresh obstetric fistulas. Am J Obstet Gynecol. 2004 Sep;191(3):795-9. http://dx.doi.org/10.1016/j.ajog.2004.02.020
- Wojcieszek AM, Bonet M, Portela A, Althabe F, Bahl R, Chowdhary N, Dua T, Edmond K, Gupta S, Rogers LM, Souza JP, Oladapo OT. WHO recommendations on maternal and newborn care for a positive postnatal experience: strengthening the maternal and newborn care continuum. BMJ Glob Health. 2023 Jan 30;8(Suppl 2):e010992. http://dx.doi.org/10.1136/bmjgh-2022-010992