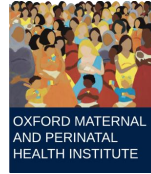


Obstetric Fistula

Module 2 Diagnosis and Classification of Obstetric Fistula

2024 update

Acknowledgment



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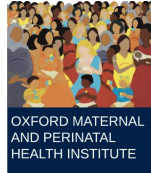
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Course Outline:

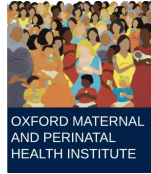
Module 1. Definition, Epidemiology, Pathogenesis, Causes, Risk Factors, and Prevention of Obstetric Fistula

Module 2. Diagnosis and Classification of Obstetric Fistula

Module 3. Management of Obstetric Fistula

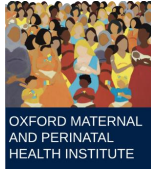
Module 4. Social Reintegration

Module 5. Sexual Health and Obstetric Fistula



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

- Take a comprehensive history surrounding obstetric fistula
- Gain knowledge on examining a fistula patient
- Understand the various investigations useful in evaluating a woman with obstetric fistula
- Understand the different classification systems and the need for a standardized system
- 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.



Diagnosis

History and physical examination overview- VVF

The patient with obstetric fistula should be assessed fully, with the scope of injury (obstructed labour complex) in mind. The diagnosis of a simple vesico-vaginal fistula is based on patient history and a clinical assessment. If there is any doubt however, a dye test should be performed.

In cases where the fistula follows traumatic experience such as rape or insertion of foreign objects, the documentation of findings may be necessary for legal follow-up. Specimen samples and photos may also be necessary if the patient is being seen some hours after the assault.

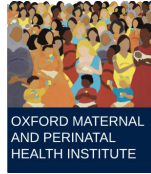
In facilities without specialist fistula surgeons, a provisional diagnosis of vesico-vaginal fistula is made based on the following:

History

- The patient complains of total urinary incontinence, that is, uncontrollable continuous leakage of urine or symptoms of stress incontinence, with intermittent leaking caused by a cough, sneeze or when the bladder is full.
- Onset of this incontinence must have occurred directly after labor and delivery, or immediately after surgical (obstetric or gynecological surgeries) or pelvic traumas.

Examination

- Examination may include direct observation of urine passing from the vagina.
- Optional findings could include observation or palpation of a defect in the anterior vagina leading to the bladder or observation of urine passing from the cervical os.



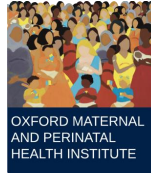
Diagnosis

History and physical examination overview- RVF (1)

In assessing a suspected RVF, it is important to remember that by definition, recto-vaginal fistula in general is an abnormal connection between the rectum to the vagina with or without observation of vaginal flatus/feces. With or without the observation of:

- Anorectal fluid per vagina;
- Probe or examination finger passing per vagina through anus or per anus through vagina;
- Anorectal tract fluid per vagina, or with bubbles passing through the abnormal connection through vaginal irrigant fluid after retrograde injection of air per rectum (Doumouchtsis 2023).

Subsequently, the diagnosis of a recto-vaginal fistula is based on patient history and a clinical assessment as well. The patient might therefore complain about or exhibit the escape of stool or gas from the rectum to the vagina through the fistula and hence the abnormal signs and symptoms of foul-smell vaginal discharge, dyspareunia, passing air, bleeding, and passage of frank stool, especially when the patient has diarrhea. Just like VVF, complications may be elucidated by symptoms of cystitis or vaginitis for example (Tuma 2023).



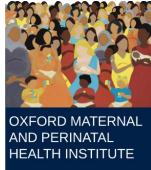
Diagnosis

History and physical examination overview- RVF (2)

Questions regarding intestinal symptoms are necessary to rule out inflammatory bowel disease or pelvic malignancy as a cause.

The physical examination is important to locate the fistula and to assess the integrity of surrounding tissue. There may be a palpable depression in the anterior midline of the rectum, or a pit like defect if the fistula is small. Anoscopy may be necessary in visualizing the changes.

On vaginal examination, the darker mucosa in the fistula track may be apparent, contrasting with the light vaginal mucosa. There may be visible stool or signs of vaginitis. Physical exploration of the tract may be very painful and is therefore not recommended. During the physical examination, an assessment of anal sphincter integrity and ruling out fecal incontinence, and in distinguishing incontinence from fistulous drainage, is a key in surgical planning.

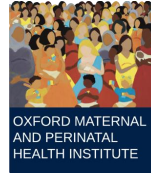


Diagnosis

In-depth history (1)

Besides the general approach in identifying the type of obstetric fistula as VVF or RVF or both, a systemic approach is taken during history taking to include the following:

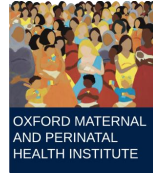
- 1. Patient characteristics:** Name, contact details, age, marital status given the social implications of OF and age at marriage if relevant, especially where teenage pregnancy rates are high, education, occupation, members of household and current circumstances.
- 2. Symptoms:** Main problem, characteristics and duration.
- 3. Obstetric history:**
 - Gravidity and parity including dates and sex of living and dead children.
 - Labour duration(s)
 - Place(s) of delivery and person(s) who assisted
 - Mode(s) of delivery (e.g. spontaneous vaginal delivery, instrumental or vacuum delivery, destructive delivery, symphysiotomy, caesarean section with or without hysterectomy).
 - Neonatal outcome(s) (e.g. live birth, stillbirth, early neonatal death, sex of baby).
 - Other (e.g. history of menses, vaginal bleeding or discharge, previous confirmed pregnancies and their evolution, inability to walk properly after delivery, when menses resumed after delivery, current and past use of contraception, other medical conditions or previous surgery).
 - Fistula history (e.g. details of previous fistula, repair(s), facility and outcomes) to indicate whether the present fistula is new, old or formerly unsuccessfully repaired.



Diagnosis

In-depth history (2)

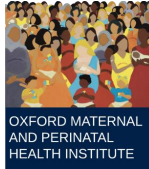
- 4) **Previous medical history** followed by appropriate investigations (e.g. drug allergies, diabetes mellitus, hypertension, known cardiac diseases, anaemia, tuberculosis, malarial attacks, thyroid disorders).
- 5) **Previous surgical history** (e.g. blood transfusion, anaesthesia-related complications, type of operation(s) performed including hysterectomy, intraoperative complications, surgeon's recommendations).
- 6) **History of sexual assault** should also be ruled out especially in the context of armed conflict or humanitarian settings, given that the survivor may shy away from bringing this out due to fear unless prompted, given the circumstances under which such may happen and challenges of accessing care due to a weakened health system, ranging from immediate clinical management of sexual and gender-based violence, to obstructed labour, for those who unfortunately become pregnant following sexual assault.



Diagnosis

In-depth physical examination (1)

1. **General:** Vital signs, nutritional status, e.g. body mass index (BMI) or mid-upper arm circumference (MUAC).
2. **Mental status examination:** Obstetric fistula bears psychological and emotional consequences to victims. Depression, suicidal thoughts or even post-traumatic stress disorder have been associated with obstetric fistula. Postpartum mental disorders following fetal loss as a result of the obstructed labour should be evaluated. These findings should be factored into the management plan of the patient, apart from surgical repair.
3. **Systemic:** Review of respiratory, cardiovascular, abdominal and musculoskeletal functions.
4. **Neurologic examination:** Assessment of neurological consequences of obstructed labour such as foot drop (class 1–5), saddle anaesthesia, anal reflex and pudendal nerve function.
5. **Abdominal examination:** Shape of the abdomen, surgical scars, palpable mass, areas of tenderness, fluid thrill and shifting dullness, bowel sounds.
6. **Examination of external genitalia:** Ulceration and excoriation due to hyperkeratosis (i.e. urine dermatitis), bleeding, female genital cutting, perineal tears, sexually transmitted infections.
 - ❑ Digital examination of the genital tract: Examination facilitates the diagnosis and classification of female genital fistula and its characteristics that may affect treatment and outcomes.

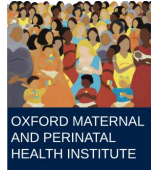


Diagnosis

In-depth physical examination (2)

6. Examination of external genitalia cont'd.:

- Patency of the reproductive tract (vagina, uterus or cervix can be occluded by scar tissue, the cervix may be missing).
- Presence of vaginal stones, foreign bodies or injuries such as gishiri cuts.
- Location and extent of vaginal scarring (anterior and/or posterior), which often appears as a thick band of scar tissue on the posterior vaginal wall
- Number, size, location and classification of fistula(s)
- Urethral length, whether the urethra is involved, if it has a total or partial circumferential defect and if it is blocked (if it is possible to palpate the bony symphysis pubis anteriorly then the urethra has been circumferentially affected, i.e. if there is a gap from the urethra to the bladder then it is circumferential).
- Bladder capacity (difficult to evaluate preoperatively, but can be assessed approximately by sounding the bladder with a metal catheter for an approximate length).
- Anal sphincter status and anal reflex (by inspection and palpation to see if it is intact and with digital examination, asking the patient to squeeze to check for tone).
- Stress test (if there is no obvious fistula, ask the patient to cough and check for signs of urinary stress incontinence; this test requires some urine in the bladder).
- A Dye test should be performed if there is any doubt (permits detection of a small fistula, especially in the case of utero-vaginal, cervico-vaginal fistula and residual uni- and bilateral corner fistulas, which may not be detected on examination).
- A metal catheter will confirm the presence of a bladder stone, which should be removed before fistula repair.



Diagnosis

In-depth physical examination (3)

6. Examination of external genitalia cont'd.:

- Any other abnormality of the genital tract.
- Speculum examination helps to visualize the defect; this will however not be possible in cases of severe vaginal scarring.
- Signs of trauma and sexual assault should be documented where this is provided in history or suspected, and appropriate samples collected for medic-legal reasons in line with SGBV guidelines.

Speculum examination:

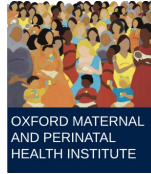
Where speculum examination is possible, vaginal speculum (Sims) examination is done to confirm that the vaginal loss is urine draining through the anterior vaginal wall. The site and number of fistulas are documented (Lassey 2007). The patient should be well hydrated prior to examination to be able to visualise the urine draining.

The diameter, depth, mobility, and mucosa of the vagina must all be assessed. Concomitant prolapse and urethral hypermobility should be assessed. If visualization of the opening is impaired by localized erythema and edema, passage of a Foley catheter into the bladder and identification of the balloon may help (Rutman 2008).

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

Lassey AT. Simple fistulas: diagnosis and management in low-resource settings--a descriptive report. Int J Gynaecol Obstet. 2007 Nov;99 Suppl 1:S47-50.

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.



Diagnosis

In-depth physical examination (4): Dye test for VVF

Methylene blue dye test is used in cases that are not too obvious from a simple speculum examination or the other simple tests mentioned. The patient may also be asked to ambulate with a vaginal pack, which will be stained blue (FIGO 2022, Lassey 2007, Rutman 2008) (see [Fig. 2.1](#)).

Phenazopyridine test

If with methylene blue a VVF is still not identified but still suspected, the patient should be given oral phenazopyridine hydrochloride, which stains the urine orange. The vagina is then packed, and orange staining confirms a fistula.

This will require several hours of waiting before examination. A positive phenazopyridine test result with a negative methylene blue test result strongly suggests a ureterovaginal fistula (Rutman 2008).

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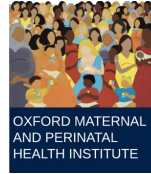
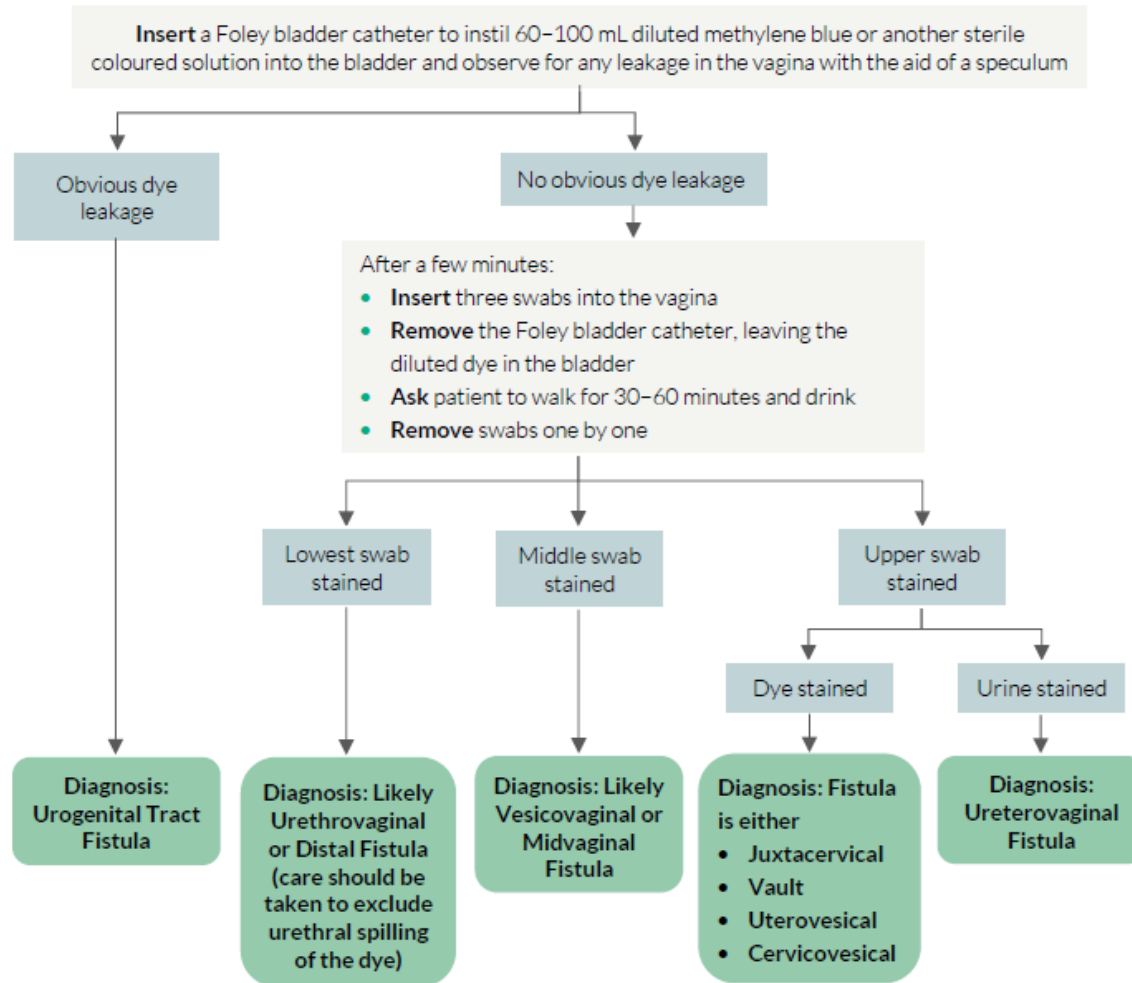
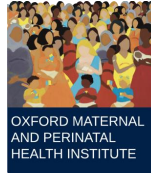


Figure 2.1: Dye test for vesicovaginal fistula

To diagnose a urinary tract fistula and its location, a dye test can be carried out according to the flow chart below.





Diagnosis

In-depth physical examination: VVF (1)

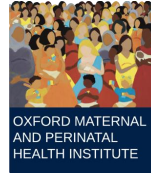
Site (in relation to the bladder neck and ureteral orifices), size and degree of scarring determine the complexity of obstetric fistula. In arriving at this conclusion, the following are ascertained:

- number of fistulous tracts,
- degree of scarring of the vagina and urethral sphincter.

Other considerations include:

- length of residual urethra (which determines the degree of urethral reconstruction to be performed and the patient's future continence),
- residual bladder capacity, and
- status of the ureters.

A vesico-cervical or vesico-uterine communication should be ruled out. When present, methylene blue dye is seen to drain through the cervix, although this may take some time to reveal itself. The size and status of the vagina dictate the need for vaginal augmentation and/or reconstruction.



Diagnosis

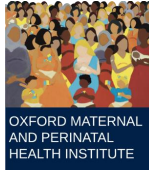
In-depth physical examination: VVF (2)

To assess bladder mobility and sphincteric function, the bladder is filled with water, using 50-mL aliquots through an asepto syringe placed at the level of the symphysis pubis. In the absence of Valsalva maneuver, any rise in the water level suggests a bladder contraction, whereas leakage through the urethral meatus during a Valsalva maneuver suggests sphincter insufficiency (Genadry 2007).

Complementary test (if available):

- Cystoscopy can be useful to better understand the location of the tract in small fistula with retracted bladder and also to rule out bladder stone or malignancies.
- Kidneys ultrasonography is a quick and useful test to detect hydronephrosis secondary to ureteral involvement in fistula patients (Rochat 2011).

The completed comprehensive evaluation then determines the patient management approach.



Diagnosis

In-depth physical examination: RVF

Besides obvious passage of flatus or stool through the vagina, presentations may be less obvious, with slight discharge, a feculent odor, or recurrent vaginal mucosal inflammation. Subsequently, stool per vagina may only be noticeable with watery stools. Additional tests may therefore be necessary in firming up the diagnosis (Das 2016).

Bubble test for rectovaginal fistula

With the patient in the Trendelenburg position, a rectovaginal fistula may be identified by filling the vagina with warm water and the rectum with air. A proctoscope placed in the rectum insufflates the rectum. As air passes through the fistula, it forms bubbles on the vaginal side of the passage (Das 2016; Tayler-Smith 2013).

Das B, Snyder M. Rectovaginal Fistulae. Clin Colon Rectal Surg. 2016 Mar;29(1):50-6.

FIGO Fistula Surgery Training Manual: Standardised training curriculum and best practice guide. FIGO The International Federation of Gynecology and Obstetrics; 2022..

Lasse AT. Simple fistulas: diagnosis and management in low-resource settings--a descriptive report. Int J Gynaecol Obstet. 2007 Nov;99 Suppl 1:S47-50.

Taylor-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.

Diagnosis

In-depth physical examination: RVF (2)

Dye test for rectovaginal fistula

In cases where the diagnosis of a recto-vaginal fistula is still highly suspected from history and other findings but cannot be made simply on digital rectal and vaginal examination and a simple bubble test, a dye test may be necessary. This is more likely if there is dense scarring with posterior bands so that the rectovaginal fistula is hidden in the scar.

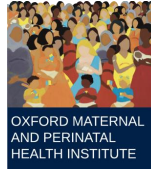
If a dye test is necessary:

- Inject 200 mL of dye through a Foley catheter passed 10 cm into the rectum. If necessary, to prevent the dye from leaking out, either use a swab to compress the anus, or inflate the Foley catheter balloon.
- Observe the vagina for any leakage of dye. If there is no leakage, then try the swab test (see [Fig. 2.1](#)). The patient may need to wear a pad throughout to catch any anal leakage. (FIGO 2022)

Examination under anaesthesia may also be necessary to confirm the location, size, and accessibility of the fistula (Lassey 2007). This may also be necessary where a patient is presenting immediately following traumatic experience such as rape. Again, samples should be taken for medico-legal purposes

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

Lassey AT. Simple fistulas: diagnosis and management in low-resource settings--a descriptive report. Int J Gynaecol Obstet. 2007 Nov;99 Suppl 1:S47-50.



Diagnosis

Laboratory Tests (1)

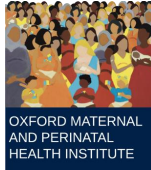
To confirm that the leaking fluid from the vagina is urine, the fluid can be sent for creatinine analysis. A blood sample for urea, electrolytes and creatinine may also be necessary in the preoperative evaluation. Elevated levels of creatinine in the fluid relative to serum establish the diagnosis of a communication between the vagina and urinary tract (Rutman 2008).

A stool specimen is assessed to rule out parasitic infections. In the fistula patient with concomitant helminthic infection, this should be treated before surgery (Ng'ang'a 2014).

A urine sample is also taken to exclude urinary tract infection. The perineum of an obstetric fistula patient may be constantly soiled, predisposing them to urinary tract infections. A cross-sectional study at Gonder, Ethiopia found a high prevalence (53%) of bacteriuria amongst 53 post-repair obstetric fistula patients (Wondimeneh 2014). The prevalence amongst new patients may be higher.

Other than urea, electrolytes and creatinine, blood testing includes a complete blood count, HIV, VDRL, and Hepatitis B and C where possible. Other tests, as required, such as blood glucose may help rule out other conditions such as diabetes mellitus, conditions which if not addressed, may affect postoperative wound healing.

A colostomy assessment may be considered for patients with rectovaginal fistula.



Diagnosis

Laboratory Tests (2)

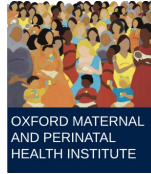
Samples that may have been collected for medico-legal reasons in the context of suspected sexual assault should be processed accordingly.

Other investigations if available:

- Renal function test.
- Ultrasound scan for previously repaired fistula or after caesarean section or hysterectomy. It can also detect hydroureter, hydronephrosis or stones or obstruction.
- Cystoscopy to confirm the side and site of injury in a ureterovaginal fistula. It can also confirm the presence and site of a small vesicovaginal fistula and the proximity of the ureters to it, and the presence of a uterovesical fistula in cases of menuria.
- Intravenous urogram to assess renal excretion/function if ureteric involvement and fistula are suspected.

The extent of laboratory investigations will depend on the available resources and context.

Any identified issues should be treated as necessary before surgery.



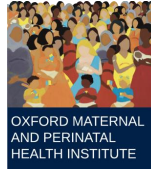
Classification

To be effective, a classification system for obstetric fistula should be descriptive, indicative of the operative technique and can ideally be prognostic to help predict the surgical outcome. Also, the system should be a reliable tool to facilitate communication and to help surgeons identify suitable cases according to their surgical ability (FIGO 2022).

Many classification systems exist to date, some as old as fistula surgery itself, pioneered by Sims. A number of these systems focus on the anatomic location and size or extent of the fistula (Arrowsmith 2007).

While older classification systems focus on anatomical location only (Sim's, Lawson), newer systems (Waaldijk, Goh, Tafesse) give more detail including fistula size, and a grading system that tries to predict prognosis (Frajzyngier 2013). For example, 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 (Arrowsmith 2007).

There is currently no universally accepted, standardised obstetric fistula classification System. However, the most commonly used are those developed by Kees Waaldijk and Judith Goh (FIGO 2022).



Classification

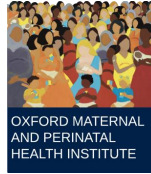
A WHO system (see [Fig. 2.2](#)) classifies fistulae into two groups based on operative difficulty:

- Good prognosis/simple fistula reparable by fully trained, competent surgeons able to undertake uncomplicated fistula repairs.
- Uncertain prognosis/complicated fistula requiring referral to, and repair by, a specialist fistula surgeon.

None of the systems however has a scoring component and all are based on clinical judgment rather than firm evidence (Frajzyngier 2013).

To generate this kind of evidence, one study in Bukavu, DRC enrolled 202 women undergoing fistula repair to compare the prognostic value of the two commonly used classification systems (Waaldijk and Goh, [Fig. 2.3](#)).

In Waaldijk's system, no single component was more predictive of successful closure than another (Capes 2012). In Goh's system (2004), type 4 fistulae were more likely to have failed closure compared to those with type 1 or 2 ($p = 0.0144$). When comparing receiver operating characteristics (ROC) curves, Goh's system had significantly better ability to predict successful closure than the Waaldijk's system (1995), $p = 0.0421$. These findings are however limited by the small sample size and short follow-up duration (Capes 2012).



Classification

A larger multi-center prospective cohort study aimed at testing the diagnostic performance of Lawson, Tafesse, Goh, the World Health Organization (WHO) and Waaldijk classification systems, and a prognostic scoring system derived empirically by the authors to predict fistula closure three months following surgery.

The WHO, Goh and Tafesse classifications had the highest predictive accuracy, and were not statistically different from each other nor the empirically-derived prognostic scoring system. Still, the predictive accuracy of all these systems were poor to fair.

Some of the components in the systems failed to independently predict fistula closure, suggesting that they were unnecessary. These include ureteric involvement, fistula diameter, mixed RVF/VVF, and cervical fistulas which were not statistically significant and prior repair was only marginally significant.

On the other hand, the empirically-derived system included significant predictors of closure found in the other classification systems, but contained fewer, non-overlapping components (Frajzyngier 2013).

For both Waaldijk and Goh systems, as the fistula type increases (e.g. Waaldijk type I to type II Bb and Goh type 1ai to type 4ciii), the prognosis worsens (FIGO 2022).

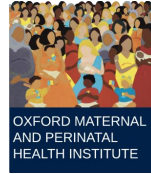


Figure 2.2: WHO classification system

Criteria based on the degree of anticipated difficulty of the repair		
Defining criteria	Good prognosis/ Simple	Complicated/ Uncertain
Number of fistula	Single	Multiple
Site	Vesico-vaginal (VVF)	Recto-vaginal (RVF) Mixed VVF/RVF Involvement of cervix
Size (diameter)	<4cm	>4cm
Involvement of the urethra/ continence mechanism	Absent	Present
Scarring of vaginal tissue	Absent	Present
Presence of circumferential defect*	Absent	Present
Degree of tissue loss	Minimal	Extensive
Ureter/bladder involvement	Ureters are inside the bladder, not draining into the vagina	Ureters are draining into the vagina, bladder may have stones
Number of attempts at repair	No previous attempt	Failed previous attempts of repair
* the complete separation of the urethra from the bladder.		

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.

World Health Organization. Obstetric Fistula Guiding principles for clinical management and programme development. WHO, 2006.

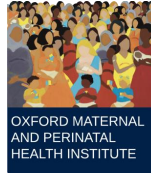


Figure 2.3: Waaldijk and Goh's classification systems for vesicovaginal fistulas

Waaldijk's classification system is based on:

- damage to
- the continence mechanism,
- 0–5 cm from the meatus, circumferential loss and size.

It can be used to determine what type of operation will be needed and gives an indication of the prognosis.

Waaldijk Classification System

I fistula not involving the closing mechanism

II fistula involving the closing mechanism

1. (A) Without (sub)total urethral involvement (a) without circumferential defect* (b) with circumferential defect
2. (B) With (sub)total urethral involvement (a) without circumferential defect (b) with circumferential defect

III miscellaneous, e.g. ureteric and other exceptional fistula

Sub-classification according to size

Small	<2 cm
Medium	2-3 cm
Large	4-5 cm
Extensive	>6 cm

* Circumferential defect: the complete separation of the urethra from the bladder

Goh Classification System

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. postradiation, ureteric involvement, circumferential fistula, previous repair.

Goh's classification system is based on:

- the length of the urethra (types 1–4),
- the size of the fistula (a–c) and
- the extent of scarring (i–iii).

Capes T, Stanford EJ, Romanzi L, Foma Y, Moshier E. Comparison of two classification systems for vesicovaginal fistula. *Int Urogynecol J.* 2012 Dec;23(12):1679-85.

Goh JTW. A new classification for female genital tract fistula. *Aust N Z J Obstet Gynaecol.* 2004 Dec;44(6):502-4.

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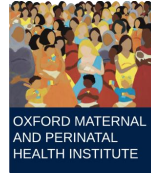


Figure 2.4: Waaldijk and Goh's classification systems for rectovaginal fistulas

Waaldijk's classification system is based on:

- damage to
- the continence mechanism,
- 0–5 cm from the meatus, circumferential loss and size.

It can be used to determine what type of operation will be needed and gives an indication of the prognosis.

Waaldijk Classification System

Type I Proximal fistulas not involving the continence/closing mechanism

- a** Without rectum stricture
- b** With rectum stricture (common)
- c** With circumferential defect (not common)

Type II Distal fistulas involving the continence/closing mechanism

- a** Without sphincter ani involvement
- b** With sphincter ani involvement

Type III Miscellaneous, e.g. intestine–uterine fistulas after instrumental abortion

Additional classification of fistulas according to size

- Small <2 cm
- Medium 2–3 cm
- Large 4–5 cm
- Extensive ≥6 cm

Goh Classification System

Site (distance between distal edge of fistula and hymen)

- Type 1 >3 cm
- Type 2 2.5–3 cm
- Type 3 1.5 to just less than 2.5 cm
- Type 4 <1.5 cm

Size (length of the largest diameter)

- (a) <1.5 cm
- (b) 1.5–3 cm
- (c) >3 cm

Scarring characteristics

- i None or mild fibrosis around the fistula and/or vagina, vaginal capacity >6 cm
- ii Moderate or severe fibrosis, vaginal capacity <6 cm
- iii Special consideration, e.g. radiation damage, inflammatory disease, malignancy, previous repair

Goh JTW. A new classification for female genital tract fistula. Aust N Z J Obstet Gynaecol. 2004 Dec;44(6):502-4.

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

Waaldijk K. Surgical classification of obstetric fistulas. Int J Gynaecol Obstet. 1995 May;49(2):161-3.

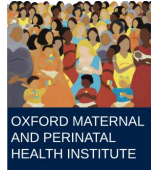
Figure 2.5: Using Waaldijk classification system to predict surgical principles

Vesicovaginal fistulas

Type of fistula	Bladder/urethra direction of closure	Pubocervical fascia	Anterior vaginal wall closure
Type I	Any, use common sense	No special measures	Adapt to fistula margins
Type II Aa	Transverse	Transverse repair with or without fixation	Transverse adaptation
Type II Ab	Circumferential end-to-end	Re-fixation	Transverse adaptation
Type II Ba	Longitudinal, with transverse urethral tissue	Fixation	Flap
Type II Bb	Longitudinal, with circumferential nonurethral tissue	Re-fixation	Flap
Type III	Not applicable	Not applicable	Not applicable

Rectovaginal fistulas

Type	Surgical principles
Type I a	Transverse closure of rectum
Type I b	Transverse closure of rectum with disruption of rectal stricture
Type I c	End-to-end anastomosis (after disruption of strictures); exceptionally, combined abdominovaginal approach with colostomy
Type II a	Longitudinal closure of anorectum
Type II b	Meticulous reconstruction of all the structures involved
Type III	Depends on the situation

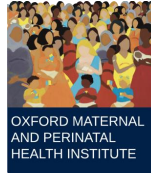


Common terminologies used to describe fistulas (1)

These terms do not constitute a classification system but are descriptive and therefore useful for communication.

Site

- **Urethra–vaginal:** occur within 3.5 cm of the external urethral meatus.
- **Juxtaurethral:** most common site of a fistula and is at the urethrovesical junction.
- **Midvaginal:** 4 cm or more from the external urethral orifice.
- **Juxtacervical:** adjacent to the cervix, more common in multiparous women and post caesarean section.
- **Intracervical:** between the bladder and the cervical canal and almost always the consequence of a caesarean section.
- **Circumferential:** most commonly the bladder has been completely separated from the urethra so there is a disruption in the continuity of the urinary tract. The back of the pubic bone can easily be palpated through the vagina at the site of the gap between the urethra and the bladder.
- **Ureterovaginal:** where one or even both ureters drain into the genital tract. These are usually iatrogenic after a caesarean section and/or hysterectomy.
- **Vault:** occur at the vaginal vault after an elective or emergency hysterectomy.



Common terminologies used to describe fistulas (2)

Size/diameter

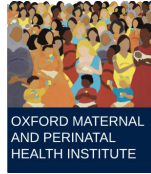
- **Tiny:** admitting only a small probe.
- **Small:** <1.5 cm.
- **Medium:** 1.5–3 cm.
- **Large:** >3 cm, may involve loss of most of the anterior vaginal wall and a circumferential loss of the urethrovesical junction.
- **Extensive:** major loss of bladder and urethra with a large gap in between.

Scarring

The extent of scarring can range from minimal to extreme.

- **Minimal:** soft and mobile fistula margins
- **Extreme:** rigid and fixed fistula margins

Scarring may affect the lateral and posterior wall of the vagina, which in very severe cases may cause complete stenosis. Stenosis can affect the proximal or distal vagina or can extend throughout. The most common site is midvagina.



Conclusion

The diagnostic approach for obstetric fistula should take a comprehensive account of the precipitating factors for better management of the patient. Therefore, the psychological/mental assessment of the patient is just as important as the physical evaluation. The physical examination should therefore best be evaluated by looking at all the systems.

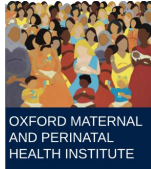
The physical assessment is aimed at establishing the modality of management, conservative or surgical, and in the later case, whether the patient is fit for operation, and involves grading the fistula based on the surgical difficulty of repairing and hence triaging the patients. This will facilitate referral of patients that need more complex procedures to appropriate centers. At a national level, setting up such centers where they are inexistent, as well as having a database of these centers is key.

While many classification systems exist and are important in evaluating the prognosis of fistula repair, there is no standard system in place. Many of the systems are based on clinical judgment and lack solid supporting evidence, and many have components that have poor prognostic value. An evidence-based classification system that is simple, has high predictive value and inter- and intra-observer correlation and a patient scoring component is needed (Frajzyngier 2013).

Explicit prognostic scores can enhance the classification systems and aid decision-making and planning repairs. Any scoring system should be used in conjunction with the classification system of choice (FIGO 2022).

Frajzyngier V, Li G, Larson E, Ruminjo J, Barone MA. Development and comparison of prognostic scoring systems for surgical closure of genitourinary fistula. *Am J Obstet Gynecol.* 2013 Feb;208(2):112.e1-11.

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



Module 2 knowledge tests

Answer 'True' or 'False'

- 1 Mental assessment of a patient suspected to have obstetric fistula is not important when taking history.
- 2 A dye test can be conducted to confirm the presence of fistula.
- 3 Phenazopyridine hydrochloride administered orally stains the urine orange and is used when the fistula cannot be identified using methylene blue.
- 4 A positive phenazopyridine test result with a negative methylene blue test result strongly suggests a uterovaginal fistula.
- 5 Any fluid draining vaginally through an obvious hole on examination should not always be regarded as urine and biochemical testing is not always necessary.
- 6 Classification systems for obstetric fistula currently in use incorporate prognostic scoring for successful closure.
- 7 A WHO classification system does not score fistulas.
- 8 Fistula diameter is not a good predictor of closure after repair.
- 9 In the WHO classification system, a VVF that is more than 5cm in diameter presents operative difficulty.
- 10 The Waaldjik, Goh and WHO classification systems all have components on fistula size

Answers to Module 2 knowledge tests

Question 1

Mental assessment of a patient suspected to have obstetric fistula is not important when taking history.

Correct answer: False

In the context of rising non-communicable diseases including mental health, it is important to have a systemic review of the patient presenting with obstetric fistula. Depression, suicidal thoughts or even post-traumatic stress disorder have been associated with obstetric fistula. Postpartum mental disorders following fetal loss as a result of the obstructed labour should be evaluated. Moreover, even without obstructed labour, postpartum depression (PPD) is the most common psychological condition following childbirth, affecting one in every 5-8 women. <https://doi.org/10.1038/s41398-021-01663-6>

Question 2

A dye test can be conducted to confirm the presence of fistula.

Correct answer: True

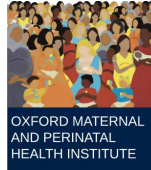
A dye test is useful in cases that are not too obvious from a simple speculum examination or the other simple tests mentioned.

Question 3

Phenazopyridine hydrochloride administered orally stains the urine orange and is used when the fistula cannot be identified using methylene blue.

Correct answer: True

Dye test permits detection of a small fistula, that may be difficult to identify especially in the case of utero-vaginal, cervico-vaginal fistula and residual uni- and bilateral corner fistulas, which may not be detected on examination. If with methylene blue a VVF is still not identified but still suspected, the patient should be given oral phenazopyridine hydrochloride, which stains the urine orange. The vagina is then packed, and orange staining confirms a fistula. Moreover, phenazopyridine has mild analgesic effect to the urinary bladder.



Answers to Module 2 knowledge tests

Question 4

A positive phenazopyridine test result with a negative methylene blue test result strongly suggests a uterovaginal fistula.

Correct answer: False

A positive phenazopyridine test result with a negative methylene blue test result strongly suggests a ureterovaginal fistula.

Question 5

Any fluid draining vaginally through an obvious hole on examination should not always be regarded as urine and biochemical testing is not always necessary.

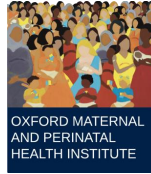
Correct answer: False

Fluid drained may necessarily not be urine, such as maybe the case in vagino-peritoneal fistula. To differentiate urine from any other fluid in a drained specimen, the creatinine levels can be compared to serum levels. Reference values for creatinine in serum, peritoneal fluid and urine are 0.9 mg/dL, 1.0 mg/dL, and 141 mg/dL respectively. Subsequently, if fluid creatinine levels are less than or equal to serum, the drainage is unlikely urine. If drainage is mostly urine, creatinine levels will generally be > 30 mg/dL. DOI: <https://doi.org/10.1016/j.soi.2023.100001>.

Question 6

Classification systems for obstetric fistula currently in use incorporate prognostic scoring for successful closure.

Correct answer: False



Answers to Module 2 knowledge tests

Question 7

A WHO classification system does not score fistulas.

Correct answer: True

Question 8

Fistula diameter is not a good predictor of closure after repair.

Correct answer: True

Question 9

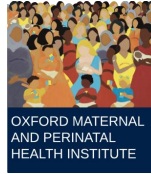
In the WHO classification system, a VVF that is more than 5cm in diameter presents operative difficulty.

Correct answer: True

Question 10

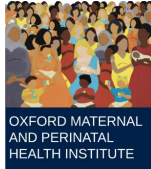
The Waaldijk, Goh and WHO classification systems all have components on fistula size.

Correct answer: True



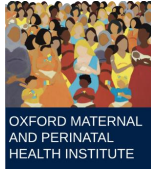
You have completed this module; you should now be able to:

- Take a comprehensive history surrounding obstetric fistula
- Gain knowledge on examining a fistula patient
- Understand the various investigations useful in evaluating a woman with obstetric fistula
- Understand the different classification systems and the need for a standardized system
- 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.



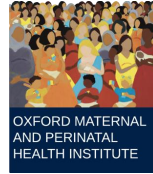
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