

## Genitourinary Fistula

### A Guide for Women

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#### What is genitourinary fistula?

Genitourinary fistulas are abnormal connections between the vagina, urethra, bladder or ureter. This abnormal communication may occur between vagina and/or uterus to the bladder, urethra or ureter and this communication is called a fistula tract. This is typically caused by trauma from surgery or during delivery. A genitourinary fistula tract will cause urine to be directed away from its normal location in the ureters (tubes that bring urine from kidney to bladder), bladder or urethra. Depending on the anatomical location of the fistula tract it can be called ureterovaginal fistula, ureterouterine fistula, urethrovaginal fistula, vesicouterine fistula, and vesicovaginal fistula.

Women with a genitourinary fistula may have many of the following symptoms:

- Continuous urinary drainage from vagina after trauma or injury.
- Leakage may be continuous or intermittent, and can be confused with stress incontinence.
- Foul-smelling or persistent discharge often precedes urinary leakage.
- Vagina smells of urine.
- Women may void small amounts of urine, as bladder never gets full.
- May develop frequent urinary tract infections; flank pain and/or fevers may be sign of a kidney infection or an ascending urinary tract infection.
- Urine may also leak into abdominal cavity causing abdominal pain, nausea, vomiting, anorexia, abdominal distention or a small bowel obstruction.

#### What causes genitourinary fistulas?

Some fistulas can be congenital, meaning that a woman is born with an abnormal fistula tract, but most are caused by trauma related to surgery or during delivery. In developing countries 90% of genitourinary fistulas are caused by obstetric trauma during obstructed labor. In developed countries 75% of fistulas are caused by gynecologic or other pelvic surgery. There is usually a direct injury to the genitourinary tract that causes a fistula to develop following a surgical procedure. Though fistulas may develop later, 7-21 days after a surgery, if there was tissue ischemia, necrosis, and/or infection that interfered with wound healing.

Risk factors for development of a genitourinary fistula:

- Pelvic surgery risks: cesarean section, surgery for

endometriosis, surgery following prior pelvic irradiation.

- Obstetrical risks: obstructed labors, operative deliveries (such as a forceps or vacuum delivery), and hysterectomy following a delivery.
- Other conditions: malignancy, gastrointestinal surgery, retained foreign bodies (e.g. pessaries), prior radiation exposure to pelvis.

#### How is a genitourinary fistula assessed?

An initial discussion with your doctor who reviews your health history and recent surgeries can help him/her suspect a possible genitourinary fistula tract. Though most women complain of constant leakage.

Initially, a pelvic exam should be done to assess where the urine is leaking from, typically into the vagina. A vaginal exam should focus on visualizing extraurethral leakage of urine, meaning that the urinary leakage is not coming from the external opening of the urethra. A pill that can change the urine color is often given to help differentiate vaginal discharge from urine to help localize the fistula tract.

If pelvic exam fails to localize the fistula, further testing of the bladder can be done. The bladder can be filled with a dye colored fluid to help compliment the vaginal exam to see if urine is leaking into it. This may miss a uretero-vaginal fistula as the tubes that bring urine from kidney to bladder do not change color when the dyed fluid is placed in bladder through a catheter.

Further testing with cystourethroscopy, using a camera to look in bladder and urethra, can help localize fistula tract. This may help your doctor see how close the fistula tract is to the ureters and help determine the best surgical approach to fix the fistula. If there is concern for injury to the ureters further radiologic imaging is necessary. Intravenous CT urography or retrograde pyelography may be used to look for injury to ureters or extravasation of fluid outside the genitourinary tract.

#### What are the treatment options?

Not all fistulas need surgical intervention. Fistulas diagnosed within the first seven days of an injury and are small can close after prolonged draining of the bladder with a catheter. Further imaging may be required to confirm the fistula tract closed on its own. If a ureteral injury or the fistula tract involves the ureter, then a double-J stent should be placed. Prolonged stenting may allow for the fistula tract to close.

If conservative therapy fails then a surgical repair should be performed. If surgery warranted then a specialist should perform it with training in the surgical correction of genitourinary fistulas. If fistula tract is identified within 24-48 hours it can be repaired right away. Often time surgery may be delayed after the initial trauma that caused the fistula. This allows the tract to mature and inflammation to decrease enabling better surgical planes and tissue to fix the fistula tract.

The surgical approach to genitourinary fistulas may include a vaginal approach, abdominal approach, or through the bladder itself, called a transvesical repair. The surgical approach chosen depends on the fistula location, other health conditions, and size of the fistula. Often times the tissue near the fistula tract has poor blood supply and may need a graft to help promote healing near fistula tract. Grafts can

include a woman's own fat tissue or muscle that is placed over the repaired fistula tract. Other biologic grafts taken from animal tissue or human cadavers can also be used. In some complex cases of genitourinary fistulas a urinary diversion may be performed to route urine away from fistula tract to allow it to heal. This may involve draining the kidneys with nephrostomy tubes, or reconstructing the small or large bowel to divert urine through it.

Though genitourinary fistulas are not that common, surgical success rates are high ranging from 84-100%. Following surgery there still may be a need for prolonged bladder draining with a catheter as the fistula tract heals.



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