CONDITION

Meatal stenosis

Meatal stenosis is a narrowing of the opening where urine leaves the urethra.

WHAT IT IS
Narrowing of the urethral opening

BODY SYSTEM
Urinary system

MAIN SYMPTOMS
Thin or spraying stream, straining, painful urination, prolonged urination

WHAT CAUSES IT
Scarring after irritation, inflammation, or urethral procedures

HOW IT IS DIAGNOSED
Physical examination, sometimes urine-flow testing

MAIN TREATMENT
Observation or surgery to widen the opening

CAN IT BE CURED?
Yes - widening usually restores the opening

IS IT AN EMERGENCY?
Sometimes - inability to pass urine needs emergency care

LONG-TERM OUTLOOK
Usually excellent after successful treatment

Overview

Meatal stenosis is a narrowing of the urinary opening, called the urethral meatus . The urethra is the tube that carries urine from the bladder out of the body.

The condition most often refers to narrowing at the tip of the penis. It is commonly identified during childhood, although teenagers and adults can also develop it. Narrowing of the female urethral opening is possible but is much less common and may have different causes.

A narrow opening can change the direction, strength, or shape of the urine stream. Some people have no discomfort, while others take longer to urinate, need to strain, or have pain.

Meatal stenosis is not usually an emergency. However, it matters when it interferes with bladder emptying, causes ongoing symptoms, or contributes to urinary problems. Complete inability to pass urine requires emergency medical care.

Symptoms

Symptoms can become noticeable when a child starts using the toilet independently. A parent may notice that the stream points sharply upward, sprays, or is difficult to aim. In an older child or adult, the change may be noticed during routine urination.

Possible symptoms include:

Some people with a small-looking opening have a normal stream and no symptoms. Appearance alone does not always show how much the narrowing affects urine flow.

These symptoms are not specific to meatal stenosis. Urinary tract infection, constipation, bladder problems, and narrowing elsewhere in the urethra can cause similar changes. An examination is needed to determine the reason.

- A thin, narrow, or unusually forceful urine stream
- A stream that sprays or points upward
- Taking longer than expected to urinate
- Straining or pushing to start or maintain the stream
- Pain, burning, or discomfort during urination
- Needing to urinate more often or urgently
- A feeling that the bladder has not emptied fully
- A small spot of blood at the opening, especially if the tissue is irritated

Causes and risk factors

Meatal stenosis usually develops when irritation, inflammation, or injury heals with scar tissue. Scar tissue is less flexible than normal tissue, so it may tighten the opening.

In boys, meatal stenosis is associated with circumcision, particularly when the exposed opening becomes irritated during healing or through ongoing contact with a wet diaper. Most circumcised children do not develop meatal stenosis, and circumcision is not the only possible cause.

Other causes and risk factors include:

Some babies are born with an unusually narrow opening, although congenital meatal stenosis is less common than narrowing that develops later.

Meatal stenosis is not generally caused by poor personal hygiene. It is also not considered a

sexually transmitted infection.

- Repeated irritation or inflammation around the urinary opening
- Injury from a urinary catheter or another instrument placed in the urethra
- Previous surgery involving the penis or urethra
- Lichen sclerosus , a long-term inflammatory skin condition that can cause pale, tight scar tissue
- Radiation treatment involving the pelvic area
- Age-related tissue changes, particularly around the female urethral opening

Diagnosis

A healthcare professional usually diagnoses meatal stenosis by asking about urinary symptoms and examining the opening of the urethra. They may ask how long urination takes and whether the stream is thin, spraying, painful, or difficult to direct.

In children, observing the urine stream may be helpful. A video recorded at home may sometimes provide useful information if direct observation is difficult, but it should protect the child's privacy and only be shared through an appropriate clinical system.

Additional tests are not always necessary. When the diagnosis or degree of blockage is unclear, testing may include:

A urine test can identify an infection, but it does not confirm meatal stenosis. Diagnosis is based mainly on the symptoms, examination, and evidence of restricted urine flow.

- Uroflowmetry , which measures the speed and pattern of urine flow
- An ultrasound scan to check whether urine remains in the bladder after urination
- A urine test to look for infection or blood
- Further urethral or bladder tests when another blockage is suspected

Treatment and management

Treatment is based on symptoms and how much the narrowing affects urine flow. A small-looking opening does not always need treatment if urination is comfortable and the bladder empties normally.

Regular follow-up may be appropriate for mild cases without significant symptoms. During

follow-up, changes in the stream, discomfort, infections, or increasing difficulty urinating should be reported.

A clinician may sometimes recommend a topical steroid medicine for selected mild or early cases. This is not suitable for every cause of narrowing, and evidence for it is more limited than for surgery. It should only be used as directed.

The main procedure for symptomatic meatal stenosis is widening the opening. This may be called:

These are generally short procedures. Depending on the person's age and circumstances, local or general anaesthesia may be used. Many people go home the same day.

After the procedure, temporary soreness, mild swelling, or a small amount of spotting can occur. Instructions may include applying an ointment and gently keeping the edges from sticking together while they heal. Follow the specific aftercare plan provided by the surgical team.

Repeated stretching or dilation is not usually something to attempt at home. Forceful stretching can tear the tissue and may lead to more scarring. Any planned dilation should be supervised by a qualified healthcare professional.

If lichen sclerosus or another inflammatory condition caused the narrowing, treatment of that condition may also be needed. This can reduce ongoing inflammation and help protect nearby tissue, although existing scar tissue may still require a procedure.

- Meatotomy , in which a small cut opens the narrowed area
- Meatoplasty , in which the opening is widened and the edges are reshaped, usually with stitches

Complications

Untreated narrowing that significantly restricts urine flow can make bladder emptying more difficult. Over time, this may contribute to persistent pain, bladder irritation, or urinary tract infections. Severe long-term obstruction can affect the bladder and, rarely, the upper urinary system.

Many people with meatal stenosis do not develop these complications. The risk is more relevant when symptoms are persistent, urine flow is clearly restricted, or the bladder does not empty well.

Possible complications after a widening procedure include:

Serious complications are uncommon, but follow-up is important if symptoms return.

- Bleeding or infection
- Temporary pain during urination
- The healing edges sticking together
- Scar tissue narrowing the opening again
- A change in the shape or direction of the stream

Prevention

Not every case can be prevented. Narrowing that is present from birth cannot be prevented, and inflammatory skin conditions may occur despite careful hygiene.

After circumcision or another procedure involving the urethra, following the wound-care instructions may reduce irritation while the tissue heals. If advised, a barrier ointment can limit rubbing and contact with urine or stool. Diapers should be changed regularly, and the area should be cleaned gently rather than scrubbed.

Do not place objects into the urethral opening or try to stretch it without clinical guidance. Seek routine medical advice if there is lasting redness, cracking, pale scar-like skin, or a continuing change in the urine stream.

When a catheter is medically necessary, trained professionals use appropriate equipment and technique to reduce injury. Some causes, including necessary urinary procedures or radiation treatment, cannot always be avoided.

Living with it and what to expect

Meatal stenosis may stay mild for a time or become more noticeable as the opening scars and tightens. In children, it is often first recognised during toilet training because the direction and shape of the stream become easier to see.

Scar-related narrowing does not usually open permanently on its own. However, not every narrow-looking meatus gets worse or needs surgery. Follow-up focuses on comfort, urine flow, bladder emptying, and whether urinary problems are developing.

After a successful meatotomy or meatoplasty, most people can urinate more freely. The stream may initially spray or look different while swelling settles and the tissue heals. Improvement may be immediate, but the final stream pattern can take time to become clear.

The opening can narrow again, although this does not happen to everyone. Return for review if

the stream becomes thin, painful, prolonged, or difficult to aim after treatment.

People whose stenosis is related to lichen sclerosus may need longer-term skin and urinary follow-up. The procedure can correct the narrow opening, but it does not remove the underlying tendency toward inflammation.

Meatal stenosis does not usually affect fertility or sexual function when it is treated appropriately. Extensive scarring or an underlying urethral condition may require more specialised care.

When to get medical help

Arrange a routine appointment if you or your child has:

Seek prompt same-day medical advice for fever with urinary symptoms, increasing pain, pus, worsening swelling, or possible urinary tract infection. After a procedure, contact the surgical team about bleeding that does not settle, spreading redness, or pain that is getting worse rather than improving.

Go to an emergency department if no urine can be passed despite a strong need to urinate, especially with increasing lower abdominal pain or swelling. Heavy bleeding, severe weakness, confusion, or serious illness after a procedure also requires emergency assessment.

- A persistently thin, spraying, or upward-pointing urine stream
- Pain or burning during urination
- Repeated straining or unusually long trips to the toilet
- Blood spotting at the urinary opening
- Symptoms that return after treatment
- Pale, tight, cracked, or inflamed skin around the opening

Common questions

Is meatal stenosis the same as a urethral stricture?

Both involve narrowing of the urine passage. Meatal stenosis is specifically at the external opening. A urethral stricture is scar-related narrowing farther inside the urethra. Symptoms can overlap, so an examination may be needed to tell them apart.

Can meatal stenosis go away on its own?

A true scar-related narrowing does not usually disappear on its own. Mild cases without

troublesome symptoms may remain stable and can sometimes be monitored. Increasing difficulty urinating should be reassessed.

Does every small urinary opening need surgery?

No. The decision is based on symptoms and urine flow, not appearance alone. Surgery is more likely to be recommended when narrowing causes pain, an abnormal stream, straining, incomplete emptying, or other urinary problems.

Is the procedure painful?

Anaesthesia is used during meatotomy or meatoplasty. Some soreness or burning during urination is common for a short time afterward. The care team can explain suitable pain relief and wound care without requiring you to choose a treatment plan on your own.

Can meatal stenosis come back after surgery?

Yes, the opening can narrow again as it heals, but recurrence is not inevitable. Using ointment or separating the healing edges may be recommended in some cases. Follow the surgical team's instructions rather than stretching the opening independently.

Does meatal stenosis cause bed-wetting?

It is not a common sole cause of bed-wetting. A restricted stream or incomplete emptying can sometimes contribute to urinary symptoms, but bed-wetting has many possible causes. It should not be assumed to mean that the meatus is narrowed.

Sources

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