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This information was last updated in March 2017.

This leaflet contains general information about Priapism. If you have any specific questions about your individual medical situation you should consult your doctor or other professional healthcare provider.

This information was produced by the European Association of Urology (EAU) Patient Information Working Group.

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Dr. M. Ortac Istanbul (TR)

This information was updated by the EAU Patient Information Working Group, January 2020.

You can find this and other information on urological diseases at our website: http://patients.uroweb.org
What is priapism?

Priapism is an erection of the penis that lasts for more than 4 hours without physical and mental stimulation. It develops when blood becomes trapped in the penis and is unable to drain. It is often painful. Priapism is relatively rare in general (less than 1 case per 100,000 people each year).

Symptoms of priapism

<table>
<thead>
<tr>
<th>Symptom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rigid erection with or without sexual stimulation</td>
</tr>
<tr>
<td>Erection lasts more than 4 hours</td>
</tr>
<tr>
<td>Penile pain or sensitivity</td>
</tr>
</tbody>
</table>

Priapism is a medical emergency that may result in permanent erectile dysfunction. If you think you might have priapism, don’t try to treat it yourself. Instead, get medical care right away.

Your doctor may ask:
• How long have you had the erection?
• How long do your erections usually last?
• Have you used any drugs, legal or illegal, recently?
• Did the symptoms occur after an injury?

What’s the outlook?

Most people who experience priapism recover completely if treated quickly. Treating priapism quickly reduces the risk of permanent problems getting and keeping erections.

Causes of priapism

In most cases, the cause of priapism is unknown (idiopathic). However, patients who suffer from blood disorders, especially sickle cell disease, may develop priapism. Some blood, metabolic, or nervous system disorders and medications put patients at higher risk. In rare cases, priapism can affect children with sickle cell disease.

There are three types of priapism:
• Low-flow (ischaemic) priapism is the most common type. It happens when blood gets trapped in the penis. If not treated right away, it can lead to scarring and permanent erectile dysfunction.
• Intermittent (stuttering) priapism is a type of low-flow priapism characterised by repeating episodes of painful, prolonged erections.
• High-flow (non-ischemic) priapism is rarer and usually less painful. It typically happens after an injury to the penis or the area between the scrotum and the anus (perineum). The injury prevents blood in the penis from circulating normally.

Potential causes of priapism

<table>
<thead>
<tr>
<th>Disease Category</th>
<th>Causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diseases of the blood (haematological disease)</td>
<td>Sickle cell disease, Thalassemia</td>
</tr>
<tr>
<td>Infections</td>
<td>Amyloidosis, Fabry’s disease, Gout</td>
</tr>
<tr>
<td>Neurogenic disorders</td>
<td>Spinal cord injury, Stroke, Brain tumour, Spinal anaesthesia</td>
</tr>
<tr>
<td>New abnormal tissue growth (neoplasm) that has infiltrated surrounding tissue or spread to the organs</td>
<td>New abnormal tissue growth (neoplasm) that has infiltrated surrounding tissue or spread to the organs</td>
</tr>
<tr>
<td>Medications</td>
<td>Recreational drugs, including alcohol, marijuana, and cocaine, Prescription medications, including antidepressants, blood thinners, and calcium channel blockers (used to lower blood pressure)</td>
</tr>
</tbody>
</table>

Diagnosing priapism

The penis is composed of two chambers (corpora cavernosa) and a mass of spongy tissue (corpus spongiosum). Erection results from relaxation of smooth muscle and increased blood flow into the corpora cavernosa. This causes engorgement and rigidity (see image below). In priapism, the corpus spongiosum and glans penis (the head) are not typically engorged.
Differentiating low-flow from high-flow priapism is critical because treatment for each is different. Your doctor will review your medical history and perform a physical examination to help determine the cause of priapism. Once the emergency is resolved, further blood tests might be prescribed to assess your blood health.

### Determining type of priapism

<table>
<thead>
<tr>
<th>Medical history</th>
<th>Includes duration of erection, presence and degree of pain, previous history of priapism and its treatment, current erectile function, use of medication and drugs, other specific disease (sickle cell disease), trauma to the penis or the area between the scrotum and anus (perineum)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical examination</td>
<td>Includes careful examination of the penis and the perineum</td>
</tr>
<tr>
<td>Blood tests</td>
<td>Includes blood aspiration and gas analysis from the corpora cavernosa of the penis to determine the type of priapism (a small needle is placed in the penis, some blood is drawn, and then it is sent to a laboratory for analysis)</td>
</tr>
<tr>
<td>Penile imaging</td>
<td>Includes penile colour Doppler ultrasound to show how blood is flowing in the penis and MRI to examine muscle health and look for fibrous tissue in the penis.</td>
</tr>
</tbody>
</table>

### Treatment of priapism

The goal of any treatment for priapism is to make the erection go away and to prevent permanent erectile dysfunction.

- **Low-flow priapism** is an emergency and should be treated as soon as possible. The duration of the erection affects the severity of erectile dysfunction that can result.
- **High-flow priapism** might not require emergency treatment because blood flow to the penis is not reduced. However, only your doctor can distinguish between the two types or priapism.

If you suspect priapism, please contact your doctor immediately and do not attempt any home treatment.

If you have any cardiovascular disease, be sure you tell your doctor before any treatment is performed.

Conservative, first- and second-line treatments

Conservative treatment options include exercise, ejaculation, and ice packs. However, they are rarely successful in resolving prolonged erections caused by low-flow priapism.

First-line treatment options are performed by a doctor. They are suggested for patients who have low-flow priapism of more than 4 hours duration. These treatment options are less likely to be successful when duration of priapism lasts more than 72 hours.

Second-line treatment typically refers to penile surgery. Surgery should be considered in cases of emergency, only when conservative and first-line treatment options have failed. Surgery is performed to minimise tissue damage from low blood flow to the penis and to reduce the chance of permanent erectile dysfunction.

Treating low-flow priapism

The first-line treatment for low-flow priapism is drawing blood from the corpus cavernosum. The penis is numbed, aspirated for blood, and then irrigated with saline and drugs.

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**Fig. 1:** a) Flaccid penis b) Erect penis.
called alpha-agonists (if necessary) injected into the corpus cavernosum. This procedure has a high rate of success and can be repeated in time.

Second-line treatment typically refers to penile surgery. Surgery should be considered in cases of emergency, only when conservative and first-line treatment options have failed. Surgery is performed to minimise tissue damage from low blood flow to the penis and to reduce the chance of permanent erectile dysfunction.

<table>
<thead>
<tr>
<th>Treatment options</th>
<th>Low-flow priapism</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conservative</strong></td>
<td>Do not attempt any home treatment. Please contact your doctor immediately.</td>
</tr>
<tr>
<td><strong>First-line</strong></td>
<td>The penis is numbed, and blood is drawn (aspiration) from the corpus cavernosum. Saline and medication are then injected (irrigation) into the penis to reduce pressure and swelling.</td>
</tr>
<tr>
<td><strong>Second-line</strong></td>
<td>Penile shunt surgery or penile prosthesis implantation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>High-flow priapism</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conservative</strong></td>
</tr>
<tr>
<td><strong>First-line</strong></td>
</tr>
<tr>
<td><strong>Second-line</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Intermittent (stuttering) priapism</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First-line</strong></td>
</tr>
<tr>
<td><strong>Drug therapy</strong></td>
</tr>
</tbody>
</table>

Fig. 2: Shunt procedure.

Fig. 3: A common type of inflatable penile implant.
### Glossary of terms

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Amyloidosis</strong></td>
<td>A disease that occurs when a substance called amyloid builds up in your organs. Amyloid is an abnormal protein that is usually produced in your bone marrow and can be deposited in any tissue or organ.</td>
</tr>
<tr>
<td><strong>Aspiration</strong></td>
<td>The process of drawing a substance (e.g., blood) from the body.</td>
</tr>
<tr>
<td><strong>Corpus cavernosum</strong> (plural, corpora cavernosa)</td>
<td>Two chambers that run the length of the penis and are filled with spongy tissue. Blood flows in and fills the open spaces in this spongy tissue to create an erection.</td>
</tr>
<tr>
<td><strong>Corpus spongiosum</strong></td>
<td>The mass of spongy tissue surrounding the male urethra within the penis</td>
</tr>
<tr>
<td><strong>Doppler ultrasound</strong></td>
<td>A non-invasive test that can be used to estimate your blood flow through blood vessels by bouncing high-frequency sound waves (ultrasound) off circulating red blood cells.</td>
</tr>
<tr>
<td><strong>Fabry’s disease</strong></td>
<td>Abnormal deposits of a fatty substance called globotriaosylceramide in blood vessel walls throughout the body</td>
</tr>
<tr>
<td><strong>Glans</strong></td>
<td>The rounded part forming the end of the penis</td>
</tr>
<tr>
<td><strong>Irrigation</strong></td>
<td>Injection of a solution into the body to cleanse and administer drugs at a specific site.</td>
</tr>
<tr>
<td><strong>Ischemia</strong></td>
<td>A restriction in blood supply to tissues, causing a shortage of oxygen and glucose needed to keep tissue alive. Ischemia is generally caused by problems with blood vessels and causes damage to tissue.</td>
</tr>
<tr>
<td><strong>Neoplasm</strong></td>
<td>New abnormal growth of tissue</td>
</tr>
<tr>
<td><strong>Penis</strong></td>
<td>The male reproductive organ that also carries urine out of the body</td>
</tr>
<tr>
<td><strong>Sickle cell disease</strong></td>
<td>A condition in which there are not enough healthy red blood cells to carry adequate oxygen throughout the body</td>
</tr>
<tr>
<td><strong>Thalassemia</strong></td>
<td>A blood disorder characterised by less haemoglobin and fewer red blood cells in the body than normal</td>
</tr>
</tbody>
</table>
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