

EAU GUIDELINES ON PENILE CURVATURE

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Introduction

Congenital penile curvature results from disproportionate development of the tunica albuginea of the corporal bodies and is not associated with urethral malformation. In the majority of the cases the curvature is ventral but, can be lateral though rarely dorsal.

Diagnostic evaluation

Taking a medical and sexual history is usually sufficient to establish the diagnosis of congenital penile curvature. Patients usually present after reaching puberty as the curvature becomes more apparent with erections, and severe curvature can make intercourse difficult or impossible. Physical examination during erection (autophotograph or after intracavernosal injection of vasoactive drugs) is useful to document curvature and exclude other pathologies.

Disease management

The treatment of this disorder is surgical correction deferred until after puberty. Surgical treatments for congenital penile curvature generally share the same principles as in Peyronie's disease (presented in detail in the next section). Nesbit procedure with excision of an ellipse of the tunica albuginea is the gold standard of treatment but many other techniques have

been described and employed. Plication techniques are widely used including techniques producing a de-rotation of the corporal bodies. Most of the time, dissection and mobilisation of the penile dorsal neurovascular bundle are required in order to avoid loss of sensation and ischaemia to the glans penis.

Peyronie's disease

An insult (repetitive microvascular injury or trauma) to the tunica albuginea is the most widely accepted hypothesis on the aetiology of the disease. A prolonged inflammatory response will result in the remodelling of connective tissue into a fibrotic plaque. Penile plaque formation can result in curvature which, if severe, may prevent vaginal intromission.

The most commonly associated comorbidities and risk factors are diabetes, hypertension, lipid abnormalities, ischaemic cardiopathy, erectile dysfunction (ED), smoking, and excessive consumption of alcohol.

Two phases of the disease can be distinguished. The first is the acute inflammatory phase, which may be associated with pain in the flaccid state or painful erections and a palpable nodule or plaque in the tunica of the penis; typically a penile curvature begins to develop. The second is the fibrotic phase with the formation of hard palpable plaques that can be calcified, which also results in disease stabilisation.

Diagnostic evaluation

The aim of the initial evaluation is to provide information on the presenting symptoms and their duration (erectile pain, palpable nodules, curvature, length, rigidity, and girth) and erectile function status. It is mandatory to obtain information on the distress provoked by the symptoms and the potential risk factors for ED and Peyronie's disease.

Major attention should be given to whether the disease is still active, as this will influence medical treatment or the timing of surgery. Patients who are still likely to have an active disease are those with short symptom duration, pain during erection, or a recent change in penile curvature.

The examination should start with a routine genito-urinary assessment, which is then extended to the hands and feet for detecting possible Dupuytren's contracture or Ledderhose scarring of the plantar fascia. Penile examination consists generally of a palpable node or plaque. The extent of curvature must be evaluated with self-photograph, vacuum-assisted erection test or pharmacological-induced erection test. Measurement of length during erection is important because it may have an impact on treatment decisions.

Erectile dysfunction is common in patients with Peyronie's disease (> 50%) but it is important to define whether it pre- or post-dates the onset of Peyronie's disease.

Recommendations for the diagnostic evaluation of Peyronie's disease	Strength rating
In the medical and sexual history of patients with Peyronie's disease, include duration of the disease, penile pain, change of penile deformity, difficulty in vaginal intromission due to deformity, and erectile dysfunction (ED).	Strong
In the physical examination, include assessment of palpable plaques, penile length, extent of curvature (self-photograph, vacuum-assisted erection test or pharmacological-induced erection) and any other possibly related diseases (Dupuytren's contracture, Ledderhose disease).	Strong

Do not use Peyronie's disease specific questionnaire in everyday clinical practice.	Weak
Do not use ultrasound (US) measurement of plaque size in everyday clinical practice.	Weak
Use Doppler US only in the case of diagnostic evaluation of ED, to ascertain vascular parameters associated with ED.	Weak

Disease management

Non-operative treatment

Clostridium collagenase is the only drug approved for the treatment of Peyronie's disease by the FDA. No single drug has been approved by the European Medicines Agency (EMA) for the treatment of Peyronie's disease at this time.

Table 1: Non-operative treatments for Peyronie's disease

Oral treatments
Vitamin E
Potassium para-aminobenzoate (Potaba)
Tamoxifen
Colchicine
Acetyl esters of carnitine
Pentoxifylline
Phosphodiesterase type 5 inhibitors
Intralesional treatments
Steroids
Verapamil
Clostridium collagenase
Interferon

Topical treatments

Verapamil

Iontophoresis

H-100 gel

Extracorporeal shockwave treatment

Traction devices

Recommendations for the non-operative treatment of Peyronie's disease	Strength rating
Use conservative treatment in patients not fit for surgery or when surgery is not acceptable to the patient.	Weak
Do not use extracorporeal shockwave treatment to improve penile curvature and reduce plaque size.	Weak
Use penile traction devices and vacuum devices to reduce penile deformity and increase penile length.	Weak
Do not use intralesional treatment with steroids to reduce penile curvature, plaque size or pain.	Weak
Do not use oral treatment with vitamin E and tamoxifen for significant reduction in penile curvature or plaque size.	Weak
Do not offer other oral treatments (acetyl esters of carnitine, pentoxifylline, colchicine).	Weak

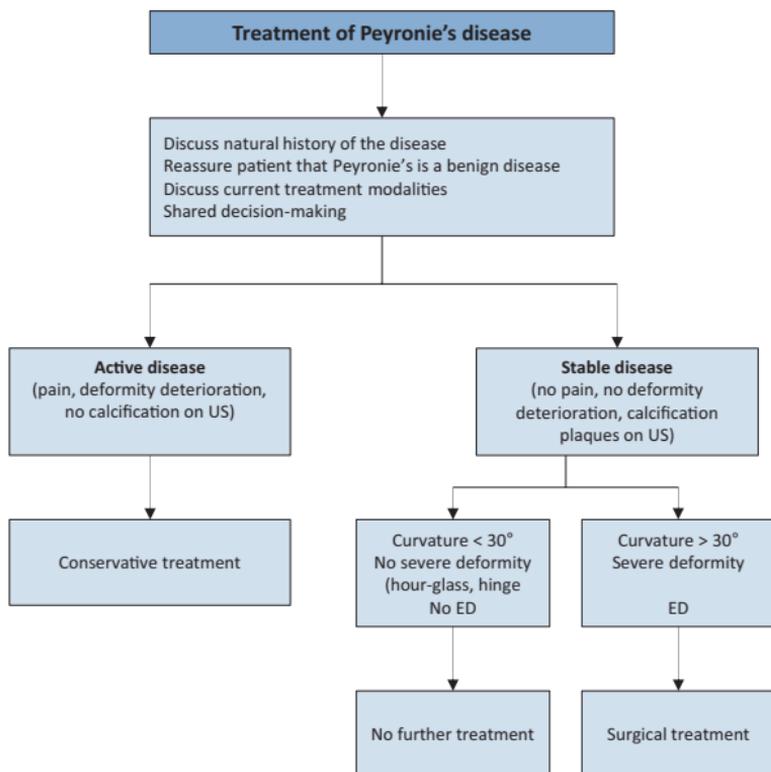
Surgical treatment

Recommendations	Strength rating
Perform surgery only when Peyronie's disease has been stable for at least three months (without pain or deformity deterioration), which is usually the case after twelve months from the onset of symptoms, and intercourse is compromised due to deformity.	Strong
Prior to surgery, assess penile length, curvature severity, erectile function (including response to pharmacotherapy in case of ED) and patient expectations.	Strong
Use tunical shortening procedures, especially plication techniques as the first treatment option for congenital penile curvature and for Peyronie's disease with adequate penile length, curvature < 60° and absence of special deformities (hour-glass, hinge).	Strong
Use grafting techniques for patients with Peyronie's disease and normal erectile function, with no adequate penile length, curvature > 60° and presence of special deformities (hour-glass, hinge).	Weak
Use penile prosthesis implantation, with or without any additional procedure (modeling, plication or grafting), in Peyronie's disease patients with ED not responding to pharmacotherapy.	Strong

Table 2: Types of grafts used in Peyronie's disease surgery

Autologous grafts
Dermis
Vein grafts
Tunica albuginea
Tunica vaginalis
Temporalis fascia
Buccal mucosa
Allografts
Cadaveric pericardium
Cadaveric fascia lata
Cadaveric dura matter
Cadaveric dermis
Xenografts
Porcine small intestinal submucosa
Bovine pericardium
Porcine dermis
Synthetic grafts
Gore-Tex®
Dacron®
Collagen fleece (TachoSil®)

Figure 1: Treatment algorithm for Peyronie's disease



ED = erectile dysfunction; US = Ultrasound.

This short booklet text is based on the more comprehensive EAU Guidelines (978-94-92671-01-1), available to all members of the European Association of Urology at their website, <http://www.uroweb.org/guidelines>.