

Peyronie's Disease

Diagnosis and Management – Patient information leaflet

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Francois Gigot de Peyronie (1678-1747)

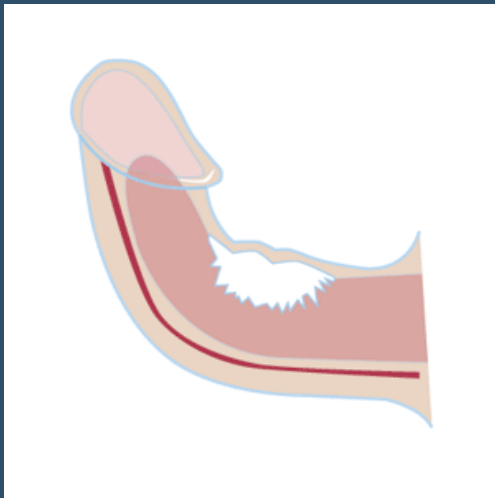


F. Peyronie was a French surgeon born in Montpellier. He worked as lecturer on anatomy and surgery and later became first surgeon to King Louis XV. He is widely credited for first describing a penile curvature now known as Peyronie's disease.

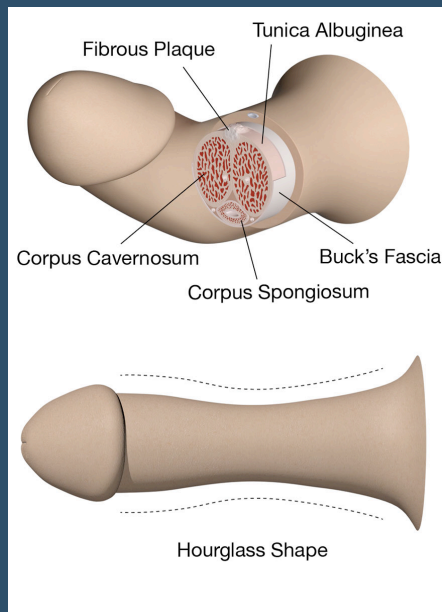
What is Peyronie's disease?

Peyronie's Disease (PD) is a build up of fibrous plaque or scar tissue within the elastic covering of the erectile tissue of the penis. The exact cause of PD is unknown but several theories have been proposed: many men recall a history of seemingly insignificant penile trauma during an episode of vigorous sexual activity. Repeated minor trauma (e.g. attempts at sexual intercourse with weak or incomplete erections) can also lead to scar formation. There is evidence that there may be a genetic basis: a positive family history is common but not typical. There is an association with other connective tissue disorders, specifically Dupuytren's contracture affecting the palms of the hand. The clinical course of PD is variable. In up to 50% of cases the disease process is self-limited and does not worsen. The disease takes approximately 12 months to stabilize and it is during this period that it may even resolve without treatment. When a patient presents with active disease, the chance of spontaneous improvement is approximately 20%, stabilization is 40% and further progression is 40%. The management of the condition depends on disease state, severity of the penile defect and erectile function.

The dilemma with Peyronie's disease



Peyronie's disease is characterized by a curvature in the penile shaft that is often preceded by painful erections and accompanied by an area of fibrosis. The characteristic angulation of the penis is often associated with erectile dysfunction, either as a result of buckling of the penile shaft at the time of penetration or because of a lack of rigidity distal to the area of fibrosis. This lack of rigidity seems to be the result of compromise to the distal penile blood supply.



Peyronie's disease is not uncommon: it affects approximately 3-4% of men usually in an age group between 40-70, although it can also occur in younger individuals.

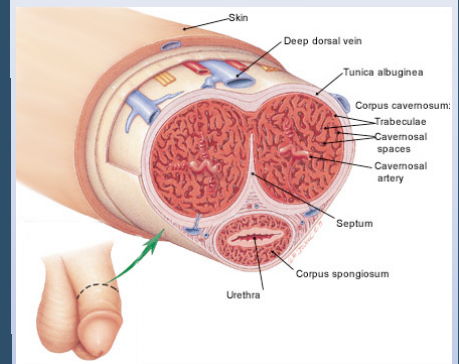
It appears to be frequently associated with conditions such as smoking, obesity, high cholesterol and diabetes.

The reason why men seek treatment for this understandably rather embarrassing condition are:

- Pain associated with erections
- Penile deformity (curvature, buckling, wasting, shortening of penile shaft during erections)
- Progressively worsening erectile dysfunction

What happens in PD?

The penis is composed of the three cylinders, the paired erectile bodies and the urethra. The erectile bodies (corpora cavernosa) are made up of sinusoidal tissue that fills up with blood during an erection and an outer covering (tunica albuginea) composed of tough fibroelastic tissue. The outer covering determines the size and shape of the erection.



The principal finding in men with PD is the deposition of scar tissue in the tunica albuginea. All of the clinical symptoms are derived from this event: the bent in the erect penis is due to the fact that scar tissue does not stretch as well as normal tissue. The curvature of the penis can be complex with bending and rotation of the erect penis. Wasting of the penile shaft (hourglass deformity) and shortening of the penis are possible. The palpable plaque is the actual scar tissue that has been deposited on the outer covering of the erectile bodies. The plaque may become calcified, like bone. Finally, the pain experienced with erections is thought to be due to active inflammation in the plaque and usually disappears on its own with time.

Medical management of Peyronie's disease

The treatment of PD consists of observation, medical treatment and surgery, dependent on the severity of the condition.

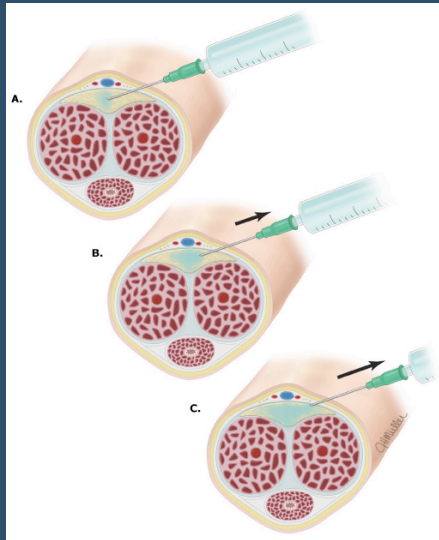
Critical analysis of nonsurgical approaches shows that there is no mode of treatment able to relieve all symptoms for men with PD. Nonetheless, early medical intervention while the disease is still evolving is more likely to have therapeutic effect compared with intervention when the disease is stable or even calcified. Sound clinical trials to demonstrate the efficacy of available treatment options are hampered by low patient numbers, lack of control groups and the inability to distinguish between efficacy of the drug from spontaneous improvement of the disease.

No single agent has been found to be completely efficacious for the treatment of PD.

Vitamin E is a potent antioxidant, which is thought to reduce collagen deposition. Although it is widely used, there is little evidence to support its superiority to placebo. *Potaba* is an antifibrotic agent that is thought to be useful in preventing scar formation.

Other drugs such as *Colchicine*, *Tamoxifen* and *Pentoxifylline* have been used but cannot be recommended for routine clinical use due to lack of efficacy.

A more promising option is the delivery of drugs directly into the plaques by injection under local anaesthetic (intralesional treatment).



Intralesional drug injections are generally safe, well-tolerated and performed by urologists. There are currently three intralesional drug treatment that have shown efficacy in clinical trials: *Verapamil*, the most commonly used substance, *Interferon-beta 2b* and *Collagenase*.

There is not enough evidence to support the use of *extracorporeal shock wave lithotripsy* in the management of PD. It does not appear to improve PD-related deformity and has the potential to induce further fibrotic changes.

When to treat Peyronie's disease?

If Peyronie's disease is diagnosed early in the course of the condition (i.e. within the first 6 months after onset of any symptoms), it is reasonable to attempt a non-surgical treatment. Even if not immediately successful, such treatment should be maintained for a reasonable time (> 6months) before considering more invasive measures.

When not to treat Peyronie's disease?

In general, the decision not to treat PD is based on the severity of the symptoms: if little or no loss of penile rigidity is present and if the curvature is minimal and does not compromise function, treatment is not necessary. Under these circumstances, intervention is not likely to enhance function or appearance, although it will expose the patient to potential adverse effects, including worsening of the symptoms. Surgery should also never be contemplated while the condition is not yet stable. If surgery is performed before the process of fibrosis is complete, the procedure is doomed to fail because further plaques and subsequent curvature will develop.

Are there alternatives to surgery?

Peyronie's disease is a common disorder that often presents with any combination of penile pain, curvature, penile plaque or erectile dysfunction. The disorder may have an underlying genetic predisposition and becomes manifest with an inciting event such as trauma. Following the initial evaluation the recommended standard of care involves an trial of oral and/or intralesional pharmacotherapy in the acute phase (usually the first year) of this condition.

Among available oral treatments Vitamin E and Potaba are the most commonly prescribed agents because they are inexpensive, have a mild adverse effect profile, and appear to provide some benefit. Oral treatments are more likely to be successful if initiated early in the course of a patient's disease and, for the most part, prevent progression rather than curing the condition.

Oral drug treatment has shown negligible success in improving penile pain, curvature and plaque size. Intralesional therapy using various agents is growing in clinical acceptance and popularity as a minimally invasive approach for the initial treatment. As our scientific understanding of the underlying mechanism of this perplexing condition increases we can anticipate the development of novel medical therapies for PD.



Surgical treatment of Peyronie's disease

Surgical treatment is the mainstay of therapy, aiming to correct the deformity while preserving the erectile capacity of the penis in the chronic phase of Peyronie's disease. Current surgical treatment alternatives are reconstructive surgery by either lengthening the concave side with incision of the plaque and grafting, or shortening of the convex side.

It is widely accepted that shortening procedures are ideal for men with adequate penile length (>13cm), curvatures <60°, and no hourglass deformity and hinge effect.

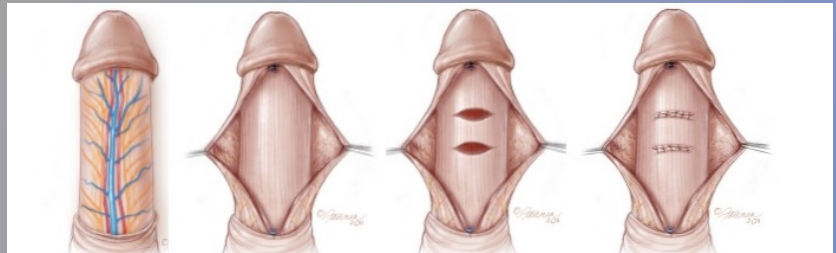
Patients with diminished erectile function are candidates for penile prosthesis that allow not only straightening of the penis but will also restore erectile function.

Ultimately, optimal surgical management dictates an individualized approach respecting the patient's expectations and taking into account the particular anatomical and physiological abnormalities caused by the condition. Patient's need to be aware of possible complications including unsatisfactory cosmetic or functional result, recurrence or persistence of deformities, possible penile shortening, altered sensation, delayed ejaculation and erectile dysfunction.

Depending on the type of surgery the procedures can either be performed as day case surgery or with a short overnight stay in hospital. Sexual activity and masturbation will need to be put on halt for about three months after surgery.

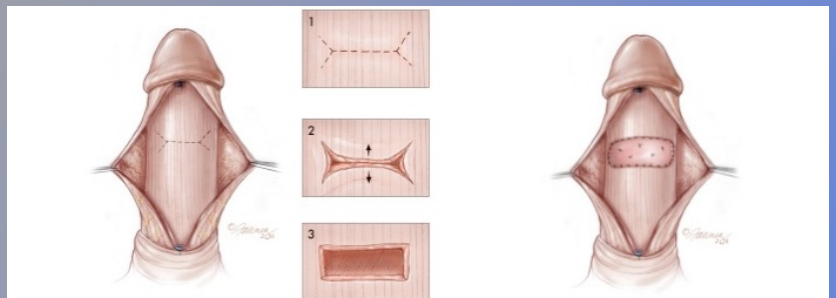
Penile plication surgery (Nesbit)

Shortening the side opposite the penile plaque with simple non-absorbable plication sutures straightens, but also shortens the penis.



Plaque incision and grafting (Lue)

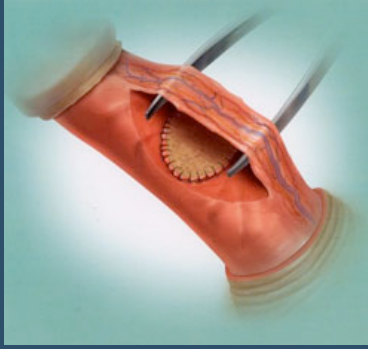
Lengthening procedures involve incising the plaque and placing graft material to cover the defect. The graft may be tissue from your own body, human or animal tissue, or a synthetic graft. This type of surgery is associated with a higher risk of postoperative erectile dysfunction.



Penile implant surgery

Penile straightening can be achieved with the implant alone, with additional manual modeling or plaque incision and grafting.





Summary

Peyronie's disease is a common yet embarrassing and hence underreported condition affecting predominantly middle-aged men. The typical triad of penile pain, palpable plaques and curvature of the erect penis leads to the clinical diagnosis. Uncertainty regarding the cause of the condition explains difficulties in finding a satisfactory treatment. Medical management of Peyronie's disease might be a valuable treatment option for this debilitating disorder, especially in the early stages of the disease, although no single modality has been demonstrated to have superior efficacy.

Surgical therapy is reserved for men with severe penile deformity that impedes sexual intercourse and where initial conservative treatment, utilizing expectant and medical management have failed. Surgery should only be considered once the condition has become stable.

What are possible complications of surgery?

Complications depend on the particular treatment chosen:

Oral therapy has little chance of resulting in complications. Intralesional injections can lead to swelling, bruising and scarring possibly leading to worsening of the penile deformity.

Surgery carries the risk of any operation: infection, bleeding or anesthetic complications. Residual or recurrent deformities are possible including shortening of the penis. Graft procedures often require manipulation on the neurovascular bundle that runs along the upper surface of the penis: damage to these structures can lead to temporary or permanent anesthesia in the glans and/or portions of the shaft. Erectile dysfunction and complete impotence can occur due to compromise of the corporeal veno-occlusive mechanism. Damage of the urethra is very rare.

Penile prosthetic surgery is a complex procedure that can lead to infections and device malfunction with need for future repair.

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