

Peyronie's Disease – Is There Anything Beyond Vitamin E?

ABSTRACT

As urologists, we often see middle aged men in outpatient clinics complaining of a painful plaque in penile shaft with or without penile curvature and sometimes erectile dysfunction. This is classical Peyronie's disease a disease that has proven to be an enigma.

Keywords: Peyronie's disease, Penile curvature, Vitamin E

INTRODUCTION

Peyronie's disease (PD) was first known as induratio penis plastica. It was subsequently named after Francois Gigot de la Peyronie because he was the first to describe and offer treatment for it in 1743. A palpable plaque in the tunica albuginea is the hallmark of diagnosis of PD.^[1] (Henceforth referred to as PD in this article).

PD is now recognized as a wound healing disorder of tunica albuginea. Although the exact etiology of the condition is unknown, it is thought to result from formation of an exuberant scar after repeated micro-trauma to the tunica during intercourse. The current thinking is that it is a disorder of collagen synthesis activated by the inflammatory cascade. Since the scar is inelastic it results in penile deformity, including curvature, indentation, hinge effect, shortening, and is frequently accompanied by erectile dysfunction (ED). Once the scar has formed, it does not undergo normal remodeling and therefore persists forever.

The scar goes through two phases of development. In the first acute, active phase it is associated with painful erections and changing deformity. This phase typically lasts for 12–18 months. This is followed by the stable and chronic phase which is characterized by stabilization of the deformity and disappearance of pain. Complete and spontaneous resolution of PD almost never occurs.^[2]

The peak age of incidence is in early 50s and no race is immune from this disorder. PD occurs more commonly in diabetics as compared to the general population probably because ED is more common in diabetics and inadequate erection can result in trauma to the tunica due to forceful attempts at penetration.^[2]

PD is not only a physically deforming condition but also a psychologically devastating disorder. The treating clinician needs to keep this in mind. Since the disease undergoes step by step progression, careful counseling is of utmost importance at every stage.^[1]

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DIAGNOSIS

The diagnosis can be easily made by patient's history and physical examination. At the first visit, meticulous documentation of the location and the size of the plaque should be done. Degree of curvature should be monitored at subsequent visits. Ultrasound images can be an additional tool to identify calcification within the plaque. Calcification can occur early in the scarring process, and he is not an indication of chronic, severe, or mature disease.

Injection of intracorporeal vasoactive drugs is NOT required early in the course of disease to define the degree of curvature. However, it should be performed in every patient before invasive and surgical intervention.^[3]

TREATMENT

Non-surgical Treatment

Numerous drugs have been offered for the treatment of PD since it was first described. Most of the treatments were empirical because the exact etiopathology was poorly understood.

The following is a list of various drugs and modalities of treatment that have been used. None of them have been proven to be of any benefit in the treatment of this disorder: ^[1]

- Group A: Oral drugs
 1. Potaba
 2. Vitamin E

3. Tamoxifen
 4. Colchicine
 5. Carnitine
 6. Pentoxifylline.
- Group B: Other modalities: These are NOT recommended for the treatment of PD
 1. Intralesional injection of Verapamil, Nicardipine
 2. Topical application of agents such as beta aminopropionitrile Verapamil and superoxide dismutase
 3. Electromotive transdermal application of Verapamil
 4. Extracorporeal shock wave therapy.

The following treatment modalities have been shown to be useful:^[1]

1. Vacuum therapy: Either alone or in combination with PDE 5 inhibitors is useful during the first phase of treatment to maintain the length and girth of penis
2. Penile traction: Controlled stretching of the penis or penile traction by a device that holds the penis in a cradle is indicated for the treatment of PD patients as a non-invasive, non-surgical, and first option treatment modality. In various studies, it has shown to reduce curvature, recover lost length, and enhance girth. However, the treatment is cumbersome since the patient has to wear the device for three or more hours per day for 6 months which makes it impractical for use in most patients.^[4]
3. Oral PDE5 inhibitors such as Tadalafil given as low dose (2.5–5 mg), daily treatment over a 6 month period is useful in remodeling septal scar in some patients. They also help in the treatment of ED associated with PD.
4. Intralesional Interferon Alfa 2b: It decreases the production of extracellular collagen and increases the production of collagenase. A multi-center and placebo controlled study by Hellstrom *et al.* demonstrated 27% decrease in curvature compared to 9% in the placebo group. However, the drug is commonly not in use for this purpose due to the high cost of treatment and unacceptable incidence of side effects such as fever, chills, and arthralgia.^[1]
5. Collagenase Clostridium Histolyticum (CCH, trade name: Xiaflex)

This is the first US FDA approved drug for the treatment of PD. CCH selectively breaks down collagen Types 1 and 3. Since the formation of plaque is as a result of excess collagen formation injection of CCH results in resolution of the plaque. Number of studies carried out over the years have consistently shown good results with CCH injection. After the injection is given, patient should be taught how to do manual remodeling of the plaque for optimum results. The main limiting factor of CCH is the cost of treatment.^[3]

Surgical Treatment of PD

Surgical treatment is reserved for patients who have significant curvature (more than 30 degree) interfering with

sexual intercourse. The plaque be stable for at least 6 months before considering surgery. Proper counseling of the patient is essential to set expectations regarding the outcome of surgery.^[1]

Surgical options:

1. Tunical shortening procedures such as Nesbit plication, Yachia procedure, Dot procedure – all these procedures aim at straightening the penis by shortening the opposite side. Technically, the procedures are simple to do but loss of length is inevitable and this should be explained to the patient.^[4]
2. Tunical lengthening procedures (plaque incision or partial excision and grafting)

These procedures are indicated for patients who have curvature >60°, shaft narrowing, hinging, and extensive plaque calcification. The patient should NOT have pre-existing ED. The patient should be explained that post-operative ED may happen, and he may subsequently require placement of a penile prosthesis.^[4]

Plaque incision and grafting are preferred to total excision of the plaque. Total excision is more likely to result in post-operative ED and recurrence of curvature.^[4]

Historically, multiple autologous graft materials have been used including fat, dermis, tunica vaginalis, temporalis fascia, saphenous vein, and buccal mucosa. Although the results are good they have fallen out of favor because of the need for extended surgery to harvest the graft and a second surgical site.^[4]

The two most common currently used off the shelf xenografts are bovine pericardium and porcine small intestinal submucosa.^[3]

PENILE PROSTHESIS FOR MEN WITH PD

Patients of PD who fail on pharmacotherapy for ED may require penile prosthesis implantation. The most preferred prosthesis is the inflatable one, but again, cost is the limiting factor.^[1]

TO SUMMARIZE

Knowledge about PD is still in a state of evolution:

1. Patients of PD should be carefully evaluated at first visit and called for 3–6 monthly follow-up.
2. CCH injection therapy can be offered right at the beginning if the patient can afford it.
3. Judicious use of vacuum erection device and PDE 5 inhibitors in selected patients.
4. Stabilization of plaque takes 12–18 months so no surgical treatment should be offered before that.
5. Surgical treatment should be offered in patients with more than 30° curvature who desire to remain sexually active. Various surgical options including the need for implantation of penile prosthesis should be discussed

with the patient. Treatment should be tailored according to the patient's needs and severity of the disease.

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