Surgery for Peyronie’s disease

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Etiology of PD

- Sexually transmitted disease, inflammation, autoimmune disease, genetics
- Mechanical injury theory – Hinman, Devine, et al: trauma to erect penis activates disease
- Wound-healing disorder theory incorporates several concepts and better explains why only a small percentage of men who sustain penile trauma develop PD
- Trapped inflammation theory


Normal Tunical Anatomy

Charles Devine’s I-beam theory within tunica
Bruce Smith AFIP JU 1966 subtunical
TL: trapping of Inflammation within septum or at junction
25 y/o man developed ED after an injury during sex (women superior position) 4 weeks prior.

- 21 gauge scalp vein needle
- 2 ml of old blood aspirated and normal erections returned.

32 year old man presented with ED with a history of penile injury during sex 6 months ago.

- Septal fibrosis:
  - 71 cases/602 total


**Current Treatment Options**

- **Conservative** - observation for men capable of coitus without pain to self or partner; reassure that PD will not deteriorate into malignancy
- **Oral** - vitamin E, Potaba® (potassium p-aminobenzoate), calcine, tamoxifen, carnitine
- **Injection** - steroids (contrad), verapamil, interferon, collagenase
- **Topical +/- energy** - verapamil cream +/- ultrasound, laser, iontophoresis, extracorporeal shock wave therapy (ESWT)
- **Device** - VCD, penis extender
- **Surgery** - plication, incision/excision and grafting, prosthesis placement


**Best Treatments**

- An agent to soften the plaque e.g Collagenase
  - A device to stretch the penis by **physical force** e.g VCD, penis extender
10 months of pentoxifylline therapy 400 mg, p.o. t.i.d.p.c.

Surgery for Peyronie’s disease

Penile deformity
>1 year duration
Stable for >3 months

Potent

Potent with PDE5I

Impotent

1. Nesbit
2. Plication
3. Grafting

1. Nesbit
2. Plication

1. Prosthesis only
2. Prosthesis with Modeling
   Plication
   Grafting

Venous leak after Nesbit wedge resection
(for penile deformity in a 27 y/o man)
Surgical Treatments

A) Reconstructive surgery
- shortening the long side
  - plication, wedge resection, several modifications
- lengthening the short side: excision or incision
  - grafts: autologous - dermis, tunica vaginalis, vein, temporalis fascia
  - synthetic - Gortex, silastic, Dacron
  - cadaveric - Tutoplast (human pericardium)
  - SIS (porcine small intestine)
  - Intexen (porcine dermis)

B) Penile prosthesis

Peyronie’s is a psycho-phallic disease
80% of men suffer varying degree of emotional or mental stress.

Indications for Plication

1. Peyronie’s disease
   - Duration > 12 months
   - Stable disease > 3 months
   - Potent
   - Impotent but satisfied with non-surgical ED treatment
2. Congenital penile curvature or rotation

Does the patient really need surgery?
(mild curvature, good erection, no problem with sex)

Thickness of Tunica

Incisions

Ventral curvature: circumcision or dorsal midline vertical
Dorsal curvature: ventral midline
Lateral curvature: lateral (place sutures under neurovascular bundles)

The 16 dots procedure

Papaverine 2 ml
Dorsal curvature

0.25% Marcaine
4 dots for each suture

Non-absorbable:
2-0 Ticron or Tevdek

Still curved
Fine adjustment applied
Aspiration + 0.5 mg of Diluted phenylephrine

Ventral curve, patient does not want circumcision

Minimal dissection Between dorsal vein & artery

16-dots plication

Correction of both dorsal and lateral curvatures

U-Turn Deformity

High resolution ultrasound

Results of the 16-dots method

- F/U: 124 patients, 7 months to 6 years (mean 2.6 years)
- 85% perfectly straight
- Recurrence: 15% slight curve, only 3% were severe
- Worsen erections: 6%
- Shortening: 41% (0.5 cm to 1.5 cm)
- Bothered by suture knots (12%)
- Decreased penile sensation (6%)
- Persistent pain > 4 months (6 men)

What to do if painful erections persists after 3 months?

- Inject 0.3 ml of Marcaine + 0.7 ml of Dexamethason to the tender spots every 3-4 weeks for 4-6 times.

Indications for grafting

- Potent
- Short penis
- Severe indentation or narrowing
- Severe curvature

Contraindications

- ED not due to angulation
- Large communication vessels between dorsal and cavernous arteries
- Poor penile sensation
- UNREALISTIC expectations (my penis used to be 9 inches...)

Unrealistic expectations

Before surgery

After surgery

I want a Texan penis
Preoperative Evaluation

- Potency & expectations
- Documentation of deformity & penile length (long and short side)
- Color duplex ultrasound-vascular function and collateral arteries prior to grafting procedure
- Circumcision status

Dissection of N-V bundle and H - incision
Saphenous vein harvest-two incisions

VCS titanium vascular clips

Placement of venous grafts
Strategy

- Restore length of neurovascular bundles
  - Microdissection of dorsal artery & nerve
  - Clear fibrous tissue from neurovascular bundle
  - Use surgical loupes
- "H" incision at least 1 cm beyond plaque
- Gentle preparation of graft
  - Do not remove adventitia
  - Preserve endothelium

Results of venous grafting for Peyronie's disease

<table>
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<th>Straight penis%</th>
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5 year follow-up: 30-45% men reported worsening erections

Does surgery accelerate disease progression?

*Subjective assessment by patients
Ralph: Current Opinion in Urology, 1999; 9:569-571

Overcorrection and bulging of graft

- 2-0 Ticron plication suture

Complications with SIS graft

- Normal
- Hematoma
- Hematoma
- Abscess

Human cadaveric pericardium

- 40 men with mean deformity of 69 degrees
- Rigid penis after papaverine preop.
- Procedure: partial plaque excision + grafting
- Mean graft size: 4.9 x 4.8 cm


Results

- 98% straight penis
- 95% achieve intercourse
- 70% achieve full unaided erections
- 30% have some degree of ED requiring pharmacologic assistance
- No difference in ED risk factor, plaque location, graft size, complication between those did or did not have ED postop.

Grafting for Peyronie's disease potential problems

1. inadequate correction and recurrence
2. sensory loss or persistent pain
3. Erectile dysfunction
4. bulging of graft
5. indentation or hour-glass deformity

Conclusion

- Plication is the least invasive approach and can be used in patients with partial ED
- Grafting procedures should be used in potent patients only and the possibility of ED, nerve injury, change in sensation must be informed.
- Prosthetic surgery is reserved for patients with both penile deformity and ED.
Problems associated with deformed penis during and after implantation of penile prosthesis

Combined penile plication surgery and insertion of penile prosthesis for severe penile curvature and erectile dysfunction.


If all else fail...
Lue procedure