

Incision/excision & grafting is the optimal surgical technique for severe penile curvatures

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Disclosures

Consultant/Advisory Board Member

Allergan

Anteres

Auxilium

American Medical Systems

Coloplast

Endo

Lilly

Neri / Ixchelsis

NIH

Therologix

Absorbent

Abbott/Abvie

Peyronie's disease

- A fibrotic wound-healing disorder of the tunica albuginea of the penis
- Characterized by penile curvature, palpable penile plaques, hourglass defect, penile hinging/instability, and penile shortening
- 2 phases of disease: acute and chronic
- Oral medications, topical agents, intralesional injections, mechanical stretching or vacuum devices, and ESWL are available options
- Surgery remains the gold standard

Surgical Approaches for PD

- Tunical shortening
 - Nesbit plication
 - Modified penile plication
- Tunical lengthening
 - Incision and grafting
 - Excision and grafting
- Penile prosthesis

- Autologous grafts
 - Dermis
 - Vein grafts
 - Tunica albuginea
 - Tunica vaginalis
 - Temporalis fascia
 - Buccal mucosa
- Allografts
 - Cadaveric pericardium
 - Cadaveric fascia lata
 - Cadaveric dura mater
 - Cadaveric dermis
- Xenografts
 - Porcine small intestine submucosa
 - Bovine pericardium
 - Porcine dermis
- Synthetic grafts
 - Gore-Tex
 - Dacron

Surgical Approaches for PD

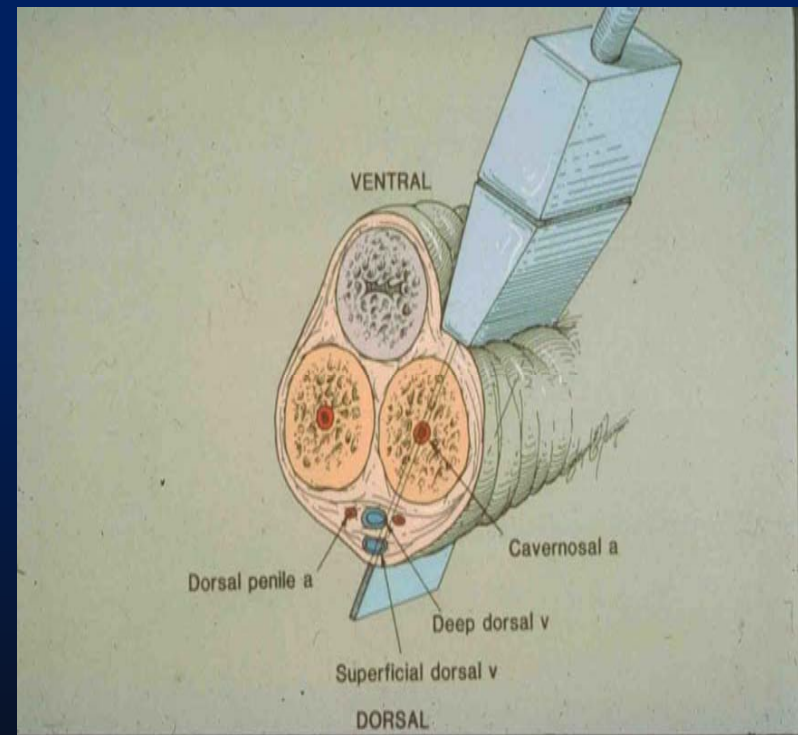
1. Tunical Shortening – Reconstructive procedure on convex side (opposite to the plaque)
2. Penile Lengthening – Reconstructive procedure on concave side (same side as plaque) - incision & grafting
3. Penile Prosthesis - (manual modeling, multiple tunical incisions, incision/excision \pm grafting)

Goals of surgery

- Straighten the penis
 - Preserve penile length and girth
 - Preserve erectile function
 - Achieve overall patient satisfaction
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- Set realistic expectations
 - Thorough pre-op assessment is crucial
 - Choose the right procedure

Preoperative Assessment (PD)

- Assessment of penile vascular (erectile) status allows for optimal surgical approach
- Penile duplex Doppler U/S: assesses structure of corpus cavernosum, tunica albuginea (plaque) & penile vascular function (collateral communications)



Plication

Advantages

- Simple procedure
- Minimally invasive
- Tends to preserve potency

Disadvantages

- Penile shortening
- May worsen an existing hour-glass or hinge effect, particularly if large plications are used

Grafting

Advantages

- Less penile shortening
- Can repair hourglass deformity and greater penile curvatures

Disadvantages

- More complicated surgery
- More post-op ED (less with partial excision/incision)
- Decreased sensation
- Possible graft morbidity

Case

- Previously sexually active 58 year old male with chronic Peyronie's disease and a 90° upward curve
- Mild ED responsive to medical therapy



Prospective analysis of 103 PD men

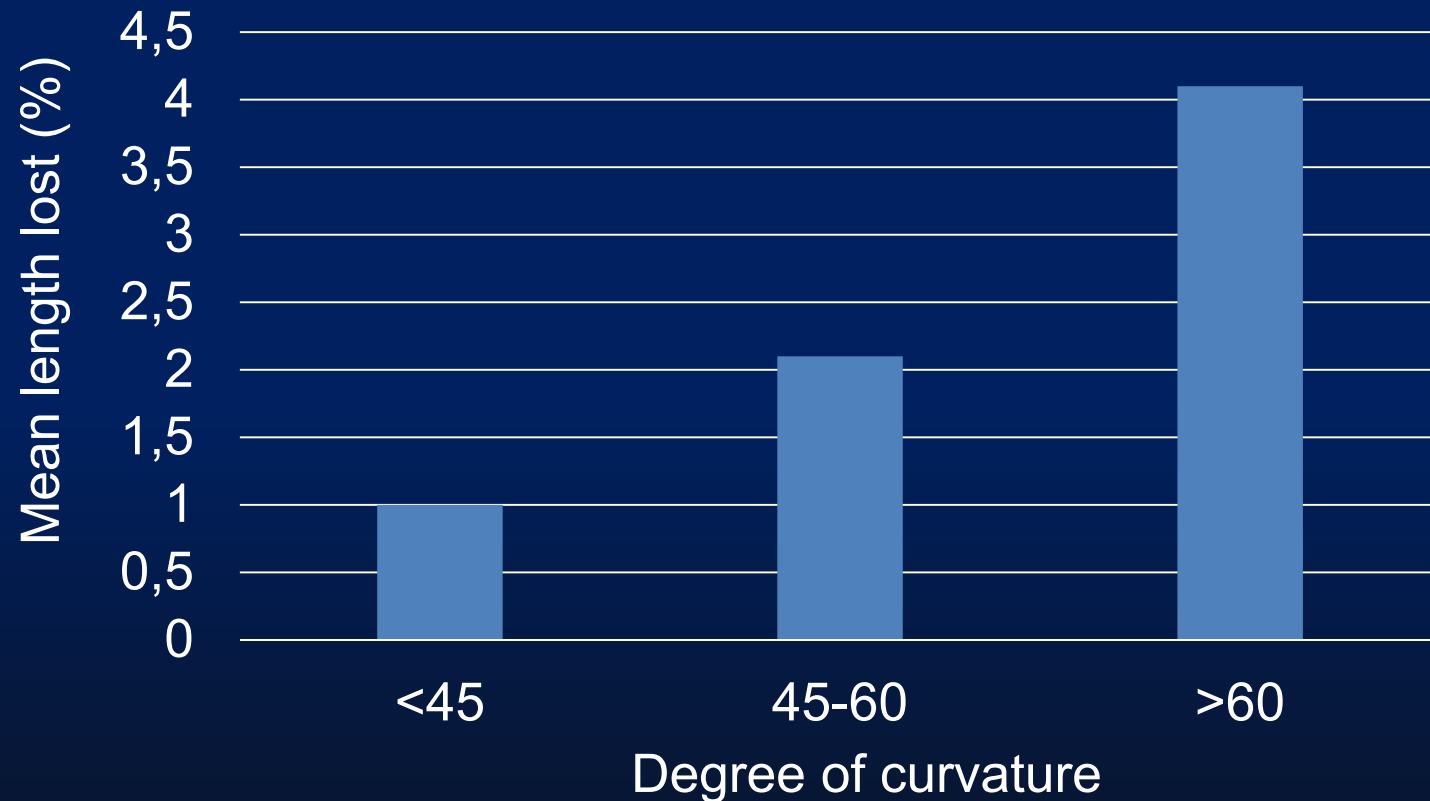
Surgical Procedure	No.	Age Mean (range)	Degrees Preop. Curvature Mean (range)	Mos. Followup Mean (range)
Tunica albuginea plication	22	40 (21–68)	39 (30–90)	19.5 (3–39)
Incision or partial excision and dermal grafting	48	47 (16–67)	Dorsal 62, lateral 61, ventral 90	19.6 (3–48)
Tunica vaginalis grafting	4	41 (29–52)	55 (30–90)	33.0 (30–37)
Prosthesis placement	29	54 (40–75)	55 (0–90)	22.3 (3–45)

Post-operative results following tunica albuginea plication (n=22)

	Number (%)
Full erectile capacity	20 (91)
Complete straightening	20 (91)
Persistent curvature	2 (9)
Penile shortening	2 (9)
Decreased sensation	1 (4.5)
Erectile insufficiency	2 (9)

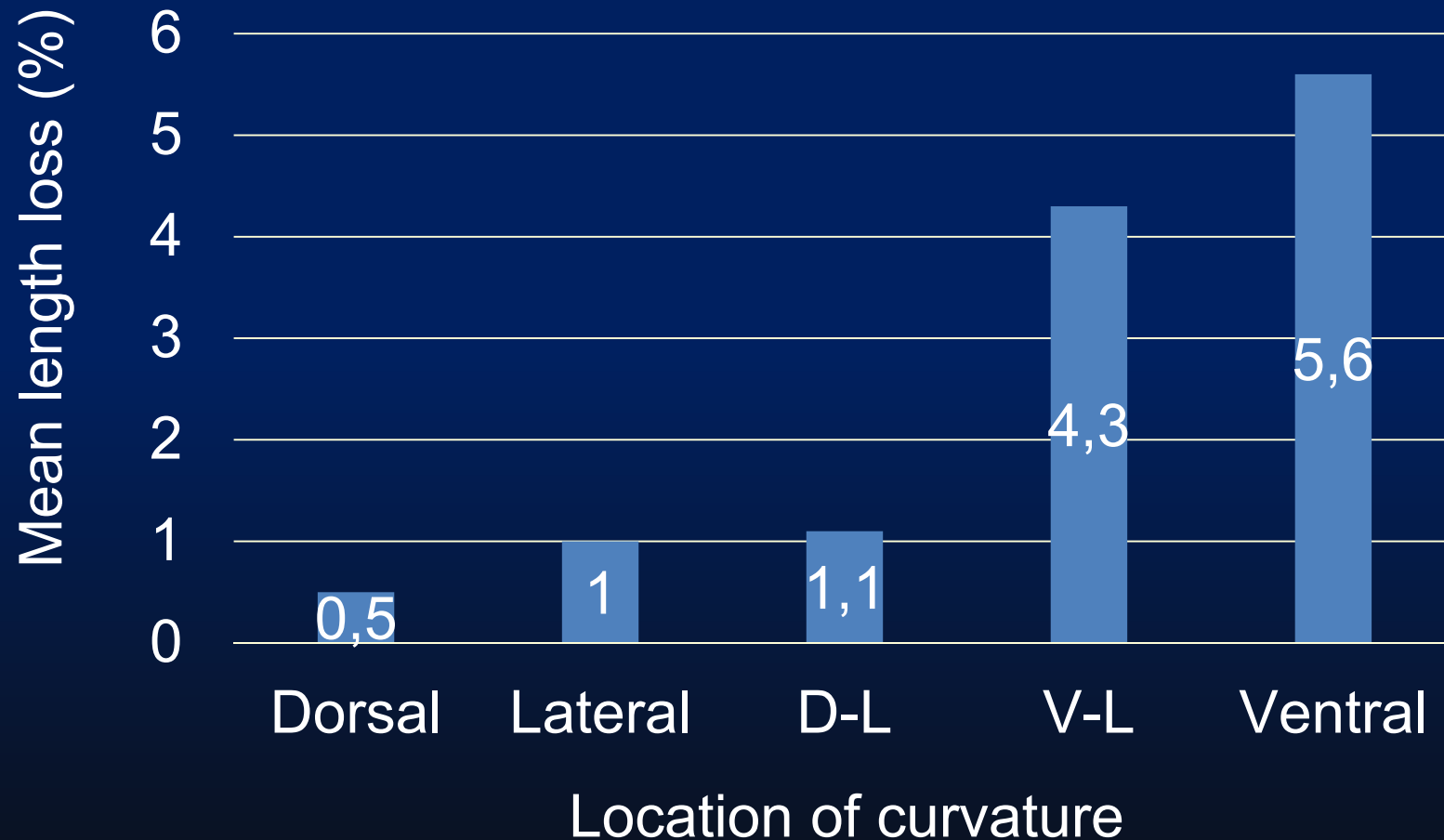
Curvature $\geq 90\%$

102 men with tunica albuginea plication (68 with Peyronie's disease)

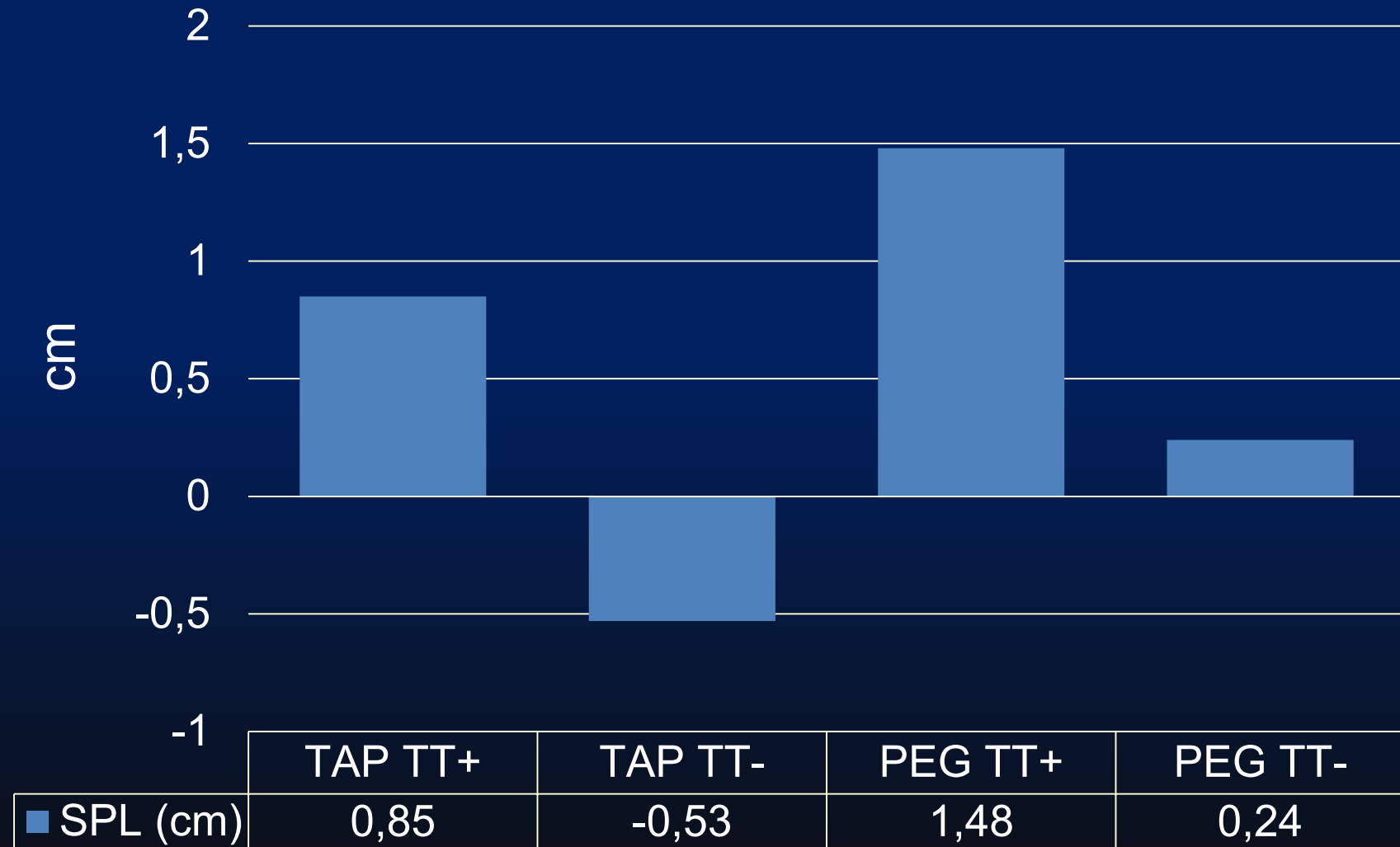


On linear regression analysis, increased curvature (by duplex and intraop erection testing) was a significant predictor of loss of penile length post-op

Location of curvature and shortening



TAP vs PEG +/- Traction



Erectile Dysfunction (n=218)

	Tunica albuginea plication	Plaque excision with grafting	P value
Number of cases	103	115	
Average preoperative curvature (degrees)	49	75	<0.001
Presence of hinge effect on duplex ultrasound (%)	30	54	<0.05
Preoperative erectile function (out of 10)	8.8	8.7	0.47
Follow-up (months)	84	91	0.06



No difference in rates of ED among patients who underwent tunica albuginea plication or plaque excision with grafting

Size of defect during PEG and ED

Tunical defect	Necessity for PDE-5 Inhibitors		
	No	Yes	Total
≥3cm	5 (41.7)	7 (58.3)	12
<3cm	20 (77)	6 (23)	26

P=0.033



Additional procedures on the opposite side of the lesion might be required in these instances

Comparative outcomes

	Tunical shortening procedures		Tunical lengthening procedures
	Nesbit	Plication	Grafts
Penile shortening (%)	4.7-30.8	41-90	0-40
→ Penile straightening (%)	79-100	58-100	74-100
→ Persistent or recurrent curvature (%)	4-26.9	7.7-10.6	0-16.7
Postoperative erectile dysfunction (%)	0-13	0-22.9	0-15
→ Penile hypoesthesia (%)	2-21	0-21.4	0-16.7

Graft morbidity

- Historically, total excision of the plaque & grafting resulted in unacceptably high rates of ED, contractures & infections
- Incision and grafting studies report 77% partner satisfaction and 79%-100% rigidity adequate for coitus
- Pericardial grafts contract minimally and have virtually no reported infections or rejections
- SIS grafts with approximately 5% infection rate
- Future: stem cell therapy/tissue engineering

Egydio P et al; Urology 2002;59:570-4

Taylor F and Levine LA; J Sex Med 2008;5:2221-8

Kovac JR and Brock JM; J Sex Med 2007;4:1500-8

Breyer BN et al; J Urol 2007;177:589-91

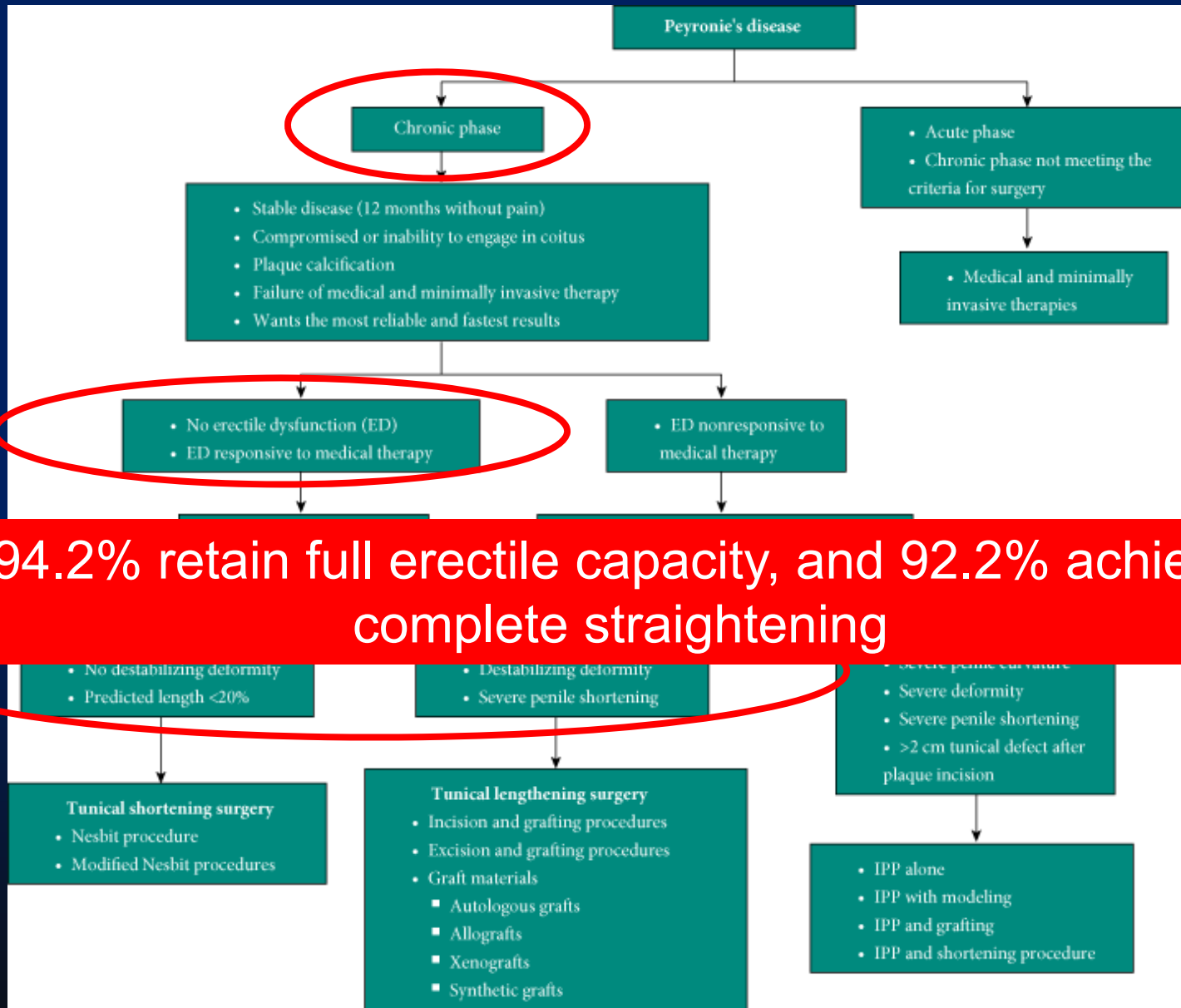
Gokce A et al; Andrology 2014;2:244-51

Satisfaction



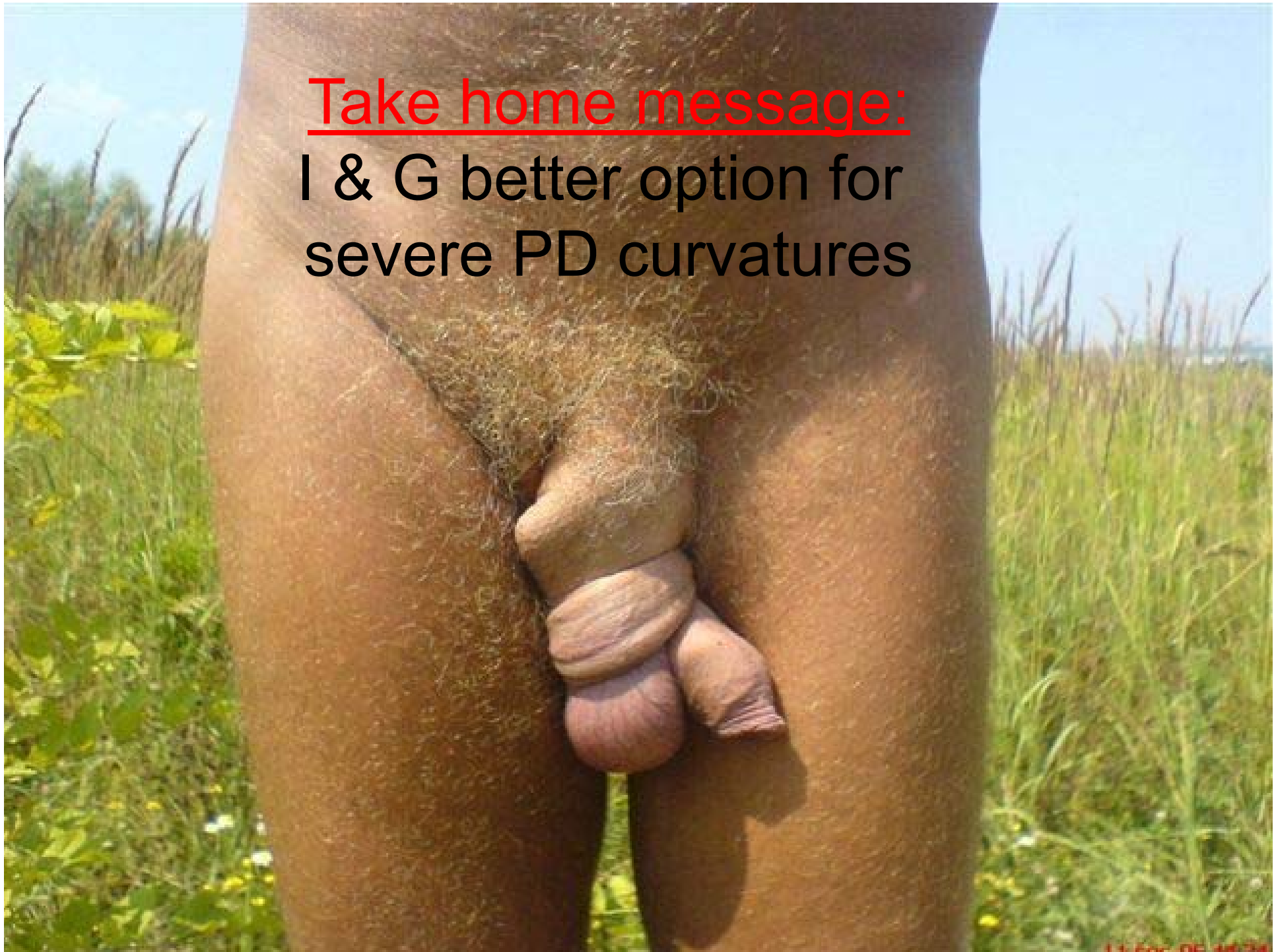
Plication: 76.2-100%

Graft: 41-93%



94.2% retain full erectile capacity, and 92.2% achieve complete straightening

Take home message:
I & G better option for
severe PD curvatures



Thanks

Goals of surgery

- Preserve erectile function
- Straighten penis
- Preserve penile length and girth
- Achieve overall patient satisfaction

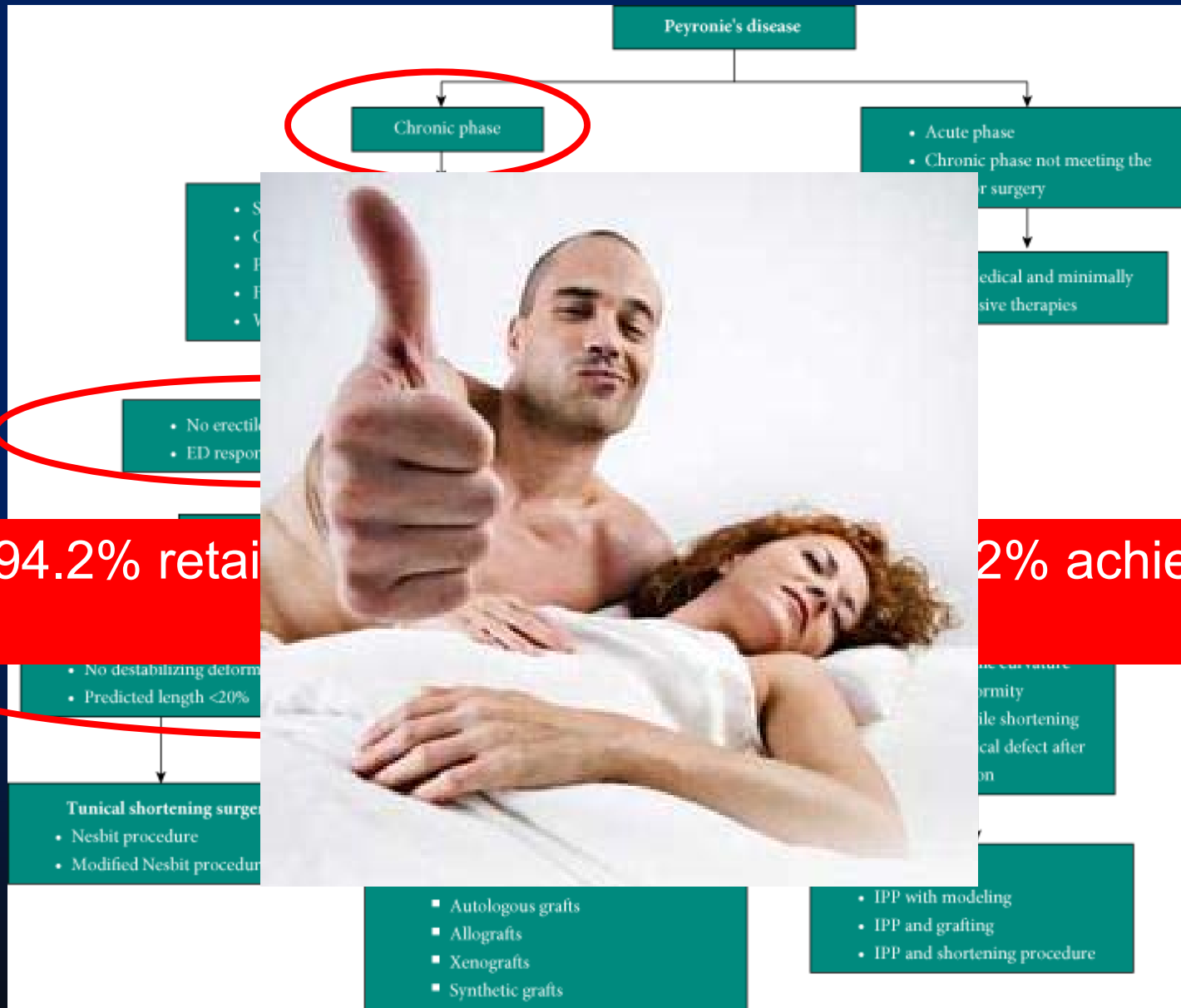
- Set realistic expectations
- Thorough pre-op assessment is crucial
- Choose the right procedure



Case report

- 58 y/o man
- Mild arterial hypertension
- 5-10 cig./day
- Slightly overweight, BMI: 28
- Good erections. IIEF: 25
- No stable relationship
- Unable to penetrate





94.2% retain

2% achieve

Friday 10/10/14. Point-counterpoint 3.

90° penile curvature: patch or corporoplasty?

Speakers: Prof. Wayne Hellstrom (patch)

Prof. Arthur Burnett (corporoplasty)

XVI ISSM World Meeting. Sao Paulo.

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Surgical treatment options

Tunica plication

- Curvature $<60-70^\circ$
- No destabilizing hour-glass or hinge
- Predicted loss of length $<20\%$ erect length

Plaque Incision/Partial Excision and grafting

- Curvature $>60-70^\circ$
- Destabilizing hinge
- Gross morphologic abnormality e g ring or waisting

Penile prosthesis implantation

- Indicated when the man with PD has ED that does not respond to medical therapy (confirmed by duplex)