Surgical Treatment of PD – Indications and Options

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Disclosures

AbbVie – Consultant, Speaker
Absorption Pharmaceuticals – Officer
American Medical Systems – Consultant
Auxilium – Consultant, Speaker
Coloplast – Consultant, Speaker
Indications for Surgical Reconstruction

- Stable disease (≥ 6 mos)
- Painless deformity
- Compromised/Unable to engage in coitus (2° to deformity and/or inadequate rigidity)
- Failed conservative therapy
- Extensive plaque calcification
- Desire most rapid and reliable result
Factors Determining Selection of Surgical Approach

- Erectile function
- Degree of curvature
- Presence of hinge effect
- Penile length
PD – Surgical Algorithm

- When rigidity adequate +/- pharmacotherapy

1) Tunica plication techniques
   - Simple curve < 60 degrees
   - No hourglass or hinge-effect
   - When length ↓ < 20% total erect length

2) Incision/ Partial Excision and Grafting
   - Complex curve >60 degrees
   - Destabilizing hourglass or hinge
Goal of Surgical Algorithm

- Provide functionally straight erection ≤ 20°
- Preserve or improve rigidity
- Minimize shortening

NB – Some variation due to pt preference - 1° fear of ↓ length with TAP or refusing IPP
Surgical Plication Techniques

- Nesbit – Excision & closure
- Yachia – Incision & plication
- Lue – 16 dot – No incision plication
- Duckett/Baskin/Levine TAP – Partial incision & plication
- New – Tunical Underlap – Schwarzer, Steinfatt
Plication Procedures

- All shorten the long side of the penis
- Nesbit procedure:
Yachia Technique
Yachia Technique
The 16 dot Procedure

Non-absorbable: 2-0 Ticron or Tevdec
Tunica Albuginea Underflap

TAP – Tunica Albuginea Plication
Create Erection
Measure Curve
Elevate Buck’s Fascia
Incise Tunic
Excise Longitudinal B/T Incisions
Single Central 2-0 Tevdek Suture
Re-enforce with 3-0 PDS
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<th>Number of patients</th>
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Outcome of Tunical Shortening Procedures for Peyronie's Disease

8-359 12-89 mos 29-100% 2-60% 62-96%
Plication Procedures

**PROS**
- Simple
- Minimally invasive
- Preserve potency in most

**CONS**
- +/- penile shortening
- Best for smaller unidimensional curves
- May worsen narrowing or hinge effect
Drawbacks of Tunica Plication for PD

- Does not correct shortening
- May ↑ length loss
- Does not address hinge or hourglass
- Pain, knots, sensory changes possible
Recommendation - Plication Procedures

There is no evidence that one surgical approach provides better outcomes over another, but curvature correction can be expected with low risk of new ED

Grade C

Ralph et al JSM 2010; 7
Incision/Partial Excision & Grafting - Indications

- Must have good pre-op erections !!!
- Curvature > 60 degrees
- Significant shaft narrowing
- Hinge-effect present
- Extensive plaque calcification

Ralph et al JSM 2010;7
Advantages of PIG/PEG Procedure

- Best opportunity to correct severe curvature > 60-70°
- Only approach to reestablish girth & correct hinge
- Least likely to cause further length loss
- Most likely to enhance length with or without traction post-op
Risks of PIG/PEG

- #1 thru 10 – Diminished rigidity to complete ED

- Others
  - Incomplete correction/recurrent curve – 5-10%
  - Shortening – rare
  - Diminished sexual sensation – temporary
PD-Patient Preference

- 55° Curve
- 10/10 Rigidity
- Refused TAP- fear of ↓ length
PD-Patient Preference

- 50° curve w/ borderline EF
- 2” Shortening
- Refused IPP and plication, understood ↑ED risk, requested PEG
60° curve w/ hinge
Severe Curve with Hinge

“Luggage Handle”
47 yo male – 90° dorsal curve
severe indent w/ hinge – grade 3 Ca++
26 x 4 mm & 6 x 2.4 mm
Why would I advise against having a grafting procedure?

- Borderline “stuffable” or less rigidity (i.e. ≤ 7/10) with or without PDE5i tx regardless of curve
- “Long” penis w/o hinge and/or mild/moderate curvature (<70°)
Why Not Do Grafting

- It’s a complicated surgery in men with unreliable rigidity ± PDE5i – better to offer TAP or IPP

- But if it makes sense and all parties are informed

- Centers of Excellence should do these procedures and train those interested
Surgical Grafting Techniques

- Plaque incision/partial excision

- Goal: Limit trauma to cavernosal tissue to maintain veno-occlusive relationship with tunica and graft
Modified H-Incision
4 mos post-PEG

Patient self-photo
Risk of Post-op ED

1) Age > 45y (n=56)\(^1\)
2) Curvature > 60°\(^1\)
3) Pre-op venous leak\(^1\); RI < 0.80 (n=11)\(^2\)
4) Only parameter – pre-op EF status (n=37)\(^3\) (n=218)\(^4\)

\(^1\) Flores S et al. J Sex Med 2011; 8: 2031-7
\(^2\) Alphs H et al. J Sex Med 2010; 7: 1262-8
\(^4\) Taylor F et al JSM 2012; 9:296-301
Post-Straightening Rehabilitation

- Begin message & stretch
  - 5 min BID x 4 wks
  - 2 wks post-op

- Consider PDE5i qhs early post-op to enhance nocturnal erections
  - Levine et al, J Urol 2005

- Penile Extender Tx ~2-3wks post-op x 3 mos
  - Moncada et al, AUA 2007, abst 750

- No perceived or measured length loss when traction used as compared to no traction use N=111
  - Rybak et al, AUA 2011, abst 1814
Surgical Reconstruction for PD Following Clostridial Collagenase (Xiaflex) Injection

- N=7 TAP-2; PEG-1; PEG & TAP-4 \( \bar{x} \) age 56
  - Mean pre & post-ILI curve – 59° & 58°
  - Mean pre & post-op rigidity (0-10) – 8.2 & 8.9
  - Mean preoperative SPL – 10.3 & 11.1 cm
  - Post-op satisfaction 85% (1/7 - c/o shorter)

- **Concl:** Surgical reconstruction can be successfully performed w/o added difficulty after collagenase (Xiaflex) IL injection

Larsen & Levine in press JSM 2014
PD – Surgical Algorithm
(Levine and Dimitriou 2000)

- When inadequate rigidity
  3) Penile Prosthesis Placement
    - IPP alone
    - With modeling (Wilson)
    - With incision
    - With incision and grafting (defect >2 cm)
- Plication b/4 IPP placement

Morey et al JSM 2013
Manual Modeling
Post-Modeling Residual Curve
Expose & Incise Tunic
Patch Defect
Comparison of AMS CX700 & Titan IPP for PD & ED

- **Main outcomes** – post-IPP sexual characteristics, overall patient satisfaction

- **Methods** – single-center retrospective review b/t 2006-2010 w/ IPP & modeling w/ 135 men $\bar{x}$ age 58 (32-80) $\bar{x}$ F/U 45mos

- **Results** –
  - $\bar{x}$ curve 49°, 10 had internal incision, 1 graft
  - CX700 – 88 & Titan – 50
  - 8 (6%) revisions for malf(x); 3 (2%) infection → explant
  - **Device survival** – 5 y. Kaplan-Meier
    - est 91% CX700 vs. 87% Titan – p > 0.05
  - No difference in straightening
  - 82% would undergo again
  - 79% greatly satisfied

Chung et al JSM 2012; 9
Future of PD Surgery

- **New grafts**
  - Human amniotic membrane  
    Salehipour et al - Int Braz J Urol 2014
  - Stem cell seeded  
    Ma et al PNAS 2012 (Tulane)

- **IPP w/ lengthening**
  - Circular longitudinal grafting  
    Egydio et al - BJUI 2013
    - N = 105  
      x ↑ length 3.6cm
  - Double dorsal-ventral patch  
    Rolle et al - JSM 2012
    - N = 3  
      x ↑ length 3.2cm

- **Revascularization & curve correction to obviate IPP**  
  Djordjevic & Kojovic – Andro Science 2010
  - N = 9  
    100% sat rigidity & straight, IIEF-5 9.8→22
Circular and Longitudinal Grafting

Conclusion

- Surgical Treatment of PD
  - Remains gold standard
  - Is the most rapid & reliable Tx when PD stable
  - Can be challenging & requires specialized training
  - The published algorithms are excellent guides to successful outcomes