Tips for Management of Complications from CCH and PD Surgery and How to Avoid Them

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Disclosures

- None.
Fear... the curved penis
Peyronie’s Surgery
Peyronie’s Surgery

Loss of Sensation

Penile Shortening
Peyronie’s Surgery

Glans ischemia
CCH

Hematoma

Corporal Rupture
Pain/Swelling after CCH

- Expected after each injection.
- Incidence ranges from 10 to 55%.

Management Tip:
- Reassurance, supportive care, and NSAIDs

Gelbard et al. J Urol 2012
Gelbard et al J Urol 2013
Hypersensitivity Reactions

• Immune-mediated reactions to the collagenases (AUX-I and AUX-II).

• Symptoms:
  ➢ Pruritus
  ➢ Urticaria
  ➢ Rash

• Rare (<1%) and self-limiting.

Carson et al. BJU Int 2015
Bleeding-Related Events

1. Ecchymosis
2. Blood Blisters
3. Hematoma formation

• Observed in up to 87% of cases.¹

¹ Gelbard et al. J Urol 2012
Ecchymosis

- Not a hematoma
- Common (~16-40%)

- Observation

Hellstrom. AUA 2019 Meeting
Blood Blisters

• Not a hematoma

• Managed with Drainage and compressive dressing (Coban)
• Retrospective Multi-institutional analysis

• N=918.

<table>
<thead>
<tr>
<th>Treatment-Related Adverse Events (moderate-severe)</th>
<th>N (%)</th>
</tr>
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<tbody>
<tr>
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<td>838 (91)</td>
</tr>
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- Retrospective Multi-institutional analysis
- **918 patients**, mean age 56.6 yrs.

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Investigated the prevalence of complications and management trends among SMSNA members.

- 100 responders
Hematoma Management
2016 SMSNA Survey

How often do you encounter severe hematomas?

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;10% of patients</td>
<td>68</td>
<td>73%</td>
</tr>
<tr>
<td>10–25% of patients</td>
<td>20</td>
<td>21%</td>
</tr>
<tr>
<td>25–50% of patients</td>
<td>4</td>
<td>4%</td>
</tr>
<tr>
<td>&gt;50% of patients</td>
<td>2</td>
<td>2%</td>
</tr>
</tbody>
</table>

How do you manage hematomas?

<table>
<thead>
<tr>
<th>Method</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observation alone</td>
<td>58</td>
<td>63%</td>
</tr>
<tr>
<td>Compressive dressing alone</td>
<td>18</td>
<td>20%</td>
</tr>
<tr>
<td>Drainage alone</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>Combination of 2 or more of above*</td>
<td>14</td>
<td>15%</td>
</tr>
</tbody>
</table>

Hematoma Classification System  
(Mills, UCLA)

- **Grade I**: Bruising/swelling involving less than 1/3 of penile shaft. Erection maintained.

- **Grade II**: Bruising/swelling on 1/3 to 2/3 of penile shaft. Erection maintained.

- **Grade III**: Bruising/swelling on >2/3 of penis. Erection maintained.

- **Corporal Rupture**: Bruising/swelling on entire penis. Minimal to no erection in first 24 hours after injection.
Hematoma Management
Based on Mills Classification

• Grade I:
  • Coban wrap for 24 hours, ice. May consider immediate injection if plaque still palpable.

• Grade II:
  • Coban wrap for 24 hours, ice. Delay next injection 7 days. Unlikely to require drainage.

• Grade III:
  • Coban wrap for 24 hours, ice. Will need to delay injection until swelling subsides, (1-2 weeks).
  • May require drainage.

• Corporal rupture: ???
Corporal Rupture: Imaging

- Helpful in differentiating a Class III hematoma from corporal rupture.

- **Ultrasound**
  - Easily accessible.
  - In office.

- **MRI**
  - More accurate in defining corporal rupture.
Corporal Rupture

- Incidence: 0.5 – 0.8%.

- All published descriptions reveal occurrence of event within 30 days of injection.

- Controversy regarding management.

Carson et al. BJU Int 2015
Corporal Rupture Management
2016 SMSNA Survey

- 31% of ruptures occurred spontaneously
- 84% of ruptures occurred at the site of the plaque.

Have you ever encountered a corporal rupture?
- Yes: 34%
- No: 66%

How did you manage the Corporal Rupture?
- Surgery: 67%
- Conservatively: 33%

Corporal Rupture

- Traditionally managed with surgical exploration for all patients.

- Post-Xiaflex corporal rupture is different from traditional traumatic fractures. Weaker tunica and part of healing process.
  - Observation reasonable.

- Imaging helpful to differentiate between mild and severe ruptures/urethra involvement: surgery indicated.

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Tips for Management (CCH)
(My preference)

• How to avoid hematoma formation?
  • Compressive dressings after every injection for 24 hours.
  • Apply ice upon arrival to home.

• How to avoid corporal rupture?
  • Advise patients to abstain from intercourse for 4 weeks after treatment cycle
  • ???
<table>
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<tr>
<th>PD Surgery Complications</th>
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<tbody>
<tr>
<td><strong>Plication</strong></td>
</tr>
<tr>
<td>- Loss of Sensation</td>
</tr>
<tr>
<td>- Penile Shortening</td>
</tr>
<tr>
<td>- De Novo ED</td>
</tr>
<tr>
<td><strong>Grafting</strong></td>
</tr>
<tr>
<td>- Loss of Sensation</td>
</tr>
<tr>
<td>- Penile Shortening</td>
</tr>
<tr>
<td>- De Novo ED (up to 30%)</td>
</tr>
<tr>
<td><strong>IPP</strong></td>
</tr>
<tr>
<td>- Loss of Sensation</td>
</tr>
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<td>- Penile Shortening</td>
</tr>
</tbody>
</table>
• Evaluation of Penile sensation after PIG with biothesiometer.

• N=63, mean age 56 ± 10 years.

• 21% had decreased sensation postop.

• All but 1 patient recovered sensation within 2 years.
Decreased Penile Sensation

Recommendations

1. Be aware of anatomy (NVB)
   • Careful dissection.

2. Neurological testing
   • Biothesiometry
   • Pudendal somatosensory evoked potentials
   • Sympathetic skin testing (SSR)
   • Referral for neurogenic investigation

3. Reassurance
4. Pharmacotherapy??
Complications of Plication for PD

- **Hematoma**: uncommon, conservative treatment
- **Wound infection**: uncommon, prevention is the key
- **Urethral injury**: extremely rare
- **Sensory numbness of glans**: occasional with degloving, avoid circumcision if it is possible
- **Chronic pain (Plication)**: removal of plication sutures
- **Penile shortening**: unavoidable, pre-op counseling
<table>
<thead>
<tr>
<th>Procedure</th>
<th>Author/ Date</th>
<th>Complete Deformity Correction</th>
<th>Penile Shortening</th>
<th>De Novo ED</th>
<th>Loss of Penile Sensation</th>
<th>Post-operative Pain</th>
<th>Overall Satisfaction</th>
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<tbody>
<tr>
<td>Nesbit</td>
<td>Syed et al, 2003</td>
<td>62</td>
<td>50</td>
<td>12§</td>
<td>21</td>
<td>NR</td>
<td>76</td>
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<tr>
<td>Tunical albuginea plication (TAP)</td>
<td>Paez et al, 2007</td>
<td>42</td>
<td>NR</td>
<td>61</td>
<td>66</td>
<td>28</td>
<td>NR</td>
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<tr>
<td></td>
<td>Taylor et al, 2008</td>
<td>93</td>
<td>18</td>
<td>10</td>
<td>31</td>
<td>NR</td>
<td>84</td>
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<tr>
<td>Yachia Procedure</td>
<td>Daitch et al, 1999</td>
<td>93</td>
<td>57</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>79</td>
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<tr>
<td></td>
<td>Rehman et al, 1997</td>
<td>73</td>
<td>73</td>
<td>23 inferred</td>
<td>19</td>
<td>NR</td>
<td>77</td>
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<tr>
<td>Giammusso Procedure</td>
<td>Giammusso et al, 2004</td>
<td>100</td>
<td>67</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>83</td>
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<tr>
<td>Lemberger Procedure</td>
<td>Lemberger et al, 1984</td>
<td>94</td>
<td>NR</td>
<td>33</td>
<td>5</td>
<td>0</td>
<td>78</td>
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<tr>
<td>The 16- or 24-dot Procedure</td>
<td>Gholami et al, 2002</td>
<td>93</td>
<td>41</td>
<td>6</td>
<td>6</td>
<td>11</td>
<td>96§</td>
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<tr>
<td>Essed-Schröder Tunical Plication</td>
<td>Van der Horst et al, 2004</td>
<td>100</td>
<td>74</td>
<td>36</td>
<td>28</td>
<td>14</td>
<td>68</td>
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<tr>
<td></td>
<td>Friedrich et al, 2000</td>
<td>81</td>
<td>19</td>
<td>3</td>
<td>7</td>
<td>26</td>
<td>81</td>
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<tr>
<td>Penoscrotal Plication Procedure</td>
<td>Dugi et al, 2010</td>
<td>93</td>
<td>0</td>
<td>NR</td>
<td>0</td>
<td>6</td>
<td>93</td>
</tr>
<tr>
<td>Tunical Plication and plaque thinning with burs</td>
<td>Ding et al, 2010</td>
<td>83</td>
<td>67</td>
<td>0</td>
<td>NR</td>
<td>NR</td>
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Plication Tips

• Normal EF
• Bury knots
• Use ventral ‘natural’ line for incision if possible.
• Counsel, Counsel Counsel!
Grafting tips

- Normal EF
  - Discuss ~30% risk of ED
- Plaque incision preferred over excision
- Careful dissection of NVB or urethra.
- Graft larger than defect (15% or more)
Peyronie’s and ED
Penile prosthesis

- Need for straightening maneuvers increases with degree of curvature
  - $\leq 30^\circ \rightarrow 0\%$
  - 31-45° $\rightarrow 12.5\%$
  - 45-60° $\rightarrow 75\%$
  - $>60^\circ \rightarrow 100\%$

Garaffa et al. BJU Int 108:1152, 2011
Glans Ischemia/Necrosis

• N=21 s/p penile prosthesis

• Preop factors
  • CAD (90%)
  • DM (81%)
  • Smoking (81%)

• Peri-operative factors
  • Circumcision with degloving (86%)
  • Occlusive elastic bandage (62%)
  • Sliding Technique (33%)

Wilson et al. Urology 107:144; 2017
Tips for Penile Prosthesis Placement in PD

- Non-Degloving approach

Tips for Penile Prosthesis Placement in PD

- Non-Degloving approach

Conclusions

- Most CCH-related adverse events are minor or moderate in severity (87%) and resolved without intervention (79%).

- Most hematomas can be managed conservatively with compression dressings.

- There still remains controversy on the management of post-CCH corporal rupture.

- Pre-op counseling is important for those undergoing surgery.

- Non-degloving approach could potentially decrease risk of glans ischemia in complex Peyronie’s cases requiring PP placement.
Thank You!

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