Anal Abscesses/Fistula

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Anatomy

Cryptoglandular origin

The Acute Phase: Abscesses
The Chronic Phase – Fistulas
(common types)

Intersphincteric
Transsphincteric

The Chronic Phase – Fistulas
(uncommon types)

Suprasphincteric
Extrasphincteric

Perirectal Spaces – Horseshoe Extensions

Clinical picture

• Symptoms:
  – Pain, constant
  – Worse with motion, cough, sneezing
  – Fever, elevated white cont
  – Urinary symptoms
  – Sepsis
• Perianal swelling, redness, fluctuation, skin necrosis
• Painful digital rectal exam
Abscesses

Fistula

Diagnosis

- H&P
- Digital rectal exam
- Imaging
  - ERUS
  - CT
  - MRI
- Exam Under Anesthesia
Differential diagnosis

- Other painful anorectal conditions - fissure
- Crohn’s disease
- Presacral cysts
- Supralevator abscess from pelvic conditions
- Iatrogenic infections

ERUS

- Good resolution for fluid collections
- Useful to detect intersphincteric abscesses

Postanal space abscess

Horse-shoe extension

Useful for both the acute and chronic phase
CT Scan

- Can be useful, particularly in large and supralevator abscess
- Does not depict the pelvic floor as well as MRI

Supralevator abscess with horseshoe extension
Crohn’s disease

Differential diagnosis
Supralevator and ischiorectal abscesses
DRE VS. MRI in the diagnosis of abscesses

<table>
<thead>
<tr>
<th>Ischiorectal</th>
<th>Supralevator</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRE</td>
<td>75%</td>
</tr>
<tr>
<td>RMN</td>
<td>60%</td>
</tr>
</tbody>
</table>


Treatment of perianal /ischiorectal abscess

Treatment of supralevator abscess of cryptoglandular origin

- Identify the responsible crypt
- Perform an internal sphincterotomy from the dentate line up
- Drain the abscess cavity to the distal rectum
• Drainage of a supralevator abscess though the ischiorectal space results in a transsphincteric fistula.

Fistula: Treatment Goals

– Eradicate the infection
– Without causing fecal incontinence

Treatment of supralevator abscess of colonic origin

Treatment Plan

• Confirm the diagnosis
• To define the anatomy
• Drain pus pockets
• Open secondary extensions
• Treat the fistulous tract
Preoperative Evaluation

- Familiarity with the anatomy of the anorectal region
- Understanding of the cryptoglandular origin
- Differential diagnosis
- Physical exam
  - Inspection of the perianal area
  - Anoscopy/Sigmoidoscopy
  - Bi-digital exam
  - No probing in the office!!
- Selective use of the imaging studies
- Document status of continence

Goodsal's Rule (Revisited)

Percentage of internal opening in the midline

<table>
<thead>
<tr>
<th></th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posterior</td>
<td>87%</td>
<td>97%</td>
</tr>
<tr>
<td>Anterior</td>
<td>62%</td>
<td>90%</td>
</tr>
</tbody>
</table>

Exam Under Anesthesia

- Prone jackknife position
- Good illumination
- Inspection of the anal canal
- Probing of the external orifice
- Hydrogen peroxide
- Follow granulation tissue
- Assess % of sphincter involved
When the internal opening is found and the anatomy is clear

• Classify the fistula
• Assess % sphincter involved
• Decide the type of procedure
When the internal opening cannot be found or the anatomy is uncertain

• End the operation - Wake the patient up
• Imaging studies
  - *Endoanal Ultrasound*
  - *MRI*
• New EUA when the external opening of the fistula is draining
• Send the patient to an experienced colleague

**Surgical Options**

**A. Opening the primary tract**
- Fistulotomy and marsupialization
- Fistulotomy and primary reconstruction
- Two stage seton-fistulotomy
- Cutting seton

**B. Closure of the fistulous tract**
- Draining seton
- Fibrin glue
- Intersphincteric approach
- Core-out
- Cutaneous advancement flap
- Endoanal advancement flap
- Collagen Plug
- Lift Procedure
Fortunately, most anal fistulas are superficial and can be treated by fistulotomy and marsupialization.

**Risk of fecal incontinence after fistulotomy of transsphincteric fistula**

- Percentage of the sphincter involved by the fistula
- Line graph showing the risk of fecal incontinence based on the percentage of the sphincter involved.

**Fistulotomy**

- OK
- NO

**SETONS - RATIONALE**

- Chronic Inflammation
  - Fibrosis
  - Sphincter Fixation
  - Prevents Retraction
Cutting Seton vs. Two Stage Seton-Fistulotomy

**Results**

<table>
<thead>
<tr>
<th></th>
<th>CS (n=12)</th>
<th>SF (n=49)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recurrence</td>
<td>8%</td>
<td>9%</td>
</tr>
<tr>
<td>Incontinence</td>
<td>67%</td>
<td>66%</td>
</tr>
<tr>
<td>Gas %</td>
<td>50%</td>
<td>55%</td>
</tr>
<tr>
<td>Soiling %</td>
<td>50%</td>
<td>38%</td>
</tr>
<tr>
<td>Stool %</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td>Grade (0-15)</td>
<td>4.9</td>
<td>4.2</td>
</tr>
<tr>
<td>Healing time (weeks)</td>
<td>12</td>
<td>15</td>
</tr>
</tbody>
</table>

Garcia-Aguilar et al, BJS 96

Summary

Fistulotomy, with or without a seton, cures most anal fistulas, but carries a risk of incontinence that is proportional to the amount of sphincter involved.
Staged Treatment of High Anal Fistula

- First Stage
  - drain pus pockets
  - unroof secondary extensions
  - draining seton in transsphincteric tract

- Second Stage
  - Endoanal advancement flap

Draining seton

Endoanal Advancement Flap
**Fibrin Glue**

Results in Cryptoglandular Fistula

<table>
<thead>
<tr>
<th>Patients</th>
<th>F/U (months)</th>
<th>Recurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hjortrup 1991</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>Abel 1993</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Aitola</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>Cintron 2000</td>
<td>53</td>
<td>12</td>
</tr>
<tr>
<td>Chan 2002</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>Zmora 2003</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>Sentovich 2003</td>
<td>36</td>
<td>22</td>
</tr>
<tr>
<td>Buchanan 2003</td>
<td>22</td>
<td>16</td>
</tr>
<tr>
<td>Lougnarath 2004</td>
<td>22</td>
<td>23</td>
</tr>
</tbody>
</table>

**Collagen Plug**

The intersphincteric approach

**Plug or Flap?**

<table>
<thead>
<tr>
<th>Number</th>
<th>F/U</th>
<th>Success</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plug</td>
<td>29</td>
<td>10 m</td>
</tr>
<tr>
<td>Flap</td>
<td>26</td>
<td>27 m</td>
</tr>
</tbody>
</table>

Wand et al, DCR 52: 692-7; 2009
LIFT

Results of the “Lift” procedure

- 93 patients
- 32% previous history of surgery
- Follow-up 19 months
- Success rate 40%

Wallin et al, DCR 55: 1173-8, 2012

<table>
<thead>
<tr>
<th>Factors</th>
<th>Number (n)</th>
<th>Additional information</th>
</tr>
</thead>
</table>
| Studies                  | 13         | • Retrospective: 5
                  |             | • Prospective: 7
                  |             | • RCT: 1                                 |
| Year of Publication      | 2007-2012  |                                         |
| Total patients           | 498 (sample size: 18-93 pts) | • Transphincteric: 470 (94%)
                  |             | • Intersphincteric: 11 (2.2%)
                  |             | • Suprashincteric: 9 (1.8%)
                  |             | • Rectovaginal: 4 (0.8%)                 |
| Previous Seton drainage  | 153 (31%)  |                                         |
| Technical adjuncts       | 8 studies  | • Bioprosthetic plug
                  |             | • Partial sphincterectomy
                  |             | • Fistulectomy                           |
| Follow UP                | <1 – 55 months | Median fu: 4-19.5 months             |
| Overall Success rate     | 40%- 95%   | pooled healing 352 (71%)             |
| Incontinence             | 11/183 (6%) | Minor                                 |
| Complications            | 4 (0.8%)   | Thrombosed external hemorrhoid (n=1)
                  |             | Bleeding (n=4)                           |

Lift or Flap?

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>F/U</th>
<th>Success</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lift</td>
<td>24</td>
<td>13 m</td>
<td>62%</td>
</tr>
<tr>
<td>Flap</td>
<td>31</td>
<td>6 m</td>
<td>93%</td>
</tr>
</tbody>
</table>

Tank et al, DCR 55: 1273-7; 2012
CONCLUSIONS

• Fistula-in-ano require an individualized approach

• Most intersphincteric and some transspincteric fistulas can be treated by fistulotomy

• High fistulas required a staged management to close the tract without dividing the external sphincter