Rectovaginal Fistulas

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The Case

- 33 y F s/p 5 vaginal deliveries (most recent 2 years ago)
- Multiple episiotomies (including most recent delivery)
- Presented to ED with 2 months of stool per vagina
  - Referred to colorectal clinic

- PMH: as above

- 1 PPD tobacco use, daily marijuana use
• **Exam:**
  - Poor sphincter tone, normal sensation, thin rectovaginal septum

• **Colonoscopy:** no abnormalities

• **Diagnosis:** Rectovaginal fistula (RVF)

• **Scheduled for elective repair**
Procedure

- Perineal incision, dissection and takedown of RVF
- Mobilization of external anal sphincter to 3 & 9 o’clock
- Primary closure of vaginal defect with interrupted 2-0 vicryl
- Creation of rectal advancement flap
- Anterior overlapping sphincteroplasty
- Closure of skin with interrupted monocryl stitches
  - Medial portion kept open with packing
Post-Operative Course

• POD 0: clears, pain control

• POD 1: packing change, regular diet

• POD 2: packing change, discharged home on PO abx, stool softener, sitz baths TID
Questions?

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Rectovaginal Fistulas
Fistula

• Latin for “tube”

• Connection between two epithelialized surfaces, or two open spaces

• Plural: either “fistulas” or “fistulae”
Pathophysiology

- Obstetric trauma
  - 0.1% of all vaginal deliveries
- Two causes:
  - Pressure necrosis from prolonged labor
  - Tear and episiotomy
- 3rd & 4th degree tears
  - 1-2% lead to RVF
Other Causes

- **Crohn’s Disease**
  - Up to 10% of RVF
  - Risk proportional to severity of rectal disease

- **Malignancy**
  - Anus
  - Rectum
  - Gynecologic structures
  - Includes effects of radiation

- **Infection**
  - Cryptoglandular or Bartholin glands abscesses

- **Iatrogenic – Surgical Complication**
  - Pelvic anastomosis
  - Transvaginal hysterectomy
  - Hemorrhoidectomy
Symptoms

- Recurrent vaginal infections
- Dyspareunia
- Discharge of gas or stool from vagina
- Presents within weeks of intervention, to months or years
Physical Exam

- Inspect perineum
  - Thickness of rectovaginal septum
  - Scarring

- Digital exam
  - Tone (resting & squeeze)
  - Palpate defects

- Anoscopy
  - Fistula opening
  - Inflamed mucosa
Further Work-Up

• **Contrast study**
  - Usually not helpful unless fistula is relatively high

• **Exam under anesthesia**
  - Vaginoscopy
  - Proctoscopy
  - Trick: fill vagina with water, then insufflate rectum
    • Look for bubbles
Vaginal Fistula Classification

1. Enterovaginal
   - Small or large bowel to posterior fornix
   - IBD, hysterectomy

2. High RVF
   - Hx of radiotherapy or pelvic surgery

3. Mid RVF
   - Obstetric, malignancy, IBD

4. Low RVF
   - Obstetric or other trauma

5. Suprasphincteric &
6. Transsphincteric
   - Abscesses, IBD
Initial Management

• Control sepsis
  – Drain abscess, seton placement, antibiotics

• Resuscitate
  – Fluid loss minimal in distal enteric fistula

• Protect skin
  – Consider diverting colostomy

• Nutrition
Non-Operative Treatment

- **Traumatic RVF** may close spontaneously
  - Repair delayed >4 months to allow for:
    - Spontaneous closure
    - Inflammation to subside

- **IBD RVF**
  - Medical management of IBD
  - Draining non-cutting seton

- **Malignancy/Radiation RVF**
  - Unlikely to close spontaneously
Injection Methods

- Act as scaffold for fibroblast and pluripotent endothelial cell ingrowth

- Advantages:
  - Low complication rate, continence unaffected

- Disadvantages:
  - Low success rate

- Fibrin glue (<20% success)
  - Close rectal opening with suture
  - Inject fibrin glue through vaginal opening

- Anal fistula plug (44-60% success)
Operative Treatment

- Transanal
- Transvaginal
- Transperineal
- Tissue Interposition
- Transabdominal
But First... Some Anatomy
Levator Ani Muscle
External Anal Sphincter
Superficial Transverse Perineal Muscle
Perineal Body
Anterior Cul-De-Sac (Pouch of Meiring)
Posterior Cul-De-Sac (Pouch of Douglas)
Denonvillier’s Fascia
Transanal Approach

- Preferred when pt has anal continence

- Repairs the RVF from the high pressure side

- Prone jackknife position

- Base of flap 2x width of apex – Contains mucosa, submucosa, and circular muscle fibers

- Fistula is cored out and closed

- Flap advanced and closed
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Transanal Approach

- Rectal mucosal sleeve resection
  - Similar to Delorme procedure for rectal prolapse
- Circumferential mobilization of distal rectum
- Resection of distal mucosa
- Mucosa-mucosa anastomosis
Transvaginal Approach

- Preferred when pt has anal incontinence
  - Or previous failed transanal approach

- Vaginal mucosa incised around fistula down to level of submucosal plane

- Fistulous tract is cored out

- Purse-string suture around defect

- Muscle and mucosa closed

- Biologic mesh has been used
Transperineal Approach

- Layer-by-layer closure
  - May help restore continence

- Perineum divided

- Rectal & vaginal mucosal layers dissected free and fistula defect closed

- External anal sphincter overlapped

- Perineum closed
Tissue Interposition

• Martius flap
  – Vaginal approach
  – Flap of tissue from labia majora
  – Fistula is dissected via perineal approach
  – Rectal side is closed
  – Tissue flap is inserted within rectovaginal septum
Tissue Interposition

- **Graciloplasty**
  - Muscle flap containing gracilis muscle from medial thigh
  - Brought to rectovaginal septum via subcutaneous tunnel
**Transabdominal Approach**

- **Indications:**
  - Proximal fistula
  - IBD
  - Prior radiation
  - Malignancy
  - RVF related to anastomotic failure

- **Resection of RVF with omental interposition**
  - Low anterior resection
    - +/- proximal diversion
  - Abdominal perineal resection
  - Diverting colostomy
Complications

- Recurrence
- Wound infection
- Incontinence
- Dyspareunia
Outcomes

• Data are limited\(^1\)
  – Many different types of RVF, many different etiologies, many different repair techniques
  – Most research is retrospective case series
  – No universal definition for “success”

• Generally good outcomes

• More complicated procedures tend to have better outcomes
  – Mucosal advancement flap: up to 50% failure
  – Advancement flap with sphincter repair: 0-20% failure

Outcomes

- Transanal and Transvaginal
  - “Advancement flap” techniques
  - 60-90% success rate
- Transperineal
  - 65-100% success rate
- Martius flap
  - 65-100% success rate
- Graciloplasty
  - 60-100% success rate

Outcomes

• 79 pts with RVF
  – Crohn’s (43%)
  – Post-operative (32%)
  – Obstetric (9%)
  – Radiation (5%)

• 217 conservative procedures
  – Seton, advancement flap, plug, glue, colostomy alone

• 69 major procedures
  – Graciloplasty, resection and re-anastomosis, mesh interposition, APR

Outcomes

• 57 of 79 (72%) successful repair (mean follow up: 33 months)

• Factors associated with success:
  – Use of a major procedure [odds ratio: 6.4 (2.9, 14.2)]
  – Diverting stoma [3.5 (1.4, 8.7)]
  – Early repair, <9 months since diagnosis [2.3 (1.1, 5.3)]

Outcomes

• 20 pts with RVF and anal incontinence due to obstetric trauma
• All received rectal mucosal advancement flap and anal sphincteroplasty

• Results:
  – Vaginal stool and flatus resolved in 100%
  – Anal continence of stool and flatus restored in 70%
  – Anal continence of stool but not flatus in 10%
  – Anal continence to solid stool only in 20%

Summary

• RVF has many causes, many different presentations

• Some very low fistulas may be amenable to non-operative methods

• Numerous surgical approaches
  – Should be tailored to specific patient characteristics

• Better research needed!
References


“On second thought, maybe we should take our chances keeping him on Krypton.”