Anal Fissures and Medical Treatment

Colorectal Surgery Services

Definition, pathogenesis

- An **Anal Fissure** is a tear in the lining of the anal canal below the dentate line or level of the anal sensory nerves. Anal fissures are most common in the posterior midline or rear of the anus. This location is also prone to poor blood flow which impairs healing.
- The majority of anal fissures are caused by local trauma such as passage of a hard stool. Fissures are also seen in Crohn's disease or anal trauma and rarely tuberculosis, sexually transmitted diseases and some cancers.
- The tear begins a cycle of repeated injury. The exposed internal sphincter (or anal muscle) spasms especially during bowel movements which causes increased anal pressure and tension on the edges of the wound. This slows down healing and may lead to a chronic anal fissure.

Symptoms & signs

- The signs & symptoms of anal fissures are often confused with those of other diseases of the anus like hemorrhoids.
- Symptoms signs include:
  - "Tearing," "burning" or "cutting" pain with or after bowel movements
  - Anal irritation and itching
  - Small amounts of bright red blood on the toilet paper or in the toilet water
  - Dripping blood into the toilet

Diagnosis

- As with any anal disease the most important step is to be evaluated by a qualified physician. A thorough history is taken from the patient and an examination of the anal area performed.
- The exam may include spreading the buttocks, a digital or rectal examination (feeling inside the anus with a finger), or anoscopy (looking into the anus with a small tube). A rigid sigmoidoscopy (examining the inside of the rectum with a lighted tube placed through the anus) may be considered.
- The acute fissure looks like a fresh laceration while chronic fissures have raised edges with exposed white fibers of the internal anal sphincter. The latter are often accompanied by skin tags distally and hypertrophied anal papillae (extra skin in or around the anus).
- Most anal fissures occur in the rear of the anal canal. Females have them in this position in about 90% of cases. Men have them in the midline in greater than 95% of cases.

Medical Treatment

- Acute fissures usually heal spontaneously or with minimal intervention. Over 90% of acute anal fissures will heal without surgery using only medical treatments.
- Chronic fissures require medical or surgical treatment.
- The mainstay of treatment is medical regardless of chronicity
- Medical treatment is curative in most patients and focuses on relaxation of anal sphincter (warm Sitz baths after stools and medications), atraumatic passage of stool (high fiber diet) and pain relief (topical anesthetics).
- Medical treatment may include stool softeners, laxatives, fluids, warm baths or sitz baths, increased fiber and changing the bowel habits.

- **Topical nitroglycerin** increases blood flow and decreases sphincter pressure. (This was demonstrated in a study by *Lund and Scholefield*, Lancet 1997; 349:11)
    - One major side effect when using nitroglycerin is headaches. Serious side effects include hypotension or low blood pressure from overdose, usually because of failure to dilute the concentrated gel in petroleum jelly. It occurs in 20-30% of patients.
    - Nitropaste or nitroglycerin is commonly used in everyday practice.
    - It is effective in at least 50% of patients.

- **Topical Arginine** has also been found to be effective and most believe that it works by promoting local production of nitric oxide which is a substance the nerves use to communicate.
    - Headache was exceedingly rare in these limited studies. (*Gosselink et al.,* Dis Colon Rectum. 2005 Apr; 48(4):832-7, Griffin et al., Dis Colon Rectum. 2002 Oct;45(10):1332-6.)
    - This medication is rarely used in common practice.

- **Botulinum Toxin or Botox™** is a potent inhibitor of acetylcholine release from nerve endings and causes sphincter relaxation.
    - In one study, it was found to increase the 2 month healing of chronic fissures from 13% to 73% with no relapses occurring during an average follow-up of 16 months. However, recurrence rates were higher in other studies (40% within 6 months in one study).
    - Major side effects were flatus or gas incontinence or temporary fecal incontinence (7% in one study).
    - One advantage is that the botulinum toxin wears off in several months and causes no permanent complications.
    - It is considered a "chemical" sphincterotomy or muscle division with out the need for surgery or cutting.

- **Oral nifedepine and diltiazem** have also been found to be effective. They are not commonly used in everyday practice.
    - Diltiazem ointment is often used instead of nitroglycerin ointment.
    - Diltiazem has a cure rate of 65 – 95%.
    - Some feel there are fewer side effects when compared to nitroglycerin ointment.

Surgical Treatment

- **Lateral Internal Sphincterotomy** relaxes the internal sphincter by division of the sphincter muscle up to the dentate line or top of the anus. In one study, this was curative in 94% of patients. Post-op complications included infection (2%) and fecal or flatus incontinence (17%) which was usually transient.

- **Fissurectomy** treats a single chronic fissure but does not address underlying causes. It is useful in first episode of chronic fissure that is refractive to medical therapy. The fissure is simply removed and repaired.

- **Fissurectomy w/ Botulinum Toxin injection** has been found to have similar cure rates (up to 93%) to lateral sphincterotomy while sparing the sphincter. This is a good choice in patients at high risk for anal incontinence or in the opinion of this author, young females who desire having children. Only 7% of patients had transient flatus incontinence. No fecal incontinence was reported. While these results are encouraging, long term data on cure rates using this treatment modality is lacking. (*Lindsey et al., Dis Colon Rectum 2004 Nov; 47(11):1947-52*)

- **Anal flaps** are used to repair the fissure but not treat the primary cause. Normal anal tissue is mobilized and used to cover the area of the fissure to promote healing. This is not commonly used.

Citations

- *Maria et al*, New England Journal of Medicine 1998; 338:217
- *Jost et al*, Diseases of the Colon & Rectum 1997; 40:1029
- *Jost et al*, Dig Dis Sci 1999; 44:1588
- *Minguez et al*, Gastroenterology 2002; 123:112
- *Hyman et al*, Diseases of the Colon and Rectum 2004; 47:35
- *Lewis et al*, Diseases of the Colon & Rectum 1988; 31:368
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