

NECROTIZING FASCIITIS

Epidemiology/Overview:

- Rare infection of the soft tissue. CDC estimates the annual occurrence to be 500-1500 cases per year in the US
- High risk individuals include diabetics, EtOH abuse, IVDU, immunosuppression, PVD. However, can occur in completely healthy individuals
- Has been given various names- malignant ulcer, putrid ulcer, phagedena, Fournier's gangrene- classified to anatomic location/flora- these different names are inconsequential as the treatment remains the same
- Can occur at any age mean age varies from 30's to 60's depending on which series you look at
- Mortality anywhere from 10-70% with most series quoting an average of 11-30%

Anatomy: (Fournier's)

- The most important superficial plane of the perineum is **Colles' fascia**,
- continuous with the dartos fascia of the scrotum and penis, and fuses with the urogenital diaphragm.
- becomes Scarpa's fascia of the abdomen.
- laterally limited by the attachments of the Colles' fascia to the pubic rami and the fascia lata.
- **Bucks' fascia** surrounds the deeper aspect of the penis, and an infection that originates from urethral trauma or from the periurethral glands can remain limited to the ventral portion of the penis.
- posterior perineum is limited superiorly by the levator ani muscles, which fuse with the external anal sphincter.
- sphincter damage can lead to spread of infection into the rectum into the presacral space, the retrovesical space, and the pelvirectal tissue. This can involve the retroperitoneal space to the level of the upper abdomen, and in rare cases, even to the paravertebral region up to the neck.
- can penetrate/or originate in the peritoneum

Diagnosis:

- Often presents to primary physician with history of inconsequential scratch, sometimes minor blunt trauma, sometimes previous localized infection, many without a clear cause (30%).
- Distinguishing from a minor infection can be difficult - up to 50% can be misdiagnosed.
- Often complaint of cellulitis, edema with severe pain at the involved site, indistinct margins, may have islands of normal tissue
- "Classic" signs of crepitus and gas in soft tissue on films- occurs only in 1/3-1/2 of cases. Pathognomonic if present
- As infection progresses-may have skin mottling, bullae and worsening systemic sepsis
- Symptoms may be present days before presentation

- Perineum in about 1/3 (Fournier's), extremities in 1/3, trunk in 1/3 (Estimates- basically the infection can occur anywhere and different series report different locations)
- In the right patients- CT or MRI can demonstrate the large area involved if not initially suspected-patient has to be stable
- If in doubt and patient is unstable bring to the OR to explore

The Usual Suspects:

- Two types
 - Type I- Synergistic fasciitis- mixed aerobic/facultative aerobes/ and anaerobes (occur more often in diabetics- usually have staph, strep, enterobacteriaceae, peptostreptococcus, prevotella, pseudomonas less common)
 - Type II- Group A strep- M protein-antiphagocytic; type 1 and 3 are most common and have several exotoxins-streptococcal toxic shock with early multi-organ failure, the exotoxins can act as superantigens (IVIG-no randomized trial)
- Clostridial infections of necrotizing cellulitis/myonecrosis are typically grouped differently and usually present with crepitus and gas formation- but the treatment remains the same
- Vibrio infections associated with marine exposures
- Antibiotic therapy guided by cultures-initial treatment can be Unasyn w/ flagyl or clinda- broader gm – coverage with zosyn/timentin or quinolone or carbapenems or upper generation cephalosporins
- Hyperbaric oxygen (Has its proponents but no clinical trials)

Treatment:

- Fluid resuscitation, management of septic complications (ARF, ventilatory), IV antibiotics
- Get to the OR without unnecessary delay- debride what is gangrenous regardless of what it is. It is preferable to debride more than necessary rather than leave infected tissue behind. Multiple serial debridements as a rule to debride desiccated tissue and advancing infection if occurring.
- Amputation controversial-lessened the need for return to the OR but has not been shown to reduce mortality
- Prognostic factors: none that are too reliable-basically the sicker you are the worse you do. Diabetes alone did not predict mortality but when combined with age, PVD, and renal failure it did in one series. Presence of positive blood cultures has a negative impact on survival

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