Fournier Gangrene in a Patient with Treatment-naive Long-term Nonprogressor HIV

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Introduction

- Fournier gangrene (FG) is a rapidly progressive, polymicrobial necrotizing fasciitis involving the perineum or genitalia with high morbidity and mortality if left untreated.[1]
- Overall incidence rate is 1.6 cases per 100,000.[2]
- Risk factors are diabetes (**most common**), HIV, chronic alcohol intake, renal failure, chemotherapy.[1-5,8-11]
- There is a strong association in male patients with advanced age and comorbidities that affects the immune system function.[3]
- Source of infection can begin with a perianal abscess or postoperative abscess.[3-5]
- Clinical manifestations are commonly perineal swelling followed by pain, fever, and ulceration.[4]
- The sites commonly involved are the scrotum, penis, or groin. Only 6.8% of patients experience a more extensive disease which involves the lower abdominal wall.[4]
- FG is often made clinically but CT scan can be performed in cases in which the diagnosis or the extent of disease is difficult to discern. [6-7]
- Treatment includes sequential debridement of necrotic tissue, empiric broad spectrum antibiotics, and promotion of hemodynamic stability.[4-5]
- A systematic review of definitions of HIV subtypes, defined long-term nonprogressor (LTNP) HIV as asymptomatic with a stable or high CD4 count and antiretroviral therapy (ART) naïve for 10 years or more without progression to AIDS.[8]
- LTNP accounts for <5% of the total HIV population.[9]

Differential Diagnosis

Perirectal abscess

Bartholin abscess

Cellulitis

Pyoderma gangrenosum

Complicated inguinal hernia

Case Description

History

- A 51-year-old African American male with uncontrolled diabetes and 31 years of treatment-naïve HIV.
- 07/19/19: He presented to the ED with feculent leakage, fever, leukocytosis, and a tender to palpation left 6cm induration with central 2cm gluteal wound without crepitus which was treated as an abscess and discharged the next day.
- 07/28/19: He returned to the ED eight days later complaining of worsening pain and fevers.
- PMH: gunshot wound, treatment-naïve HIV (1988), Type 2 Diabetes Mellitus
- PSH: Laparotomy for PUD (2011) and gun shot wound surgery, right knee surgery (1995)
- No known drug allergies
- Medications: Novolog, Lantus, Lisinopril, Naproxen, Zantac, Rosuvastatin, Sitagliptin
- Family history: diabetes and kidney failure
- Social: Denies alcohol and drug use, former smoker, no history of MSM or rectal penetration
- Review of systems: Negative for fever, fatigue, chest pain, SOB, nausea/vomiting, weight loss, night sweats

Physical Exam

- ED triage vital signs:
  - Oral Temperature – 99.8°F
  - Heart Rate – 105bpm
  - Blood Pressure – 120/70 mmHg
  - Respiratory Rate – 20 bpm
  - SpO2– 96% on room air
- General: well-appearing, not in acute distress
- Lungs: non labored breathing, clear to auscultation bilaterally
- Heart: regular rate and rhythm, S1 and S2 appreciated, no murmurs, rubs or gallops appreciated
- Abdomen: normoactive bowel sounds, soft and non-distended, **erythema with crepitus inferior to the lower abdominal wall** which was **tender to palpation**
- Perineum: **erythematous, crepitus with murky foul smelling discharge** originating from the abscess
- Musculoskeletal: extremities are warm and well perfused, no edema
- Reminder of the exam was within normal limits

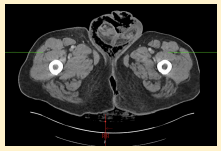
Diagnostic Results

- 07/28: Glucose 556 mg/dl & WBC 25.8 /µL
- Virology Viral load in treatment-naïve HIV (table 1)

Table 1 Viral Load	03/24/16	02/25/19	07/29/19
HIV- 1 Quantitation	4210	6860	26900

- 07/19 CT scan post I&D→ diffuse fat stranding in the soft tissue of left buttock extending to the left ischioanal region Subcutaneous gas and packing material secondary to I&D.
- 07/28 CT scan → **air in the tissues** of scrotum and lower abdominal wall extending to the gluteal region (figure 1)

Figure 1 CT ABDOMEN PELVIS W IV CONTRAST



Patient Management

Day 1- Day 24: Empiric antibiotics; Insulin glargine; ART (patient refused)

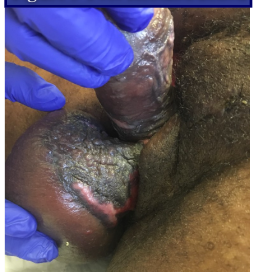
Day 25: Sequential Debridement

Day 25: Split thickness skin graft (STSG)

Day 31: Discharged to short term rehab

Figure 2 Stages of Fournier Gangrene Prior to Reconstructive surgery

Figure 3 Post Reconstruction



Discussions

- CT results can show asymmetric fascial thickening and fat stranding in 80% of patients and subcutaneous gas reported in only 55% of cases. Because the infection progresses rapidly, the lack of subcutaneous emphysema in the early stages of FG is brief and rarely seen in CT. [6-7]
- There is limited literature that discussed LTNP as a precipitant to FG but should be considered especially in patients with associated risk factors.[9]
- A French study found the possibility of losing LTNP status is 33% so the world health organization recommends starting ART regardless of clinical status and CD4 count to reduce morbidity, mortality, and progression of the disease.[10-11]

Case Outcome

- A final diagnosis of fournier gangrene was made by the development of inflammatory changes and subcutaneous gas found on 07/28 CT imaging.
- Figure 2 shows progression of FG prior to STSG surgery.
- Two week post-op follow-up visit since the reconstructive surgery showed the perineum and genital area healed appropriately with no signs and symptoms of infection. Patient continues to refuse ART initiation however states compliance with diabetes medications. (Figure 3)

Conclusion

- The diagnosis of FG is based on clinical features. In patients with predisposing conditions, this disease should be considered and the perineum inspected for the typical findings
- In this patient case, CT could have been performed prior to I&D to determine the presence of FG.
- Although LTNP HIV patients can have an intact immune system, studies show that overtime patients can lose their LTNP status so it is essential initiate ART.

References

1. Oyman E, Coşkun A, Yalcın S, Erkan N, Uçar AD, Yıldırım M. Evaluation of factors affecting mortality in fournier's gangrene retrospective clinical study of sixteen cases. Ulus Cerrahi Derg. 2014 Jun 1; 30(2):85-9. doi: 10.5152/UCD.2014.2512.
2. Sorensen MD, Krieger JN, Rivara FP, et al. Fournier's gangrene: population based epidemiology and outcomes. J Urol. 2009 May; 181(5):2120-6. doi: 10.1016/j.juro.2009.01.034.
3. Barupal SR, Soni ML, Barupal R. Factors affecting mortality following genitourinary soft-tissue infections: randomized prospective study. J Emerg Trauma Shock. 2009 Apr-Jun; 2(2):108-116. doi: 10.4103/JETS.JETS_17_18.
4. Peter Ngugi, George Magoha, Paul Nyaga. Fournier's gangrene in the HIV era. Afr Health Sci. 2014 Dec; 14(4): 1063-1068. doi: 10.4314/ahs.v14i4.38.
5. Kuzaka B, Wroblewska MM, Borkowski T, et al. Fournier's gangrene: clinical presentation of 13 cases. Med Sci Monit. 2008 Jan 28; 24:548-55. DOI: 1012659/msm.905836.
6. Wysoki MG, Santora TA, Shih RM, Friedman AC. Necrotizing fasciitis: CT characteristics. Radiology. 1997 Jun; 203(3):859-63. DOI: 10.1148/radiology.203.3.9169717.
7. Sherman J, Solliday M, Paraiso E, Baker J, Mydlo JH. Early CT findings of fournier's gangrene in a healthy male. Clin Imaging. 1998 Nov-Dec; 22(6):425-7. DOI: 10.1016/s0899-7071(98)00073-4.
8. Gurdasani D1, Ilic L, Dillon DG, et al. A systematic review of definitions of extreme phenotypes of HIV control and progression. AIDS. 2014 Jan 14; 28(2):149-62. doi: 10.1097/QAD.0000000000000049.
9. Kumar P. Long term non progressor (LTNP) HIV infection. Indian J Med Res. 2013 Sep; 138(3):293-3.
10. Grabar S, Selinger-Leneman H, Abgrall S, Pialoux G, Weiss L, Costagliola D. Loss of long-term non-progressor and HIV controller status over time in the french hospital database on HIV - ANRS CO4. PLoS One. 2017 Oct 2; 12(10):e0184441. doi: 10.1371/journal.pone.0184441.
11. Clinical Guidelines: Antiretroviral Therapy. https://www.whoint/hiv/pub/arvchapter4.pdf. Updated 2018. Accessed November 17, 2019.