



A Giant Sliding Inguino-Scrotal Hernia Inducing Fournier Gangrene in an Octagenarian Diabetic Patient: A Case Report and Review of Medical Literature

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Historical Consideration

In 1764, Baurienne described an idiopathic, fatal, necrotizing process with resultant gangrene of the male genito-perineal region. However, Dr Jean Alfred-Fournier (Venerologist-France) is associated with the eponymous of the nosological condition. In this later manuscript, he described a fulminant gangrene of idiopathic nature and abrupt onset of the scrotum and penis, in a series of 5 young male. Contrary to the earlier descriptions, the disease is not restricted to young males, but has been reported to occur in women and children, although at a lower incidence [1,2].

Case

In this report, we are dealing with a 88 year old male patient suffering from a huge non reducible inguino-scrotal hernia with an infected necrotizing ulcer of the scrotal skin. At presentation, he had signs of sepsis with increased blood creatinin level. We started with associative intravenous broad spectrum antibiotics (Nephropathic dose of Ciprofloxacin 200 mg bid, Metronidzol 500

mg each 8 hours) and fluid-electrolytes resuscitation accordingly to the urine output. The patient was conducted to the operating theatre in which the giant inguini-scrotal hernia was reduced via a middle line hypogastric incision. The hernia 's sac content was a healthy sigmoid colon then reduced. The hernia's defect was closed transabdominally with a monofilament PDS suture. The abdominal wall was closed in regular way respectively with Loop (PDS) for aponevrosis then subcutaneous tissus with vicryl 2.0, the skin with metallic clips. After, the patient underwent concomitantly to a radical scrotum debridement with application of different antiseptic solutions respectively peroxyde of oxygen and Betadine. We realized that the necrotizing process had involved only the scrotal skin and Dartos muscles by sparing other scrotal layers (Figure 1 a-d). The patient was then admitted in ICU where a daily debriment was performed to remove any remnant necrotic tissue followed by dressing the scrotal wound with iodine gauze. As a result, some days later, the scrotal wound expressed total red and viable tissue and became ready for a potential skin transplantation (Figure 1a-d).

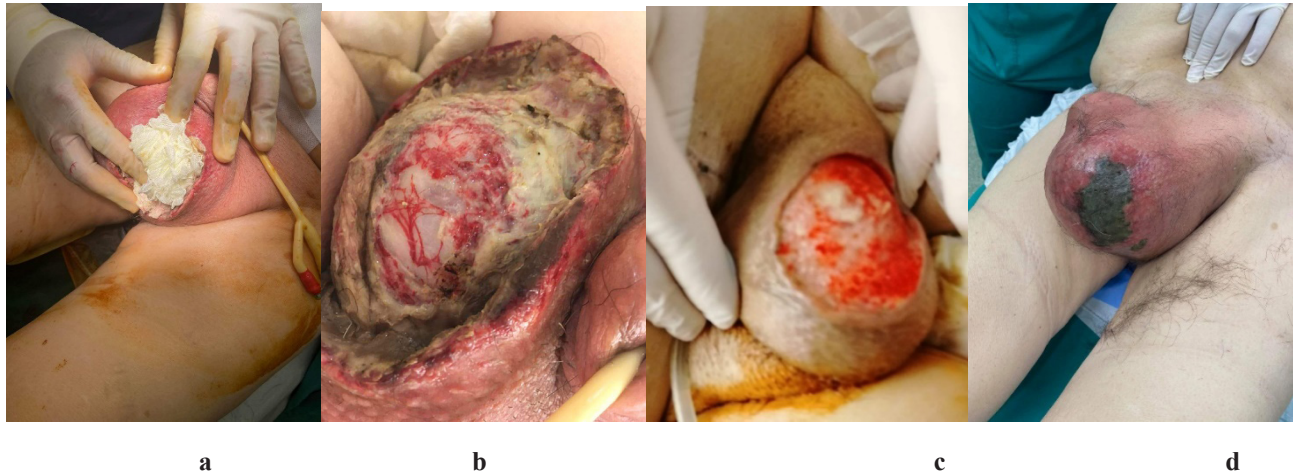


Figure 1: The necrotizing process had involved only the scrotal skin and Dartos muscles by sparing other scrotal layers.

Discussion

According to recent epidemiological study, Fournier's gangrene is a rare necrotizing fasciitis of the genito-perineal region, presenting an occurrence rate of 0.02 % of hospital admissions. The incidence and prevalence of this condition is expanding with age-group as well as with the comorbidity of type 2 diabetes mellitus. Other risk factors of this gangrene are HIV infection, alcoholism, iatrogenic immune-compromised such as in solid organ-transplanted patients, long-term use of corticoid therapy... Sorensen et al. elucidated an overall incidence rate of 1.6 cases per 100,000 males / year and shows a peak in incidence past the age of 50 at 3.3 cases per 100,000 males / year. According to one retrospective study reviewing 1726 cases, a mean of 97 cases accrued during an interval period of 1989-1998. The mortality rate of this disease ranges between 20 to 30 %. Despite nowadays medical and surgical innovations [3,4]. Regarding the microbiology perspective, it was previously suggested that the necrotizing fasciitis could be attributed to streptococcal species alone however recent evidences have stated that this necrotizing condition has a polymicrobial nature involving *Streptococcus*, *Staphylococcus*, *Escherichia* as well as anaerobic germs. The point of entry of the infectious agents is urogenital, anorectal and cutaneous. Groin hernia is a very rare cause of Fournier's gangrene with only around 7 reported cases. Among those reported cases, 3 were associated with incarcerated inguinal hernia, 2 with strangulated hernia, one to perforated adenocarcinoma of sigmoid colon, and 1 with diverticulitis of the herniated sigmoid colon [3,5-10]. In our case, the hernia's content was a healthy sigmoid colon which was successfully reduced via a middle abdominal incision and the hernia's defect was closed trans-abdominally using a monofilament PDS suture. The scrotal necrotic tissue's debridement was performed as soon as the abdominal wall was closed.

From pathophysiologic perspective, the presence of localized infection adjacent to the portal of entry, allows the entry of normally commensal sus-mentioned bacteria into the perineum. These infectious organisms trigger an inflammatory response resulting in an obliterative endarteritis of the surrounding vasculature. Subsequent thrombosis of the trophic vessels resulting in ischemia of the affected region. Thus the secondary hypoxemia promotes an eugenic area of proliferation of anaerobic bacteria (*Clostridium*).

This gangrene spreads along the fascial layer from the attachment of Colles's fascia (superficial perineal fascia). This layer continues as Dartos layer in the scrotum. Whilst, posteriorly, Colles fascia is attached to the perineal body and urogenital diaphragm, laterally it is attached to the pubic rami. These posterior and lateral attachment limit the spread of the infection. However, anterosuperiorly, this fascia merges with Scarpa's fascia of the anterior abdominal wall, resulting in widespread dissemination of infection in this direction.

The management of Fournier's gangrene has three principles: The resuscitation of the patient, the empirical broad-spectrum coverage (gram-positive, gram-negative and anaerobic microorganisms), then an early aggressive surgical approach which can involve simple debridement in some cases orchiectomy and vasectomy can be mandatory.

In general, a prompt debridement of necrotic tissues remains the basis of the management of this gangrene, however, when there is a simultaneous presence of a giant incarcerated sliding groin hernia, the surgical management becomes a dilemma. In this case, the priority is to assess the viability of the herniated bowel as well as to exclude its perforation. In our case, the bowel was viable without perforation. And the hernia defect was closed without using the mesh because of the infectious area. In some centers,

after performing a radical debridement of the gangrene, a second look operation is done the next day as well as application of VAC therapy then a skin graft can be performed later by plastic surgeon [11-20]. In our case, the debridement involved only the necrotic skin and after 3 days the wound become red.

Conclusion

We reported one of the very rare occurrence of Fournier's gangrene induced by a scrotal pressure secondary to a giant sliding incarcerated inguinal hernia. In this case, the priority for us was to exclude the bowel's perforation via the preoperative CT scan, then to perform a hernia reduction via a transabdominal approach, and close the hernia defect with monofilament suture (PDS) rather than using a prosthetic material (mesh) since the infectious setting. After this transabdominal hernia reduction, the scrotal radical debridement can be performed.

Author's declaration: There is no conflict of interest

Ethic: We received an informed consent from the patient, and we used a medical literature on the similar topic.

Preamble: Fournier's gangrene is defined as a type I necrotizing fasciitis of the genito-perineal areas. This entity was foremost baptized as streptocococcus gangrene, synergistic necrotizing cellulitis and peri-urethral phlegmon, terminologies describing a fatal, destructive and infectious disease of soft tissue.

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