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CORRESPONDENCE AND COMMUNICATION

Managing extensive Fournier's gangrene secondary to bilateral, inguinal hernias

A 77-year-old man with a 30-year history of bilateral, inguinal hernias presented to the emergency department with Fournier's gangrene secondary to infected pressure ulcer from years of unattended hernias (Figure 1a). On arrival, he was hypotensive, with signs of sepsis and acute renal failure. Resuscitative measures and intravenous triple-antibiotic regime (piperacillin, cefuroxime and metronidazole) were implemented immediately.

In the theatre, the bilateral, inguinal hernias were exposed through McEvedy incision. The herniated bowels were healthy and thus were reduced. The hernial defects were closed with Shouldice repair. Figure 1b shows the extent of scrotal involvement following reduction of hernias. Although the skin on the abdomen appeared healthy, necrotic and murky subcutaneous tissue can be seen to extend along Colles' and Scarpa's fascial plane to the level above the umbilicus. The patient underwent radical wound debridement of lower abdomen, scrotum, penis, perineum and inguinal and upper femoral regions (Figure 2a). Both the spermatic cords and testes appeared contracted and atrophic, and bilateral orchidectomies were performed.

A second-look operation was scheduled 24 h later for further wound dressing and vacuum-assisted closure (VAC) therapy at 125 mmHg, which was used to promote wound granulation. On day 4, the wound was healthy, and skin was grafted with split-thickness skin graft. The VAC therapy was applied at 50 mmHg to facilitate skin-graft fixation. Figure 2b shows the extent of skin grafting and was taken at week 5. Eventually, the patient was discharged once he was ambulatory, after nearly 2 months of hospitalisation.

Discussion

Fournier's gangrene is considered today to be a necrotising infection of the external genitalia and perineum.[1] Its point of entry of infection is mainly from urogenital, anorectal and cutaneous sources.[1] Inguinal hernia as a cause of Fournier's gangrene is very rare, with only six cases reported to date. Three of the cases were associated with incarceration of the hernia, two were related to strangulation and one was due to perforated adenocarcinoma of sigmoid colon in the hernia.[2–4]

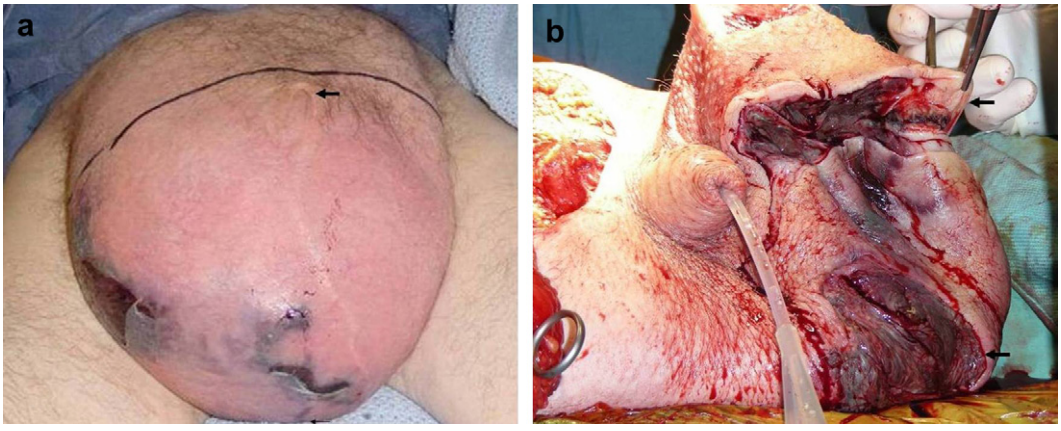

Figure 1 (a) Large, bilateral, incarcerated, inguinal hernias with taut skin and flattened raphe. Skin necrosis is noted on the inferior and right lateral surface of the scrotum. Large arrow depicts the site of the buried penis. Small arrow points to the posteroinferior surface of scrotum where the site of pressure ulcer was thought to be present. (b) The appearance and extent of Fournier's gangrene after reduction of bilateral, inguinal hernias. Incisions were made in areas illustrated by the arrow to demonstrate the cross-section appearance of the scrotum.

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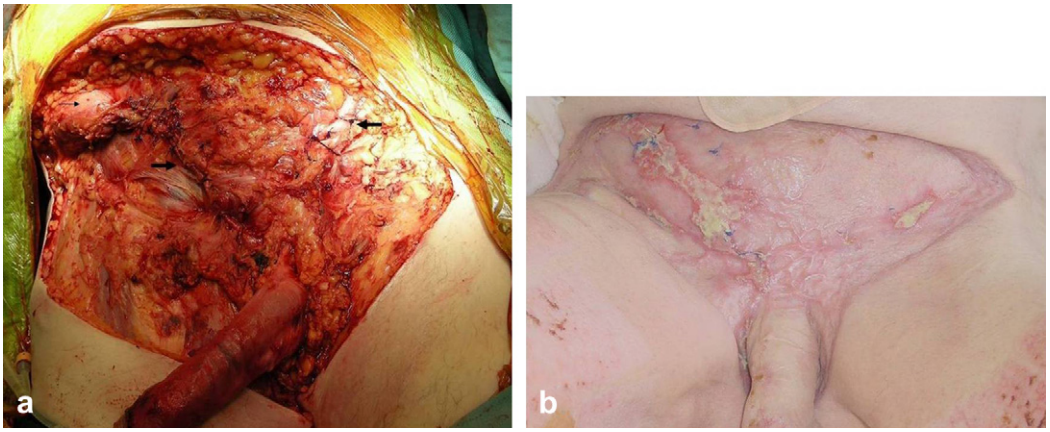

Figure 2 (a) Extensive wound following radical debridement of Fournier's gangrene. The large arrows illustrate the sites of hernial defects after repair. Small arrow indicates the right anterior superior iliac spine. (b) Necrosectomy wound after skin grafting at week 5. More than 95% of skin graft was successfully taken with a small area of delayed healing over the right lateral quadrant. This was successfully managed with paraffin-impregnated gauze dressing.

Fournier's gangrene spreads along the fascial layer from the attachments of Colles' fascia (superficial perineal fascia) of the perineum. 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 attachments limit the spread of the infection.[1] However, anterosuperiorly, this fascia merges with Scarpa's fascia of the anterior abdominal wall, resulting in widespread dissemination of infection in this direction.[1]

There are three main principles in the management of Fournier's gangrene. They are initial resuscitation of patient, empirical broad-spectrum antibiotic coverage for Gram-positive, Gram-negative and anaerobic microorganisms and early aggressive surgical intervention.[1] The first two principles should be instituted simultaneously without delay in surgical debridement.

Although prompt debridement of necrotic tissues remains the basis of management of Fournier's gangrene, the simultaneous presentation of large, bilateral, incarcerated, inguinal hernias presents a surgical dilemma. Our priority was to investigate the viability of the bowels that were trapped in the scrotal sac as strangulation or perforation could be the cause of Fournier's gangrene. Our second concern was to identify any involvement of the bowels from contact with the infected tissue. Fortunately, all the bowels were healthy and were reduced uneventfully. The hernial defects were repaired with traditional open herniorrhaphy, as an application of prosthetic material is contraindicated in infective settings.

Finally, we turned our attention to the necrotic tissues. In order to be successful, wide excision of dead tissues is necessary. Such an extensive wound often leaves plastic surgeons with a difficult reconstructive task in a cumbersome area. Our patient was treated with VAC therapy to promote wound-bed preparation before subsequent skin grafting and, later, fastening of the skin graft. Skin grafting was our choice of reconstruction, because this was an infectious process and a more invasive reconstructive option such as flap coverage could be done at a later stage if necessary. In a series published by Ferreira et al., their reconstructive options ranged from split-thickness skin grafting to local and free-flap coverage of the wounds. The average time between the last debridement and the first reconstructive procedure was 5 weeks.[5] Urethral catheterisation and diverting colostomy can also be performed to assist wound toilets.

In conclusion, we presented an extremely rare occurrence of Fournier's gangrene introduced by scrotal pressure ulcer from chronic, large, bilateral, incarcerated, inguinal hernias. The concomitant presentation of large hernias in the setting of Fournier's gangrene poses a significant surgical quandary to its management. Simple skin grafting is a reasonable option for the management of such extensive wound. The safe application of VAC therapy with or without skin grafting in the acute management of Fournier's gangrene against the backdrop of large inguinal hernias is also a viable alternative.

Conflict of interest statement

There are no financial or personal relationships with other people of organisations that could inappropriately influence (bias) our work.

Role of the funding source

There has been no involvement of study sponsors in the study design; collection, analysis and interpretation of data; the writing of the manuscript or the decision to submit the manuscript for publication.

Ethics

Guidelines on publication ethics as required by Journal of Plastic, Reconstructive and Aesthetic Surgery are adhered to in this work.

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