The Ulster Medical Journal, Volume 59, No. 1, pp. 90 – 92, April 1990.

Case report

Fournier's gangrene: two unusual cases

C K Mulholland, T Diamond, A Ritchie, C Harvey, W A Hanna

Accepted 10 December 1989.

It is now established that the majority of cases of idiopathic scrotal gangrene are secondary to underlying pathology in the lower urinary or gastrointestinal tracts.[1, 2, 3, 4] Two unusual cases of scrotal gangrene are described; the first following surgery for a perforated duodenal ulcer and the second complicating a rectal carcinoma which had infiltrated into the ischiorectal fossa.

CASE REPORTS

Case 1. A 60-year-old man was admitted with symptoms and signs of a perforated duodenal ulcer. At operation a perforated duodenal ulcer with widespread peritoneal contamination was found. The ulcer was oversewn and covered with an omental patch. A tube drain was placed in the subhepatic space and exteriorized in the right hypochondrium. On the fifth postoperative day he developed cellulitis around the abdominal drain site and gross swelling of his penis and scrotum with gangrene of the right-sided scrotal skin. A fistula from the first part of the duodenum to the drain site and a further tract from the drain site, via the subcutaneous tissue, to the scrotum, was demonstrated by upper gastrointestinal contrast studies. Culture of the necrotic scrotal skin revealed infection with *Pseudomonas aeruginosa, Streptococcus faecalis* and *Escherichia coli.*

A second laparotomy with closure of the duodenal defect plus a truncal vagotomy and gastro-jejunostomy was performed. The gangrenous scrotal skin was excised exposing the right testis, and corrugated drains were placed in the tract between the scrotum and right hypochondrium. Despite intensive postoperative therapy there was no improvement. The duodenal fistula recurred and the scrotal gangrene progressed requiring further excision of scrotal skin. The patient died from persistent septicaemia unresponsive to antibiotics, eighteen days after his initial laparotomy.

Case 2. A 73-year-old man presented with a painful swelling of his penis and scrotum which had apparently developed during the previous few days. He also admitted to a longer history of altered bowel habit with constipation and diarrhoea. Examination revealed a grossly swollen, foul-smelling scrotum. The

The Mater Infirmorum Hospital, Belfast BT14 6AB.
C K Mulholland, FRCS, Registrar in Surgery.
A Ritchie, BSc, FRCS, Senior House Officer in Surgery.
C Harvey, FRCS, Consultant Surgeon.

Belfast City Hospital, Belfast BT9 7AB.
T Diamond, BSc, FRCS, Senior Registrar in Surgery.
W A Hanna, FRCS, Consultant Surgeon.

Correspondence to Mr Mulholland.

penis was buried, with a small patch of gangrene on the foreskin. There was brawny induration of the skin of the scrotum, perineum and inguinal regions. On rectal examination there was a large, craggy circumferential tumour extending to the anal verge.

Broad spectrum antibiotics were commenced and urgent exploration undertaken. This revealed a communicating tract between the tumour and the infected perineal tissue. Radical débridement was performed involving excision of black, necrotic subcutaneous tissue over the penis, scrotum, perineum, lower abdominal wall and inguinal regions together with the overlying skin. Biopsy of the ano-rectal neoplasm revealed an adenocarcinoma, and culture of the necrotic tissue grew *Streptococcus viridans, Escherichia coli, Bacteroides spp.* and diphtheroids. Four days later, laparotomy confirmed the presence of a rectal neoplasm which was fixed to the pelvic wall. Complete surgical excision was not possible and Hartmann's procedure was performed. Preoperative consent for orchidectomy was refused so the testes were placed in subcutaneous pouches in either thigh. The extensive débrided area was covered with split-skin graft. The patient made an uneventful recovery and was referred for radiotherapy to the residual rectal tumour.

COMMENT

In 1883 Fournier initially described an idiopathic scrotal gangrene characterised by sudden onset and rapid progression in previously healthy young men.[5] It is now apparent that the majority of cases of scrotal gangrene occur in middle-aged or elderly men and are secondary to an underlying aetiological factor such as direct local trauma or, more commonly, spread of infection from the lower urinary tract or perianal region.[1, 2, 3, 4] Multiple aerobic and anaerobic organisms can usually be cultured from the necrotic tissue. The condition is also more likely to occur in patients with diabetes.[1, 2, 3] Our two cases demonstrate particularly unusual causes.

Scrotal gangrene secondary to spread of infection from an abdominal drain site or duodenal fistula has not previously been reported. Extravasation of fluid in the anatomical fascial planes between the perineum, penis, scrotum and the abdominal wall is a well recognised phenomenon and occurs most frequently following urethral rupture.[6] The first case demonstrates that fluid entering the tissue planes in the abdomen can spread in the opposite direction and collect in the most dependent part, producing a secondary Fournier's gangrene. It is most likely that necrosis of scrotal subcutaneous tissue and skin was initiated by the duodenal fistula fluid, allowing secondary infection with colonic bacteria which were responsible for the gangrenous process. There are only three reports of this condition arising as a direct complication of a rectal carcinoma,[3, 7, 8] where spread of infection follows perforation of the tumour into the ischiorectal fossa.

Fournier's gangrene still carries a significant mortality. Broad spectrum antibiotics against aerobic and anaerobic organisms are recommended and may help prevent further spread of infection and septicaemia. The mainstays of successful management remain early diagnosis and urgent aggressive débridement of all necrotic tissue. The subsequent wound may be left to heal by secondary intention, although cover with a split-skin graft can speed recovery. Attention must also be paid to any underlying cause to prevent persisting or recurrent infection. Most cases are not idiopathic and underlying disease in the lower gastrointestinal and urinary tracts should be excluded.

REFERENCES

1. Jones RB, Hirschmann JV, Brown GS, Tremann JA. Fournier's syndrome: necrotizing subcutaneous infection of the male genitalia. *J Urol* 1979; **122**: 279-82.
2. McGeehan DF, Asmal AB, Angorn IB. Fournier's gangrene. *SA Med J* 1984; **66**: 734-7.
3. Spirnak JP, Resnick MI, Hampel N, Persky L. Fournier's gangrene: report of 20 patients. *J Urol* 1984; **131**: 289-91.
4. Nancy A, Diettrich MD, Mason JH. Fournier's gangrene: a general surgical problem. *World J Surg* 1983; **7**: 288-94.
5. Fournier JA. Gangrene foudroyante de la verge. *Sem Med* 1883; **3**: 345-8.
6. Gray JA. Gangrene of the genitalia as seen in advanced periurethral extravasation with phlegmon. *J Urol* 1960; **84**: 740-5.
7. Flanigan RC, Kurch ED, McDougal WS, Persky L. Synergistic gangrene of the scrotum and penis secondary to colorectal disease. *J Urol* 1978; **119**: 369-71.
8. Scott SD, Dawes RFH, Tate JJT, Royle GT, Karran SJ. The practical management of Fournier's gangrene. *Ann R Coll Surg Engl* 1988; **70**: 16-20.