OUTCOME OF RECONSTRUCTIVE PROCEDURES IN FOURNIER’S GANGRENE

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ABSTRACT
Objective: To determine the outcome of the reconstructive procedures utilized for the genital area wound following Fournier’s gangrene and their complications.

Design & Duration: Interventional study from January 2004 to December 2006.

Setting: Dept. of Surgery and Dept. of Plastic & Reconstructive Surgery at Liaquat University Hospital, Jamshoro.

Patients: A total of 18 patients with Fournier’s gangrene.

Methodology: Data was collected through a pre-designed proforma. Initially all the patients were managed in the Surgical ward and later on they were shifted to the Plastic Surgery & Reconstructive ward for further management.

Results: Split thickness skin graft (SSG) was carried out in 12 cases (66.66%), followed by primary closure in six (33.33%) and medial thigh flaps two (11.11%) cases. Partial skin loss was seen in six (33.33%) and complete loss in one (5.55%) patient. Diabetes mellitus was the commonest co-morbidity found with Fournier’s gangrene.

Conclusion: Skin grafting is an easy option with acceptable aesthetic and functional results. Primary closure of the scrotal wound by stretching and expanding is ideal when upto 1/3rd of the residual scrotal skin is available.

KEY WORDS: Fournier’s Gangrene, Reconstruction, Split Thickness Skin Graft, Thigh Flaps

INTRODUCTION

Fournier’s gangrene was first described in 1883 by Jean Alford Fournier. It is a potentially fatal and very rapidly progressing synergistic polymicrobial infection of the genitals and perineum that may extend to the anterior abdominal wall. This mixture of aerobic and anaerobic organisms may result from urological intervention and anorectal injury.

Clinical presentations vary from pain at perineal region with minimum evidence of cutaneous necrosis to a rapidly spreading necrosis of skin and soft tissue, even to sepsis without any apparent source of infection. Predisposing factors are diabetes mellitus, local trauma, paraphimosis, periurethral extravasation of urine, perirectal and perianal infections, and surgeries like circumcision and herniorrhaphy.1

The treatment of the disease includes wide excision of devitalized tissue and multiple debridements with broad spectrum antibiotics followed by proper dressings. Reconstruction of the genital area wound should be started once the infection has subsided, and the wound is healthy and granulating.

The options of reconstruction of the genital area wound includes split skin grafting, groin flap, medial thigh flap based on medial circumflex femoral artery and gracilis musculocutaneous flap.6-10

This study was conducted to determine the outcome of the management of Fournier’s gangrene in our setup.

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PATIENTS & METHODS

A total of 18 patients suffering from Fournier’s gangrene were managed in the Dept. of Surgery and the Dept. of
Table I. Aetiology of Fournier’s Gangrene

<table>
<thead>
<tr>
<th>Cause</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urological</td>
<td>10</td>
<td>55.55</td>
</tr>
<tr>
<td>Anorectal</td>
<td>2</td>
<td>11.11</td>
</tr>
<tr>
<td>Unknown</td>
<td>6</td>
<td>33.33</td>
</tr>
</tbody>
</table>

Plastic & Reconstructive Surgery at Liaquat University Hospital, Jamshoro from January 2004 to December 2006.

Detailed history and examination of the cases was carried out and appropriate investigations done. After preparation surgical debridement was performed followed by dressings till infection had subsided and the wound had healthy granulations. The wound was finally covered by either the approximation of skin, split skin grafts or flaps.

RESULTS

Eighteen patients with Fournier’s gangrene were managed during the study period. All were male with ages ranging between 30-60 years, mean age was 42 years. The causes were urological (urethral stricture with dilatation, traumatic catheterization) in 10 (55.55%) cases and anorectal (fissure-in-ano, hemorrhoidectomy) in two (11.11%) cases (Table I). Associated diseases were diabetes mellitus in three (16.66%) and hypertension.

Table II. Regions involved and the procedures performed

<table>
<thead>
<tr>
<th>Site Involved</th>
<th>No. of Patients</th>
<th>Procedure Performed</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scrotum alone</td>
<td>7</td>
<td>Primary closure 3 cases (42.85%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>S.S.G 3 cases (42.85%)</td>
<td>38.88</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medial Thigh flap 1 cases (14.28%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Primary closure 1 cases (20%)</td>
<td></td>
</tr>
<tr>
<td>Scrotum + penis</td>
<td>5</td>
<td>S.S.G 3 cases (60%)</td>
<td>27.77</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medial Thigh flap 1 cases (20%)</td>
<td></td>
</tr>
<tr>
<td>Scrotum + penis + perineum</td>
<td>3</td>
<td>S.S.G + Primary closure of perineum</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 cases (100%)</td>
<td>16.66</td>
</tr>
<tr>
<td>Scrotum + perineum</td>
<td>2</td>
<td>S.S.G + Primary closure with flaps</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 cases (100%)</td>
<td>11.11</td>
</tr>
<tr>
<td>Scrotum + penis + pubic region</td>
<td>1</td>
<td>S.S.G + Primary closure with flaps</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 cases (100%)</td>
<td>5.55</td>
</tr>
</tbody>
</table>

Table III. Postoperative Complications

As far as the site was concerned, scrotum was involved in all cases (100%), followed by penis in nine (50%) cases (Table II). Split thickness skin graft (SSG) was the commonest procedure done in 12 (66.66%) cases followed by primary closure in six (33.33%) and medial thigh flaps in two (11.11%) cases. Two patients out of 18 had exposed testis which were buried in thigh followed by medial thigh flaps and scrotoplasty six months later (Figs. 1-3).

Partial skin loss was seen in six (33.33%) and complete loss in one (5.55%) patient; they were re-grafted after one week. No flap loss or mortality was seen in this study (Table III).

DISCUSSION

All patients with Fournier’s gangrene treated at Liaquat University Hospital were males. The absence of females...
Fig. 1. (A) Preoperative  (B) 1 week postoperative S.S.G  (C) 2 weeks postoperative S.S.G

Fig. 2. (A) Preoperative  (B) Postop. Primary closure  (C) Postop. Pr. closure 2 weeks

Fig. 3. (A) Preoperative  (B) Postop. Medial thigh flap  (C) Postoperative 2 weeks
in this study may be due to social or religious grounds. However, the low incidence of females can also be attributed to better drainage of the perianal region through vaginal secretions.\textsuperscript{16}

All 18 patients with Fournier’s gangrene were initially treated in the surgical ward with dressings, debridements and antibiotics. Once the wounds granulate and become infection free, they were sent to the plastic surgery ward for further management. In our study no patient died due to Fournier’s gangrene though the literature mentions a mortality rate varying between 3-67\%.\textsuperscript{12, 13}

In this study the cause may be decreased host resistance and ascending infection from perirectal site and urethra. Diabetes is the leading cause of Fournier’s gangrene due to increased propensity of tissue ischaemia caused by small blood vessel disease.\textsuperscript{14} In our study also diabetics was the main co-morbid condition. Pizzomo et al described an increased incidence (upto 50\%) of Fournier’s gangrene with diabetes mellitus.\textsuperscript{15}

None of the patients in our study required orchidectomy, penectomy or colostomy. Split thickness skin grafting was the ideal procedure in this series, which was done in 11 (61.11\%) cases. Stretch and expansion of residual scrotal skin with primary closure was done in 4 (22.22\%) patients; when up to 1/3rd of scrotum is intact it can be expanded to resurface the entire scrotum.\textsuperscript{18}

In this study we used the superiomedial thigh fasciocutaneous flap in 2 (11.11\%) patients. The testes were buried in a pouch in the superio-medial aspect of the thigh in those patients who had complete scrotal loss following Fournier’s gangrene. This flap is based on the medial circumflex artery perforators, deep external pudendal artery and anterior branch of obturator artery.\textsuperscript{9} It is a safe and single stage procedure with good aesthetic results and provides sensory coverage because of genital branch of genitofemoral nerve and ilioinguinal nerve.\textsuperscript{16} The musculocutaneous flap was not utilized in our study.

Six (33.33\%) cases out of 18 had partial and 5.55\% complete skin loss. The latter was seen in one diabetic patient who was re-grafted after one week. Skin grafting was found to be a technically easy option with satisfactory cosmetic and functional results.\textsuperscript{6} Hyperbaric oxygen therapy was not done in this study though it has a vital role in the management.\textsuperscript{15, 17}

CONCLUSION

Split thickness skin grafting is an ideal procedure for genital area resurfacing; primary closure of scrotum by stretching and expanding should be used when up to 1/3rd of the residual scrotum is available. Superiomedial thigh flap is reliable with less complication as comparative to other flaps. Partial thickness skin loss is the common complication of skin grafting.

REFERENCES


Urology 1996; 47: 734.


