ORIGINAL RESEARCH PAPER

Plastic Surgery

POST FOURNIER'S GANGRENE SCROTAL DEFECT RECONSTRUCTION WITH MEDIAL THIGH FLAP.

KEY WORDS:
FG- Fournier's gangrene,SSG-Split thickness skin graft;DM-Diabetes mellitus;Medial thigh flap

Prof Shanmugam Sridevi Professor,Department of Plastic, Reconstructive& Facio-Maxillary Surgery Madras Medical college,Chennai-3.

Dr.kannamani Saravanan Senior Assistant Professor, Department of Plastic, Reconstructive& Facio-Maxillary Surgery Madras Medical college,Chennai-3. Corresponding Author

Dr.V.L.Aishwarya Department of Plastic, Reconstructive& Facio-Maxillary Surgery Madras Medical college,Chennai-3.

ABSTRACT

Fournier's Gangrene(FG) is a fulminant polymicrobial necrotizing fasciitis affecting the perineo-scrotal region which necessitates emergency and extensive surgical debridement leaving a considerable sized defect for reconstruction.Many treatment options are available for reconstruction.In this study, we present a case series of scrotal defects following FG which were reconstructed using medial thigh fasciocutaneous flap which have several advantages viz sensate flap, minimal donor site morbidity, large donor area and also maintains male psychosexual identity..

INTRODUCTION:

Fournier's Gangrene(FG) is a fulminant polymicrobial necrotizing fasciitis affecting the scrotum, penis and perianal region.This infection spreads along the fascial plane and necessitates emergency and extensive surgical debridement leaving a considerable sized defect, most often with exposed testicles, for reconstruction[1,2].

Treatment options broadly include orchidectomy and reconstruction[3]. Reconstruction with Flap is superior as it provides the best possible aesthesis.[4,5]

Reconstruction with Flap preserves the Male Psychosexual identity. Nowadays the medial thigh skin as donor site has gained popularity for perineoscrotal reconstruction.

In this series, reconstruction of 10 scrotal defects due to Fournier's gangrene using pedicled medial thigh flap has been discussed.
Aim:

To assess the effectiveness, outcome and aesthesis of medial thigh fasciocutaneous flap for the reconstruction of scrotal defects following fournier's gangrene.

MATERIALS AND METHODS:

A Prospective Study was conducted in Department of Plastic and Reconstructive Surgery, Rajiv Gandhi Government General Hospital, Chennai from September 2016 to May 2018. 10 patients with scrotal defects following Fournier's gangrene were reconstructed using Medial Thigh Flap. All patients were diabetic.All the Patients were taken for reconstruction after debridement and control of local sepsis and diabetes.

RESULTS:

S. No	Age (In years)	Co-morbidities	No. of debridements	Raw area (cms)	Post op complication
1	45	DM	3	15*10	Nil
2	50	DM,HT, CAD	2	8*9	Nil
3	48	DM	3	10*8	Nil
4	43	DM	2	15*10	Nil
5	48	DM	2	13*10	Seroma
6	55	DM	1	15*8	Superficial epidermolysis
7	47	CAD,DM	2	10*8	Nil
8	53	HT,DM	2	18*9	Nil
9	74	DM,CAD	2	12*8	Superficial epidermolysis
10	49	DM	3	15*6	Flap business end necrosis-readvanced

Mean age of the patient was 49.5 yrs. 7 patients had bilateral scrotal defects,2 patients had unilateral and 1 patient has penoscrotal defect. All defects were reconstructed using unilateral medial thigh fasciocutaneous flap.largest defect reconstructed was 15 cms. Average width of the flap was 8.6 cm and the average length was 13.1 cm

Two flaps had epidermolysis which were managed conservatively and settled well. One Patient had seroma which was drained. One flap had business end necrosis which was debrided and re-advanced. All donor sites were closed primarily and healed well. All patients had good sensation in the proximal part of the flap. All patients were happy that their primary sexual character being preserved. Patients were followed up for 4-6 months.

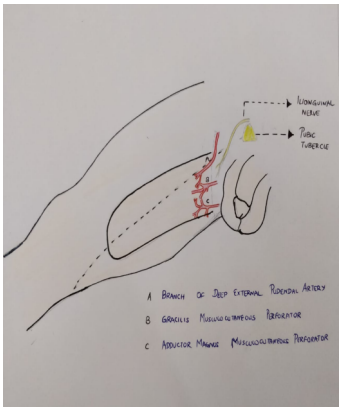

Fig 1: Flap Markings

DISCUSSION:

Dr Jean Alfred Fournier a French Venerologist in 1883 described in detail a life threatening condition of the male genitourinary tract[1]. Despite the description of condition by Baurienne in 1764, by Pouteau in 1783, by Jones in 1871, the disease had been called as Fournier Gangrene[2]. Diabetes mellitus is the most common predisposing factor for Fournier's gangrene and four out of five patients in their series suffered from Diabetes Mellitus[6].

Initially the condition was thought to be a disesase of male external genitalia but over years the concept changed that it could affect both male and female genitalia[1].

The polymicrobial nature of FG creates the production of various exotoxins and enzymes which help to spread the infection along the anatomical fascial planes [7,8].

Many reconstructive options have been employed from simple skin graft to a more complex reconstructions[3,9,10].

We in our study have used medial thigh flap for its various advantages like sensate flap, vicinity of donor site to defect, thin pliable flap thickness for perineoscrotal area, hidden donor site scar with minimal morbidity[11].

The medial thigh flap is supplied by direct branches such as superficial external pudendal and septocutaneous perforators from superficial femoral or medial circumflex femoral. Great saphenous vein is found within this area but we can preserve it as the veins paralleling these arteries are sufficient to drain the flap. The ilioinguinal nerve runs along with the external pudendal vessel, till the proximal 1/3rd of medial thigh, and the distal 2/3rd can be made sensate by incorporating the medial femoral cutaneous nerve.

All patients were operated under spinal anaesthesia and in lithotomy position.After debridement,flap markings are done as described by G.G.Hallock[11].A line is drawn from pubic tubercle to semitendinosus insertion forms the anterior border of the flap. Posterior border can be marked based on the requirement and skin redundancy determined by skin pinch test. Superior extent of the flap is 5 cms below the groin crease.(fig 1)

Flap elevation is started distally and the deep fascia is included in the flap. Flap dissection is proceeded proximally stopping short of 5cms below the groin crease. Flap is transposed to the defect and tension free inset is given. All donor sites were closed primarily and scrotal support given in the post-operative period. Pateints were restricted to limited activity for 5 days post op. Sutures removed after 8-10 days. Patients were followed up for 4- 6 months.

CONCLUSION:

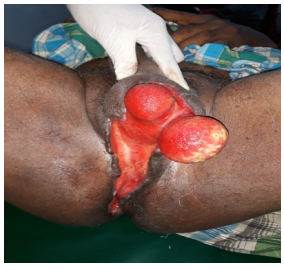

Fig 2: Pre-op Defect

Fig 3: Flap Markings

Fig 4: Flap elevated

Fig 5: Late Post-op

Medial thigh fasciocutaneous flap provides durable skin and a large thin pliable flap for reconstructing scrotal and perineal defects with minimal donor site morbidity. It preserves male psychosexual identity.

REFERENCES:

1. Eke N. Fournier's gangrene: a review of 1726 cases. Br J Surg (2000) 87(6):718–28. doi:10.1046/j.1365-2168.2000.01497.
2. Ioannidis O, Kitsikosta L, Tatsis D, Skandalos I, Cheva A, Gkioti A, Varnalidis I, Symeonidis S, Savvala NA, Parpoudi S, Paraskevas GK, Pramateftakis MG, Kotidis E, Mantzoros I and Tsalis KG (2017) Fournier's Gangrene: Lessons Learned from Multimodal and Multidisciplinary Management of Perineal Necrotizing Fasciitis. Front. Surg. 4:36. doi: 10.3389/fsurg.2017.00036.
3. Heckler FR, Aldridge JE, Songcharoen S, Jabaley ME. Muscle flaps and musculocutaneous flaps in the repair of urinary fistulas. Plast Reconstr Surg 1980;66:94.
4. D'Alessio E, Rossi F, d'Alessio R. Reconstruction in traumatic avulsion of penile and scrotal skin. Ann Plast Surg 1982;9:120–124.
5. Banks DW, O'Brien DP III, Amerson JR, Hester TR Jr. Gracilis musculocutaneous flap scrotal reconstruction after Fournier gangrene. Urology 1986;28:275–276.
6. Nisbet AA, Thompson IM. Impact of diabetes mellitus on the presentation and outcomes of Fournier's gangrene. Adult Urol 2002;60:775–779.
7. Morua A.G., Lopez J.A.A., Garcia J.D.G., Montelongo R.M., Geurra L.S.G. (2009) Fournier's gangrene: our experience in 5 years, bibliography review and assessment of the Fournier's gangrene severity index. Arch EspUrol 67: 532–540.
8. Shyam, D., Rapsang, A. (2013) Fournier's gangrene. Surgeon 11: 222–232.
9. Schaller P, Akcetin Z, Kuhn R, et al. Scrotal reconstruction after Fournier's gangrene with simple skin grafting. Eur J Plast Surg 1994;17:261.
10. Hallock GG. The chimera flap principle: conjoint flaps. In: Hallock GG, ed. Fasciocutaneous flaps. Boston: Blackwell Scientific, 1992;172-180.
11. Hallock GG. Scrotal reconstruction following Fournier's gangrene using the medial thigh fasciocutaneous flap. Ann Plast Surg 1990;24:86.