

FOURNIER'S GANGRENE : SKIN GRAFTING

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Introduction

"Spontaneous gangrene" involving the scrotum occurs where there is no evidence of pre-existing disease either in the Genito-Urinary-Tract or elsewhere. This relatively sudden scrotal gangrene was first clinically described in 1885 by Fournier. Since then it has been given such terms as "Fournier gangrene" "Scrotal gangrene" "spontaneous fulminating gangrene", "essential gangrene" or "Idiopathic Gangrene". In 1945 Mair differentiated between Fournier gangrene and Scrotal gangrene resulting from known causes and in his series of 240 cases only 125 were truly idiopathic. Moustafa (1967) classified into primary in which cause was not known and secondary in which some causes were detected, the obvious causes are urinary extravasation, local trauma and a background of seriously debilitating disease.

Three cardinal features of Fournier gangrene are:-

- (1) Sudden appearance of scrotal inflammation in the midst of apparently good health.
- (2) Rapid onset of gangrene.
- (3) Absence of any cause for the gangrene.

Various aetiological factors have been described. Gibson (1930) discussed the relationship

to stricture with or without urinary extravasation, in most of cases reported there is no mention of stricture and as already stated the lesion does not follow the path of spread associated with urinary extravasation. Mansfield (1946) offered the theory that the disease is a vascular disaster of infective origin analogous to cavernous sinus thrombosis. The infection does not have any specificity other than the existence of a pathogenic organism which leads to rapid thrombosis in vessels supplying scrotum.

The distribution of the lesion and the occurrence of gangrene would appear to be satisfactorily explained on the basis of an infective thrombosis of some or all the vessels supplying the scrotum, namely the scrotal branches of the internal pudendal arteries and the superficial and deep external pudendal branch of the femoral arteries. The occasional involvement of under surface of penis, as in Mansfield's case can be explained by extension of thrombosis to the scrotal branches (Internal pudendal artery) which supply the under surface of the penis and anastomoses with dorsal arteries of penis. The thrombosis is caused by bacterial infection.

Dunaif (1947) suggested that the most likely cause appears to be a spreading infection from periurethral glands.

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Fournier Gangrene is an acute infection of scrotal skin. It may occur with other systemic diseases such as small pox, measles and diabetes mellitus (Rudolph et al. 1975), it may be seen in urinary extravasation and trauma (Campbell, 1955). Bacterial studies revealed that haemolytic streptococci (sometime microaerophilic) associated with other organism like (staphylococci, E. Coli, cl. Welchii, Pseudomonas) set up fulminating inflammation within the scrotal subcutaneous tissue that results in obliterative arteritis of the arterioles supplying the overlying skin.

The sudden onset of gangrene have been described "Exposive". An healthy individual may suddenly complain of pain in the scrotum, following which oedema and swelling soon appear. The scrotum become tense, painful, reddened, warm, glossy. The gangrene involves the perineum and some time the penis invarious degree, ominously the infection may extend to the abdominal wall by burrowing under scarpa's subcutaneous space.

Gas can be palapted in the suprapubic area. As gangrene of scrotum progresses the testicle are frequently exposed and completely denuded. The Bucks fascia is next obstacle to the spreading infection, but rarely purulent material is limited by this layer. After penetrating Bucks fascia the infection spread rapidly along the Dartous fascia in scrotum and colles fascia in the perinieum. Because of this anatomic planes, the infaction may proceed upwards to the abdominal was under scarpa's fascia.

The managment is two fold. The first is recognition and treatment of any underlying etiologic disease process, that exists, for extravasation immediate diversion of urinary stream may be necessary. The second objective is directed towards the probable bacterial infection. The antibiotics of choice are chlroamphinicol, clindamycin and heavy doses of crystalline

penicillin. If there is evidence of crepitus than large quantities of specific polyvalent serum (specific) should be administered. Prompt surgical drainage of the tense swollen scrotal tissue is must in the pregangrenous or gangrenous state. It relieves tension and drains the oedema fluid. Multiple scrotal skin incision followed by irrigation with zinc perioxide or hydrogen peroxide in may be done. With proper treatment all necrotic tissue separates in 2 to 3 weeks. A vigorous tissue response occurred after this period. The scrotal skin participates in rapid regeneration of epithelium. The area is quite large and it usually necessary to cover it by partial thickness skin grafts to speed up healing.

In this study we are reporting 7 cases of Fournier's gangrene admitted in S. M. S. Hospital, Jaipur during the year (January), 1979 to December, 1979. All the cases were of middle age and every one had a sudden onset with severepain in the scrotal area. All the patients had reasonably good health only in one patient haemoglobin was 7.6 gm.%, all other had above 10 gm.%. Blood proteins estimation after 48 hours of admission was between 5 to 7 gm.%.
 Raw areas of the scrotum and penis in all cases was morethan 2½" x 3"; In two cases testes were exposed, and in rest five it was limited to the colles fascisa.

The seperate Master chart is enclosed.

Patients were treated by combination of chloromycetin crystalline penicillin and septran. Local irrigation with saline and hydrogen paroxide was done daily or on alternate days and dressing with saline was restorted to. In most of the cases raw areas ready for skin grafting on 15th to 21st day of onset of the disease.

Intermediate thickness skin grafting was done in all cases on scrotum penis. 6 cases were discharged on 12th day after skin grafting, one on 21st day as there was partial rejection of the graft.

MASTER CHART

S. No.	Name	Age in yrs.	Urine Exam.	Hb. in gm% in om%	Blood Prote- in om%	Extent of Gangrene.	Onset time in days	Antibiotic	Operation	Associate Disease
(Line of Demarcation)										
1.	L. N.	40	NAD	11	7	3 × 3" on Scrotum	10	Chloro. + C. penicillin.	Incision & S.S.C.	No.
2.	V. D.	36	NAD	10	6	2½ × 2" on Scrotum	14	-do-	Incision on 3rd day & S. S.G. on 16th day	No.
3.	Kalu	57	NAD	7.6	5.6	2 × 2" on scrotum 2 × 2" on Ventral surface of penis	17	Chloro. + C. Penicillin + Sepran.	Incision on 2nd day Suprapubic cystostomy & S.S.G. on 20th day.	Striatus Urethra.
4.	M.L.B.	37	NAD	10	6	3 × 2" on scrotum uncovered testicle	9	C. Penicillin.	Incision on 3rd day & S.S.G. on 12th day	No.
5.	K.R.	49	Sugar ++	10	6	3 × 3" on scrotum 2 × 2" on Ventral surface of penis. Testicles uncovered.	20	-do + Chloro.	Incision on 2nd day and S.S.C. on 23rd day.	Diabetes Mellitus.
6.	R.A.	43	NAD	11	7	3½ × 2" on scrotum Testicle covered.	15	C. Penicillin + Sepran.	Incision on 3rd day, S.S.C. on 18th day	No.
7.	B.R.	50	NAD	10	5	2½ × 2½" on Ventral surface of penis.	16	C. Penicillin & Chloro.	Incision on 2nd day, S.S.C. on 19th day.	No.

ABBREVIATIONS USED AS : Chloro.—Chloroamphenicol, S.S.C.—Split skin Graft, C. Penicillin—Crystalline Penicillin.

Summary:

A report of 7 cases of Fournier's Gangrene is presented. With local treatment and systemic

antibiotics gangrene was controlled. After separation of gangrenous area split skin graft give good and normal looking and functioning scrotum and penis.



Fig. 1 Preoperative photograph of Fournier's Gangrene of Scrotum after separation of gangrenous area.



Fig. 3 Preoperative photograph of Fournier's Gangrene extension Ventral Aspect of penis.



Fig. 2 Postoperative photograph after one month of Skin grafting,

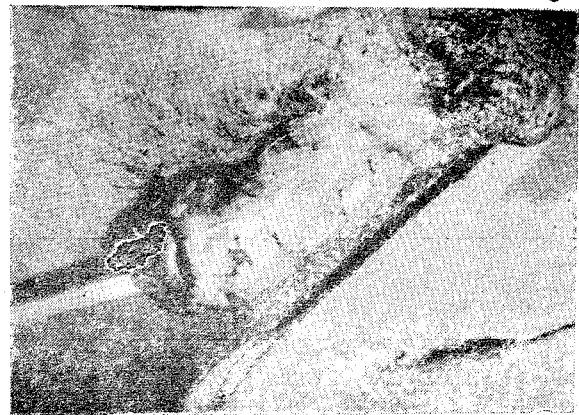


Fig. 4 Postoperative photograph with on dressing over skin graft.

REFERENCES

1. Camphbell, J.L. Fournier's Gangrene : Br. Journ. Urol. 27:106; 1955 Quoted by Rudolph et al. 1975.
2. Gangrene of scrotum a series of 20 cases, Tripathi, F. M. et al. Br. J. pl, Surgery 31 (3) : 242-3, July, 78.
3. Mair, G.B. : Idiopathic Gangrene of Lancet, 1:464 1945,
4. Moustafa, M.F.H. : Gangrene of scrotum an analysis of ten cases. Dr. J. plastic Surgery, 20:90.
5. Ross Rudolph, M.D., Fournier's Syndroms-Synergetic Gangrene of Scrotum, Am. Journ. of Surgery, 129:75.
6. Thomas, J. E., Fournier's Gangrene of Penis & Scrotum, JJ Urol. 75,719, 1956.