



Surgery

A CLINICAL STUDY OF FOURNIER'S GANGRENE

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ABSTRACT

Introduction:-Fournier gangrene is a type of necrotizing fasciitis or gangrene affecting the external genitalia and/or perineum. It commonly occurs in older men, but it can also occur in women and children. It is more likely to occur in diabetics, alcoholics, or those who are immunocompromised. **Aims And Objectives:-**1. To study the mode of presentation of gangrene of the scrotum. 2. To find abnormalities in biochemical parameters if any in this disease. **Methodology:-**A prospective observational study was done at department of General surgery, Government General Hospital, Nizamabad. Study was from August 2015 to August 2016. Total 43 patients diagnosed as Fournier's gangrene. **Results:-**The disease is most prevalent in the fourth and fifth decades of life. The commonest presenting features are scrotal pain and erythema. The commonest source of origin is Genitourinary. Alcoholism and Diabetes and were major risk factors. Majority of the patients (65.12%) presented between 48 hours to 1 week. Commonest agent causing infection was found to be E. coli.

KEYWORDS : Fournier's gangrene, Biochemical abnormalities**INTRODUCTION**

Fournier Gangrene Is A Type Of Necrotizing Fasciitis Or Gangrene Affecting The External Genitalia And/or Perineum. It Commonly Occurs In Older Men, But It Can Also Occur In Women And Children. It Is More Likely To Occur In Diabetics, Alcoholics, Or Those Who Are Immunocompromised. About One Per 62,500 Males Are Affected Per Year. [1] Males Are Affected About 40 Times More Often Than Females.[1]it Was First Described By Baurienne In 1764 And Is Named After A French Venereologist, Jean Alfred Fournier, Following Five Cases He Presented In Clinical Lectures In 1883. [2] Initial Symptoms Of Fournier Gangrene Include Swelling Or Sudden Pain In The Scrotum, Fever, Pallor, And Generalized Weakness. [2] More Marked Cases Are Characterized By A Foul Odor And Purulent Discharge From The Infected Tissue. Crepitus Has Been Reported.[2] It Begins As A Subcutaneous Infection. However, Necrotic Patches Soon Appear In The Overlying Skin, Which Later Develop Into Necrosis. [2]most Cases Of Fournier Gangrene Are Infected By Both Aerobic And Anaerobic Bacteria. [3] Resulting Mortality Increases In Individuals Lacking Access Not Only To Pragmatic Resources Such As Sanitation And Medical Care, But To Psychosocial Resources, As Well. [4]predisposing Factors Include Advanced Age, Primary Anorectal/genitourinary Infections And Abscess, Low Socio-economic Status, Neurologic Deficiency, Diabetes Mellitus, Local Trauma, Urine Leakage, Recent Perirectal Or Perineal Surgery, Periurethral/anal Infection, Alcohol Abuse, Immunosuppression.[5-7] Patients With Poor General Health Status Are Particularly Prone To Fournier's Gangrene. This Includes Malnutrition Or Obesity, Chronic Renal Failure, Chronic Liver Disease, Malignancies And Other Conditions Causing Immunosuppression.[8,9]infectious Cases Originating From The Genitalia, The Infecting Bacteria Probably Pass Through Buck's Fascia Of The Penis And Spread Along The Dartos Fascia Of The Scrotum And Penis, Colles' Fascia Of The Perineum, And Scarpa's Fascia Of The Anterior Abdominal Wall. Wound Cultures Generally Yield Multiple Organisms, Implicating Anaerobic-aerobic Synergy.[10]

In The Present Study, We Are Studying Patients Admitted To Department Of Surgery Presenting With Fournier's Gangrene In Terms Of The Location Of Infective Gangrene, Predisposing Factors, Etiological Agents.

AIMS AND OBJECTIVES OF THE STUDY

The Aims Of The Study Are:

1. To Study The Mode Of Presentation Of Gangrene Of The Scrotum
2. To Find Abnormalities In Biochemical Parameters If Any In This Disease

MATERIALS AND METHODS

A Prospective Observational Study Was Carried Out At Department Of General Surgery Attached To Government Medical College/ government General Hospital, Nizamabad. The Period Of The Study Was From August 2015 To August 2016. total 43 Patients Diagnosed As Fournier's Gangrene And Treated In This Period Were Included In

This Study After Taking Consent. A Detailed History Was Taken From All Patients And Investigations Such As Hemogram, Urine And Blood Sugar, Serum Sodium, Calcium And Albumin Were Taken At The Time Of Admission. Pus For Culture Sensitivity Was Taken At The Time Of First Debridement. All Patients Underwent Debridement With In 6 Hrs Of Admission Either Under General Or Under Local Anesthesia. The Data Analysis Was Done With Ms Office 2016, Simple Ratios And Proportions Was Taken.

RESULTS AND OBSERVATIONS:-

In Department Of General Surgery 43 Male Patients Were Admitted Between The Study Period From August 2015 To August 2016.

Table 1: Age Wise Distribution Of Study Population (n=43)

Age Group (Years)	No. of Patients	Percentage
< 20	0	0
21 – 30	3	6.97
31 – 40	6	13.95
41 – 50	12	27.90
51 – 60	16	37.20
>60	6	13.95
Total	43	100

In this study highest cases of Fournier's gangrene is seen in the 5th decade 16 (37.20%), followed by 4th decade 12(27.90%).

TABLE 2: CLINICAL PRESENTATION OF PATIENTS WITH FOURNIER'S GANGRENE (n=43)

Signs and Symptoms	No. of Patients	Percentage
Pain	43	100
Edema	38	88.37
Fever	34	79.06
Erythema	43	100
Crepitus	14	32.55
Skin Necrosis	38	88.37
Shock	4	9.30
Altered Mental Status	2	4.65

In this study all patients with Fournier's gangrene came with pain (100%), Erythema (100%) followed by edema (88.37%), skin necrosis (88.37%), Fever (79.06%), Crepitus (32.55%). Less common presentation was shock (9.30%) and Altered Mental Status (4.65%).

TABLE 3: SOURCE OF INFECTION FOR PATIENTS WITH FOURNIER'S GANGRENE (n=43)

Source	No. of Patients	Percentage
Anorectal	7	16.27
Genitourinary	17	39.53

Combination of above	6	13.95
Idiopathic	12	27.90
Skin	1	2.32
Total	43	16.27

In this study the commonest source of infection was Genitourinary (39.53%) followed by Idiopathic (27.90%) and Anorectal (16.27%)

TABLE 4: FACTORS ASSOCIATED WITH FOURNIER'S GANGRENE (n=43)

Risk factors	No. of Cases	Percentage
Diabetes	21	48.83
Alcoholism	28	65.11
Trauma (Self inflicted/ instrumentation / otherwise)	3	6.97
Immunosuppression	4	9.30

In this study a high prevalent risk factors are Alcoholism(65.11%) and Diabetes (48.83%). Four were HIV Positive (9.30%).

Table 5: Extent Of Lesion Among Study Population (N=43)

Nature of Lesion	No. of Patients	Percentage
Localised	30	69.77
Extensive	13	30.23

The extent of the lesion was localized in majority of the cases (69.77%) than extensive lesion (30.23%)

Table 6: Time Interval Between Onset Of Symptoms And Presentation At The Hospital (n=43)

Time Interval	No. of Patients	Percentage
< 48 hrs	2	4.65
48 hrs – 1 week	28	65.11
> 1 week	13	30.23
Total	43	100

In this study most of the patents came to hospital with in 48hrs to 1 week (65.11%) and after one week (30.23%), only 2 patents came within 48 hours (4.65%).

TABLE 7: BIOCHEMICAL ABNORMALITIES IN FOURNIER'S GANGRENE (n=43)

Investigation	No. of Patients	Percentage
Anemia	26	60.46
Leucocytosis	18	41.86
Hyponatremia	15	34.88
Increased Serum Creatinine	15	34.88
Hyperglycemia	21	48.83
Glycosuria	21	48.83
Decreased Serum Albumin	8	18.60
Increased BT and CT	1	2.32
Hypocalcemia	15	34.88

In our study most common Biochemical abnormality was anemia (60.46%), hyperglycemia(48.83%) glycosuria(48.83%) Hyponatremia (34.88%) and Increased Serum Creatinine (34.88%)

Table 8: Bacteriology Of Fournier's Gangrene (n=43)

Organism	No. of Patients	Percentage
Staphylococci	11	25.58
Streptococci	7	16.27
E. coli	28	65.11
Klebsiella	9	20.93
Proteus	4	9.30
Pseudomonas	8	18.60
Bacteroides	4	9.30
Clostridium	5	11.62

In our study, E. coli (65.11%) was the commonest species found followed by Staphylococcus (25.58%) and Klebsiella (20.93%).

DISCUSSION:-

In this study highest cases of Fournier's gangrene is seen in the 5th decade 16 (37.20%), followed by 4th decade 12(27.90%). In the present study all patients with Fournier's gangrene came with pain (100%) and erythema (100%) this findings are similar to studies

conducted by Lamb RC and Juler GL et al [11] and Clayton and Flower JE Jr et al [12] pain 100% and erythema 100%. In this study Alter mental state and shock are found far less frequently when compare with above studies. Crepitus is found in a significantly lesser number of patients. In this study the commonest source of infection was Genitourinary (39.53%) followed by Idiopathic (27.90%) and Anorectal (16.27%) According to Clayton and Flower JE Jr et al [12] anorectal (46%) site of origin was more common than genitourinary (33%). According to Asci R and Sarikaya S et al [13] genitourinary (35.3%) site of origin was more common than anorectal (29.4%). In this study a high prevalent risk factors are Alcoholism(65.11%) and Diabetes(48.83%). Four were HIV Positive (9.30%). According to Spirnak IP and Resnick MI et al(14) diabetes was present in 50% of patents alcoholism was found in 50% patients. The extent of the lesion was localized in majority of the cases (69.77%) than extensive lesion (30.23%). According to Clayton and Flower JE Jr et al [12] 72% is localized in our study it was 69.77%. In this study most of the patents came to hospital with in 48hrs to 1 week (65.11%) and after one week (30.23%), only 2 patents came within 48 hours (4.65%). According to Stamenkovic I and Lew PD et al (15) 53% reported to hospital with in 48 hrs to 1 week in our study it was 65.11% and 47% reported with in 48 hours where as in our study it was only 4.65%. In our study most common Biochemical abnormality was anemia (60.46%), hyperglycemia(48.83%) glycosuria (48.83%) Hyponatremia (34.88%) and Increased Serum Creatinine (34.88%). A Study by Miller JD et al [16] leucocytosis was 93% and hyperglycemia 82% are biochemical abnormalities. In our study, E. coli (65.11%) was the commonest species found followed by Staphylococcus (25.58%) and Klebsiella (20.93%). According to Paty R and Smith AD et al [17] E. coli 50% and bacterioids 47% and streptococci 42%.

SUMMARY AND CONCLUSIONS

- The disease is most prevalent in the fourth and fifth decades of life.
- The commonest presenting features are scrotal pain and erythema followed by scrotal edema, and fever.
- The commonest source of origin is Genitourinary (39.53%). In 27.9% of the patients, no source could be identified.
- Alcoholism and Diabetes and were major risk factors in more number of patients.
- Majority of the patients (65.12%) presented between 48 hours to 1 week from the onset of the disease. No patient presented in the first 48 hours.
- The extent of disease process was localized in 69.77% of the cases and extensive in 30.23%.
- The most common biochemical abnormality found was anemia, hyperglycemia and glycosuria.
- Commonest agent causing infection was found to be E. coli, followed by Staphylococci.

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