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Fournier's Gangrene in Woman after Indonesian Traditional Therapy: A Case Report

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ABSTRACT

Introduction: Fournier's gangrene (FG) is an extremely rare form of necrotizing fasciitis which is a very rapidly progressive disease that attacks deep and superficial tissues in the perineum, anus, scrotum, and genital areas. The incidence is reported to be very rare, around 1.6 to 3 per 100,000 with a ratio between men and women of 10:1. Early diagnosis and early treatment of this disease is the main key to preventing worsening. We report a unique case, namely a woman with Fournier's gangrene who previously received alternative therapy with hot bricks.

Case Presentation: A 61-year-old woman was referred from a secondary hospital with a diagnosis of fasciitis necroticans. Based on the history of the disease obtained from the anamnesis, the patient initially complained that there was a lump in the anal region which was not known exactly when it first appeared. the patient took the initiative to carry out alternative treatment using hot bricks placed on the patient's buttocks. The patient was not routinely checked and was only treated at home for 4 months. The patient was diagnozed with Fournier's gangrene based on clinical findings.

Conclusion: Surgical emergency debridement therapy is a goal treatment of FG to prevent worsening of FG and septic shock

Keyword: Fournier's gangrene (FG), hot bricks

1. INTRODUCTION

Fournier's gangrene (FG) is an extremely rare form of necrotizing fasciitis which is a very rapidly progressive disease that attacks deep and superficial tissues in the perineum, anus, scrotum, and genital areas. This gangrene is very often associated with general signs of sepsis, very rapid tissue damage, and a high mortality rate of up to 40%. The spread of inflammatory reactions and infections can cause blood vessel thrombosis, which in turn will cause ischemia and necrosis of the soft tissue and fascia around the adjacent FG area. This inflammatory and infectious process spreads very quickly along the Colles, Dartos and Scarpa fascia, this will of course cause involvement of the abdominal wall.[1–3]

The incidence is reported to be very rare, around 1.6 to 3 per 100,000 with a ratio between men and women of 10:1. This disease was first reported by Baurienne in 1764 where he described the case of a 45-year-old man with scrotal gangrene and thought to have arisen from radical surgical debridement of all infected and necrotic tissue. After more than 119 years, Jean-Alfred Fournier, a dermatologist, reported five cases of healthy young men with progressive gangrene of the scrotum and penis in 1883. Since then, the classic patient's condition has changed. FG is closely related to several comorbidities and can involve both sexes, both young and old. Most men and women with FG will have both genital and perineal involvement. Women will almost always have vulvar or labial involvement (95%-100%). Early diagnosis and early treatment of this disease is the main key to preventing worsening.[1,4–6] We report a unique case, namely a woman with Fournier's gangrene who previously received alternative therapy with hot bricks,

Case Presentation

A 61-year-old woman was referred from a secondary hospital with a diagnosis of fasciitis necroticans. Based on the history of the disease obtained from the anamnesis, the patient initially complained that there was a lump in the anal region which was not known exactly when it first appeared. The patient went to the doctor for treatment and was told she had hemorrhoids and was advised to undergo surgery by a surgeon. However, due to other conditions, the patient took the initiative to carry out alternative treatment using hot bricks placed on the patient's buttocks. During this alternative treatment, complaints did not improve and became worse. The patient went back to the doctor and was said to have a gluteal abscess. The patient was not routinely checked and was only treated at home for 4 months. During four months of treatment at home, there was no improvement in complaints and the patient was advised to see a surgeon. The patient was finally referred to the hospital and underwent gluteus debridement by digestive surgeons for the last 1 month. After debridement treatment, in the last 2 weeks the patient experienced an inguinal a/r abscess. On physical examination, it can be seen in Figure 1.

On laboratory examination Hb 9.1 g/dl, Ht 27%, erythrocytes 3.5 x10^6, platelets 333000, leukocytes 18010/mm^3, MCV 79

fL, MCH 26 pg, MCHC 34%. Differential cout 0/0/0/89/8/3, PT 18.00 seconds, D-dimer 730 ng/mL, albumin 1.82 g/dL, urea 99 mg/dL, and creatinine 1.07 mg/dL. Abdominopelvic plain x-ray examination can be seen in figure 2

Table 1. Laboratory examination

Examination	Normal value	18/03/2024	21/03/2024
Hemoglobin (g/dL)	12-15	9.1	9.1
Hematocrit (%)	37-47	28	27
Erythrocytes (/mm^3)	4.2-5.4 x10^6	3.6x10^6	3.5x10^6
Leucocyte (/mm^3)	4.5-10.5 x10^3	20.56 x10^3	18.01x10^3
MCV (fL)	80-100	77	79
MCH (pg)	27-31	25	26
MCHC (%)	32-36	33	34
RDW (%)	11.5-14.5	20.6	18.6
MPV (fL)	7.2-11.1	9.8	10.3
PDW (fL)		10.7	10.6
Differential count (%)		0/0/0/91/7/2	0/0/0/89/8/3
PT (second)	12-16	16.80	18.00
APTT (second)	26-37	27.7	30.00
D-dimer (ng/ml)	< 500		730
Albumin (g/dL)	3.5-5.2	2.07	1.82
Blood glucose (mg/dL)	< 200	126	
Ureum (mg/dL)	13-43	94	99
Creatinine (mg/dL)	0.51-0.95		1.07
Na^+ (mmol/L)	132-146		133
K^+(mmol/L)	3.5-5.1		4.8
Cl^-(mmol/L)	98-106		102

Table 2. Blood Gas Analysis

Blood Gas Analysis	Result	Result Normal value
pH	7.5207	7.35-7.45
pCO_2 (mmHg)	28	35-45
pO_2 (mmHg)	66	80-100
Bicarbonate (HCO_3) (mmol/L)	21.2	23-28
Total CO_2 (mmol/L)	22	23.2-27.6
Base excess (BE)	-0.7	(-2) – (+2)
O_2 saturation (%)	90	95-100

The Fournier's gangrene severity index (FGSI) score was 8

Figure 1. Clinical features of FG in our patients before surgery

Figure 2. Abdominopelvic X-ray in our patient

From the results of the history, physical examination and supporting examinations, the patient was diagnosed with Fournier Gangrene. The patient was planned to undergo surgery. Intraoperative clinical photos can be seen in Figure 3.

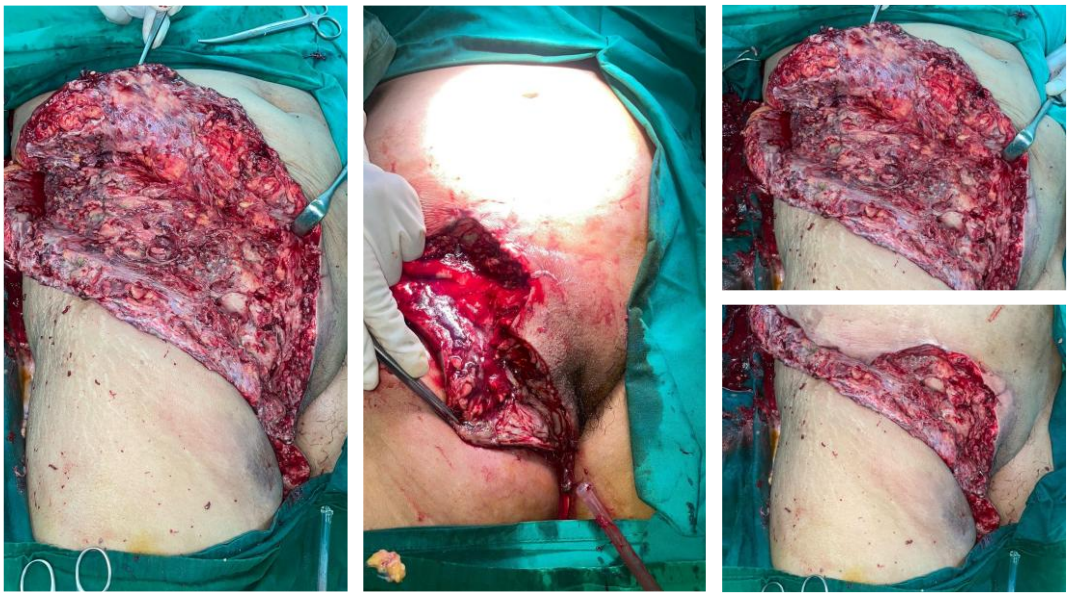

Figure 3. Clinical features of FG in our patients during surgery

Figure 4. Clinical features of FG in our patients after surgery

2. DISCUSSION

We highlighted unusual cases of Fournier's gangrene in women with history of alternative medicine using hot bricks as risk factors. After various therapies, starting from wound care continued by multiple treatments such as debridement and operative surgery, the patient fully recovered. According to epidemiological data, Fournier's gangrene is a very rare surgical emergency where it is an idiopathic disease in men. The latest epidemiological assessment shows that this disease can occur in all genders, including men and women. The overall incidence is approximately 1.6/100000 men, and the incidence in men increases with increasing age with a peak of 3.3/100000 between the ages of 50 to 79 years. the ratio between men and women is 10:1.[7,8] Although it rarely occurs in women, in our report, we report cases of FG that occur in women.

Fournier's gangrene is a necrotizing fasciitis of the perineum and genitalia that can spread to the abdominal wall, lower extremities and buttocks. Because it is a type of infection, it can increase mortality and morbidity. This is due to polymicrobial infections in the genital, perineal and perianal areas. Pathogenesis occurs due to necrosis of the skin, penis, scrotal fascia and perineum which spreads through the fascial plane to the pelvis and abdomen. This infectious process will spread to the blood vessels, disrupt microcirculation, and circulatory collapse. Immunocompromised conditions cause germs or microorganisms to develop and multiply rapidly. Bacterial virulence is caused by enzymes or toxins that can form a favorable environment

for bacterial development. Apart from that, the synergistic activity of poly microbials can also cause the spread of bacteria to be more aggressive. Thrombosis in blood vessels can stimulate the growth and development of facultative anaerobic bacteria and microaerophilic organisms due to tissue hypoxia. Collagenase and lecithinase enzymes can digest fascial defenses, and open pathways for infection and expansion of infection. The fulminant spread of infection from FG can cause the spread of infection to the genitalia, fascia, perineum, trunk, pelvis and extremities.[9,10]

The etiology of FG in men is usually triggered by trauma, surgery, foreign bodies, perirectal and perianal abscesses, colonic perforation, urethral stricture with urine extravasation, epididymoorsitis. Meanwhile, in women it is triggered by vulvar or bartoline abscess, hysterectomy, and septic abortion. In children it is usually caused by strangulation, perirectal abscess, systemic infection, and burns. In our case, we report FG in a woman caused by burns in the perineal area. The perineal burns in our patient were caused by hot bricks which were used as alternative therapy by our patient to cure the hemorrhoids he was suffering from. However, our patient did not experience improvement, and this caused infection in the burn wound which resulted in Fournier's gangrene.[10,11]

Diagnosis is based on clinical findings, urinalysis, complete blood count, etiology determination by culture. The clinical symptoms of FG are usually itching and discomfort in the perineum or genital area. Apart from that, it can also feel like edema, cyanosis or gangrene. Other conditions found include edema, genital pain, crepitus, foul odor, and fever > 38OC or hypothermia accompanied by systemic symptoms. The patient also had a swollen and painful wound with a foul smell accompanied by pus around the wound. In our patient, the symptoms found were consistent with the anatomical location suggestive of FG. A CT scan can be used as a modality to determine the severity of gangrene. CT scans can identify tissue involvement, abscesses, fluid or fat and subcutaneous emphysema.[10,12] In this patient, the supporting examination carried out was a plain abdominal radiograph.

Fournier's gangrene is a true surgical emergency. This disease process is treated with surgical intervention and medical resuscitation as patients often experience septic and shock. Therapy for FG includes intravenous fluids, electrolyte regulation, wound care, preoperative debridement of extensive tissue necrosis then dressing, and parenteral antibiotics with broad spectrum triple antibiotics that protect against gram-positive, negative, and anaerobic bacteria as well as treating risk factors that can trigger FG. The recommended broad-spectrum antibiotics are carbapenems (imipenem or meropenem at a dose of 1 g IV every 6-8 hours, ertapenem 1g IV every 24 hours) or piperacillin-tazobactam (3.375 g IV every 6 hours or 4.5 g IV every 8 hours) plus clindamycin (600 to 900 mg IV every 8 hours) plus vancomycin (5 to 20 mg/kg IV every 8 to 12 hours). Daptomycin or linezolid may replace vancomycin. Antifungal agents such as amphotericin B, fluconazole, or similar may be added as needed. Alternative regimens include aminoglycosides or fluoroquinolones plus metronidazole.[9,10] Delays in wound care and debridement will cause increased mortality and morbidity. Although these antibiotic and resuscitative measures are important, they should not delay prompt, early, and aggressive surgical exploration and debridement, which is the definitive and critical therapy for Fournier's gangrene. A significant delay in initiating immediate surgery will result in increased patient morbidity and mortality. Operative debridement must also be carried out directly to remove necrotic tissue and cover with an occlusive dressing with or without negative pressure. Surgical intervention is based on aggressive, radical, and extensive resection of all necrotic and gangrenous tissue. After surgery, the wound is treated with a sterile dressing and a vacuum wound pressure system. If the urethra is involved, a suprapubic tube may be placed. If the rectum or anus is involved, a diverting colostomy may be necessary, or an equivalent stool management system used. The use of suprapubic tubes and colostomy should be minimized as they have not been shown to improve mortality and are associated with increased patient morbidity. Hyperbaric oxygen appears to help reduce morbidity and mortality. If it has healed completely, reconstructive surgery can provide quite satisfactory results.[12–14]

The prognosis of FG depends on the type of bacteria, old age, diabetes, gangrenous area involvement, septic shock, and liver and kidney disorders. In our patient, the prognosis was good because the patient had no comorbidities. The short-term systemic complications of Fournier's gangrene are a result of the body's inflammatory response to this aggressive infectious process. These systemic complications include acute renal failure, acute respiratory distress syndrome, cardiac arrhythmias, heart failure, multiple organ failure, and bacteremia.[9] This bacteremia can cause acute thromboembolic events such as stroke and arterial occlusion in the lower extremities, which can lead to amputation. Apart from that, patients can also experience ileus due to some of the operations they undergo. Wound infection after debridement may also occur; however, as discussed previously, adjuvant treatments such as hyperbaric oxygen are intended to reduce the rate of wound infection.[6,11,12,15,16]

3. CONCLUSION

report a case of a 61-year-old female with Fournier’s gangrene. In this case, the FG’s due to using alternative medicine such as hot bricks. Surgical emergency debridement therapy is a goal treatment of FG to prevent worsening of FG and septic shock.

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