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## **Holistic approach-A new way to treat and reduce mortality and morbidity in Fournier's gangrene**

**Vinod Kumar Nigam\*, Siddarth Nigam**

<sup>1</sup> Principal Surgeon, Department of General and Minimal Invasive Surgery, Max Hospital Gurugram, Haryana, India

<sup>2</sup> Senior Surgeon, Department of General and Minimal Invasive Surgery, Max Hospital Gurugram, Haryana, India

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### **Abstract**

Fournier's gangrene is a type of necrotizing fasciitis or gangrene affecting genitalia or perineum. It is common in males but females and children are not excluded. It is more common in patients with comorbidities like diabetes, HIV and alcohol abuse. It is a fast spreading disease caused by polymicrobial infection including both aerobic and anaerobic bacteria. Early debridement and intravenous antibiotics are main treatment. Mortality can reach to 80% as seen in some studies. Our holistic approach has helped the patients of Fournier's gangrene in reducing the rate of mortality and morbidity. Holistic approach includes the debridement, intravenous antibiotics and other required treatment in addition to positivity, relaxation, deep abdominal breathing, meditation and visualization.

**Keywords:** Fournier's gangrene, infection, necrotizing fasciitis, perineum, polymicrobial infection, scrotum

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### **Introduction**

A holistic approach means to provide support that looks at the whole person, not just their mental needs. The support should also consider their physical, emotional, social and spiritual well-being...., a holistic approach focuses on a person's wellness and not just illness or condition [1]. Holistic approach helps the patient to recover fast as it treats both physical ailment and psychological stress. Holistic approach takes in account of everything such as diet, stress, sleep, and happiness. There are five aspects of holistic approach to health, they are physical, emotional, social, spiritual and mental. The holistic approach helps healing by developing a bond and trust between the patient and treating clinician which augments healing and avoids complications.

Some special integrative services before and after surgery can also be helpful to reduce anxiety about imminent surgery, and to enhance the patients to heal and recover. Extensive researches shown the effectiveness of integrative strategies to improve the outcomes of surgery. As one example, a lower level of stress and anxiety is associated with improved outcomes of surgery, including fewer complications and faster recovery [2].

Some countries have incorporated the holistic and integrated approach into curriculum and guidelines for doctors in learning, which reflects its acceptance as a component of medical training. However, despite this validation, and despite research showing the effectiveness of such strategies in enhancing the outcomes of surgery, a holistic frame work or integrative approach has not been equally integrated into specialty training for would be surgeons [3]. Some mind – body techniques have been shown to decrease stress and anxiety, reduce pain and even lesser the amount of medications required, and even reduce blood loss during surgery, all of which might result in shorter stay [4].

In olden times there was no social media or other way to know more about any disease except books, and print media but now you can search and find anything on Google or other search platform. In those times whatever doctor used to tell the patient

and relatives about a sickness they used to believe it, primarily due to abundant trust in treating clinician and secondarily there was no other platform to know more about it. Now as soon as you say "Fournier gangrene", they will immediately know the seriousness and incidence percentage of mortality and morbidity through social media and become anxious, stressed, disturbed and panicky therefore the holistic approach is required in serious fatal diseases such as Fournier gangrene. Spirituality will take care of these problems and will help in tackling negative and depressing thoughts. In a more recent study, Dr. Spiegel examined the relationship between spirituality and immune function in 112 women with metastatic breast cancer. Spirituality was assessed by patients' report of frequency of attendance at religious services and importance of religious or spiritual expression. Women who rated spirituality as important in their lives had a greater number of circulating white blood cells and improved immune function [5]. Venetia Wynter – Blyth, Winner of "Nurse of the year award says about holistic approach in surgery, that an innovative approach to preparing patients for surgery has improved their health and reduced post-operative complications."

The word "meditation" comes from the Latin "meditari", which means to contemplate. Meditation can, in fact, be called "the science of healing" in its broadest sense. It consists of emptying one's mind to focus on one's thought, sound or picture for a certain period. As a result it diminishes stress, anxiety, tension, heart rate, blood pressure, oxygen consumption and makes one relaxed and calm. It is also said that unless you suffer from hypertension, stress and anxiety, you do not see the requirement of meditation. Peter Harrison, a teacher and psychotherapeutic counselor, who has been running meditation and sound and voice workshops since 1970, states in his book, A Complete Guide to Discovering Meditation: "When the natural composure and rest is lost, it gives rise to discontent, unhappiness and misery. It affects our immune system as it is well connected to our sense of

well-being; health begins to suffer. For this, we need meditation [6, 7]. In addition, the frontal lobe of the brain, which is the seat for reasoning, planning, emotions and conscious awareness, gets attenuated during meditation. The parietal lobe processes sensory information about our surroundings, orienting us in time and space. During meditation, it slows down. The thalamus is a gatekeeper, which allows some sensory information to reach the vital structures of the brain and stops others. Again, during meditation, it reduces incoming information. The reticular formation is the brain's additional guard which receives information and puts the brain on alert, enabling it to respond accordingly. Meditation does not allow this to happen [8].

It has now been confirmed that meditation strengthens the immune system. In a research conducted by Dr. David Cresswell, University of California, USA, 67 HIV patients were studied, where 48 patients practiced regular meditation. The study included male, African, American, homosexuals, unemployed and those not on ARV (Anti Retro Viral) medication. They followed a stress lowering program called "Mindfulness Based Stress Reduction Meditation". The more frequently volunteers meditated, the higher was their CD4T-cell count. The CD4T-cell count was measured before and after the two-month programme. Results showed that meditation may sometimes be able to slow down the advancement of AIDS [9]. Dr. Paul Brand, Surgeon, writes, "My profession of surgery depends entirely on the body's own healing system. The real direction of prayer for the sick and the suffering should be first to praise God for the wonderful mechanisms of healing and recovery that God has designed and placed in a person's body [10]. Prayer is talking, meditation is listening. Western science has only just begun to study the effects of meditation and visualization on diseases. Alberto Villoldo of San Francisco state college showed that regular meditation and self-healing visualization improved WBC response and immune system functioning [11]. Simonton's developed an imagery technique for cancer which is mentioned in the book "Imagery of cancer" like drawing the diagram of desire by the patient and drawing WBC eliminating the cancer [12].

### Material and Methods

Among thousands of emergency cases admitted in various hospitals of Gurugram under our care between 2011 and 2021, ten cases of clear advance Fournier's gangrene were diagnosed and treated with early and aggressive debridement and intravenous antibiotics and with holistic approach. After administration appropriate intravenous antibiotic were started and urgent aggressive debridement was done in all cases (Fig. 1 & 2). Some patients were investigated with X-Ray, MRI and CT scan (whenever required) along with hematological, serological and investigation and pus culture and sensitivity test.



**Fig 1:** Necrotizing fasciitis, before debridement.



**Fig 2:** Necrotizing fasciitis, after debridement.

Mean age of patients was 25.5, years. In our series two patients (20%) were diabetic of type-II diabetes. No patient was alcoholic or HIV positive. Three patients (30%) were admitted with septic shock. Eight patients (80%) showed mixed bacterial flora on culture of pus. Two patients (20%) showed klebsiella pneumonia. The mixed bacterial flora had Escherichia coli, klebsiella pneumonia, proteus mirabilis, staphylococcus, haemolyticus and enterococcus, faecalis.

All patients in our series were advised and trained to do deep abdominal breathing, meditation, visualization and positivity, some after admission and others after coming out of shock and emergency state. These patients were visited by our team doctors several times a day and every time talked to the relatives also to instill faith, trust and hope to alleviate the fear and anxiety. All patients were given 3rd generation cephalosporin and metronidazol intravenously. Some patients were also given aminoglycosides intravenously. Pus was sent for culture and sensitivity.

All patients were regularly visited by Dr V. K. Nigam, or Dr Sidharth Nigam or team doctors 4 times a day at regular intervals. During each visit we talked with the patient and attending relatives and gave positive moral support that all will be well and proper treatment is going on. We tried to introduce hope and positively in patients and relatives.

Daily we had meeting with blood relatives of patient in consultation room and explained the status of patient's sickness and tried to boost the morale. We tried to reduce negativity and anxiety in patients and their relatives. All patients, conscious or after regaining consciousness were taught deep abdominal breathing exercise, meditation and visualization. This all was done in addition to the proper medical treatment. Dressing were painful and we tried to do it without anesthesia and less amount of sedatives and analgesics with the help of deep abdominal breathing, meditation and visualization, it did wonders. Sometimes we succeeded sometimes not.

### Results

Two cases (20%) out of 10 cases were women, 8 cases (80%) were men. No child was reported in this series. Three patients (30%) required subsequent skin grafting. No case (0%) required orchidectomy. No patient (0%) died of fournier's gangrene. All patients were treated with prompt surgical debridement of necrotize tissues and appropriate intravenous antibiotics.

All ten patients were treated with similar manners and showed good results with no mortality. The recovery period of patients was different according to the extent of damage or necrosis. The average hospital stay was 21.5 days. (Range: 15 to 28 days) All cases were having polymicrobial infection.

## Discussion

Fournier's gangrene is a fulminant polymicrobial serious infections leading to necrotizing fasciitis or gangrene. It is predominantly a male disease affecting scrotum and perineum but females and children are not immune to it; rarely it affects females and children also. Males are 40 times more often affected than females [13]. It is common in diabetics, alcoholics and HIV patients. Swelling, pain in scrotum and perineum with fever are the main initial features. Later on foul smelling dirty looking fluid is discharged from affected areas as necrotic areas develop. It is a polymicrobial infection caused by both aerobic and anaerobic bacteria [14]. Lack of access to sanitation, medical care, and psychological resources has been linked to increased mortality [15]. In our series we approached holistically taking care of psychological resources also and it reduced the mortality rate.

Fournier's gangrene is usually diagnosed clinically but imaging investigations such as x-rays, ultrasound, MRI and CT scan help in early diagnosis and extend of involvement. It is an emergency and early debridement and intravenous antibiotics are the main stay of treatment. Though the mortality in Fournier's gangrene is usually about 20-40% but some studies have shown up to 80%.

Fournier's gangrene is a form of necrotizing fasciitis that is localized on the scrotum and perineal area [16, 17]. Diabetes mellitus is reported to be present in 20-70% of patients with Fournier's gangrene and chronic alcoholism in 25-50% of Fournier's gangrene patients with some authors reporting increased mortality in patients with diabetes [18]. Fournier's gangrene can occur after scrotal or perineal injury, anorectal or urological procedures. In our series one female patient developed Fournier's gangrene after introduction of laminaria tent in cervix to cause abortion. The other women developed Fournier's gangrene after injury. Among 8 male patients two developed Fournier's gangrene after anal dilatation with proctoscope. Two male patients developed the gangrene after perineal injury. In the rest of four cases we could not find out the cause of gangrene.

The benefits of meditation are due to its calming effect on the brain. Dr. Herbert Benson, Professor of Medicine at Harvard Medical School, USA, has found that medication decreases oxygen consumption by up to 17 per cent, reduces heart rate by three beats per minute and increases theta brainwaves.

Meditation helps patients to prepare themselves for surgery. If a patient is taught how to prepare for surgery, then a calm state of mind helps during surgery and in post-operative recovery.

It is a scientific fact that meditation slows down the ageing process. Dr. Dean Ornish, Head of Preventive Medicine Research Institute in Sausalito, California, USA, recently published his study in *Lancet Oncology*, recommending lifestyle changes, such as a diet rich in fibre, vegetable, whole grains, legumes and soy products, moderate exercise like walking for half an hour a day and an hour of stress management methods like meditation.<sup>19</sup>

These increase the body's level of telomerase, an enzyme which further enhances the length of telomeres, which are part of chromosomes and control the longevity and maintenance of immune system cells. A shortening of telomeres causes premature death by sickness like cancers of the breast, colon and lung and other diseases. Lengthening of the telomeres aids longevity, supported by regular meditation. Jon Kabat-Zinn, founder of the Stress Reduction Clinic at University Mass Medical School, treats patients of cancer, AIDS and chronic pain

without medication but with meditation. He injected the flu vaccines in individuals who meditated and those who did not, while measuring brain activity with functional MRI. He found more antibodies and shift of activity from the right brain to the left in the former group.

I have observed in my 35 years of surgical practice that when a patient, who has to undergo surgery, is trained beforehand in deep abdominal breathing exercises – along with meditation – the oxygen saturation level in his or her blood increases by two or three per cent, specially if the oxygen saturation is less than 100 per cent without additional oxygen supply. This may seem like a small percentage but is very helpful both during and after surgery in the recovery period. It has a direct positive effect on operative and post-operative complications and healings [20].

The common causes leading to Fournier's gangrene are..... rectal biopsy, anal dilatation, haemorrhoidectomy, herniorrhaphy, recto sigmoid malignancy, appendicitis, diverticulitis, sigmoid vesicle fistula, perforated colonic carcinoma, pancreatitis with retroperitoneal fat necrosis, and perforated duodenal ulcer [21, 22, 23 & 24], indwelling catheter, traumatic catheterization, urethral calculi, prostatic biopsy, bladder carcinoma, epididymitis, balanitis..., Bartholin's gland infection, septic abortion, episiotomy wound, coital injury, or genital mutilation [14].

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## Conflicts of interest

There are no conflicts of interest

## References

1. Health.Nsw.Gov.An. Holistic approach deals with the health of body, mind spirit, soul.
2. Rosenberge PH, Jokl P, Ickovics J. Psychological factors and surgical outcomes: an evidence-based literature review. *J Am Acad Orthop Surg*,2006;14:397-405.
3. Timucen A, Noor B, Mujgan Caliskan. Is there a place for a holistic approach in surgical training? *Arab J of Urol*,2014;12(1):21-24.
4. Dreher H. Mind – body interventions for surgery. Evidence and exigency. *Adv Mind – Body Med*,1998;14:207-222.
5. Ornish Dean. *The Spectrum*, Ballantine Books, 2008, 234.
6. Lee Cowden W. *et al*, *Longevity: Alternative Medicine Definitive Guide*, Magna Graphics (India) Limited, 2002, 173.
7. Peter Harrison. *A Complete Guide to Discovering Meditation*, Caxton, 2001, 77.
8. Nigam V K, Nigam S. *40 Minutes with GOD*, 2010, 63.
9. Meditation slows AIDS progression, *Times Trends*, The Times of India, New Delhi, Saturday, 2008, 21.
10. Yancey P. *Prayer–Does it make any difference*, Hodder, 2008, 254-255.
11. Siegel B. *Love, Medicine and miracles*, Arrow Books, 1988, 152.

12. Achter berg J, Lawlis G F Imagery of disease, 1978.
13. Hamdy Friddic, Eardley Ian. Oxford Textbook of urological surgery Oxford University press, 2001, 76.
14. Thwaini A, Khan A, Malik A, et al. Fournier's gangrene and its emergency management. Postgrad Med J, 2006;82(970):516-9.
15. Kesster CS, Bauml J. Non-Traumatic Urological Emergencies in Men: A clinical Review. West J Emerg Med, 2009;10(4):281-7.
16. Mallikarjuna MN, Vijaykumar A, Patit VS, Shiv swamy BS. Fournier's gangrene: Current practices, 2012, 942437.
17. Chennamsetty A, Khourdaji I, Burks F, Killinger KA. Contemporary diagnosis and management of Fournier's gangrene. The Adv Urol, 2015;7(4):203-15
18. Yanar H, Taviloglu K, Ertekin C *et al.* Fournier's gangrene: Risk factors and strategies for management. World J Surg, 2006;9:1750-54.
19. Ornish D. Healthy Life Style ups Enzymes Slows Aging Process, Times Trends, The Times of India, New Delhi, 2008, 35.
20. Nigam VK, Nigam S, 40 Minutes With GOD, 2010, 69
21. Servestani AS, Zamiri M, Sabouri M. Prognostic factors for Fournier's gangrene: A 10 year experience in south eastern Iran. Bull Emerg Trauma, 2013;1(3):166-22
22. Ersoz F, Sari S, Arikian S, *et al.* Factors affecting mortality in Fournier's gangrene: Experience with fifty two patients. Singapore Med J, 2012;52:537-40.
23. Aridogan A, Izol V, Abat D, *et al.* Epidemiological Characteristics of Fournier's gangrene: A report of 71 patients. Urol Int, 2012;89(4):457-61.
24. Ssroczyński M, Sebastian M, Rudnicki J, *et al.* A complex approach to the treatment of Fournier's gangrene. Adv Clin Exp Med, 2013;22(1):131-35.