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Case Study

PYODERMA GANGRENOSUM AND ITS HEALING WITH HERBO-MEDICINAL OINTMENT MARHAM-E-RAAL – A CASE STUDY

Waseem Ahmad[1]*, Saiyad Shah Alam[2], Zareena Aquil[3], Sahibole Suhail Yunus[4]

*[1]Assistant Professor, Dept. of Ilmul Jarahat (Surgery), HRUMC & H, Sambhal, Moradabad.

[2]HOD Ilmul Jarahat (Surgery), National Institute of Unani Medicine, Bengaluru.

[3]Research Scholars Dept. of Moalajat (Medicine), Central Research Institute of Unani Medicine, Hyderabad.

[4]Assistant Professor, Dept. of Ilmul Jarahat (Surgery), Markaz Unani Medical College, Kozhikode, Kerala.

KEYWORDS: Pyoderma gangrenosum, *Qurooh-e-Aseerat-ul-Indamaal* (Non healing ulcers), Unani medicine; *Marham-e-Raal.*

***Address for correspondence**
Dr. Waseem Ahmad
Assistant Professor,
Dept. of Ilmul Jarahat (Surgery),
HRUMC & H, Sambhal,
Moradabad, India.
Email:
waseemahmad32@yahoo.com
Ph: +91-8527468191

ABSTRACT

Pyoderma gangrenosum (PG) is one which is supposed to be a quickly growing and harshly devastating skin disease. Ulcers are frequently deep and painful, distinguished by aggressive (purple-colored) margins. The etiology of this disease is almost uncertain. The disease may be idiopathic or associated with some other chronic illness like inflammatory bowel disease; including Crohn's disease, or hematological or rheumatic ailments. Basically it is supposed to be an auto-immune disease. If the disease is left untreated, the ulcers may last several months or few years. Treatment in modern medicine includes high doses of steroids and intravenous immunoglobulin. In our case series the patient of pyoderma gangrenosum who had taken the steroids in a high dose is treated with topical ointment i.e. *Marham-e-raal* and Unani immunomodulator drugs. A male patient of PG was taken into study and was given oral Unani formulations and a herbo-medicinal ointment; *Marham-e-raal* for local application for 1 month.

PG of lower limbs presents with burning and non healing chronic ulcers which are often resilient to healing either by steroids or antibiotics.

The optimal treatment of PG is oral use of Unani immune-modulators and topical application of *Marham-e-raal*. The patient was managed with the same treatment and within the follow up of 2 months; there was no sign of PG.

INTRODUCTION

Presentation of the Patient

A male patient of age around 50 years, visited in surgical OPD of our institute with the main complaints of multiple skin ulcers with intense burning pain on bilateral lower limbs since 10 years. He was not suffering from chronic illness like diabetes mellitus and tuberculosis. But he had history of pulmonary tuberculosis 30 years back for which he had taken regular anti tubercular treatment. His diet was good and dietary habit was vegetarian. Professionally he was a security guard with laborious life style.

Medical Presentation

According to the statement of the patient, he was apparently well before 10 years. Patient then accidentally noticed a small blister like swelling on his right knee joint. Subsequently the multiple swellings appeared on different sites below knee on bilateral lower limbs. The swellings then spontaneously busted out leaving behind serosanguinous discharge resulting into a creation of ulceration at the site of burst. The amount of discharge at first was on an average 2-3ml from each swelling which subsequently decreased in quantity. The discharge was coloured like light red and not associated with foul smelling. The ulcers so

formed were associated with severe burning pain involving surrounding regions. The pain was so severe that the patient was unable to walk. The pain was confined only at and around the site of ulcerations. There was no referring, radiation and shifting of the pain. The pain only relieved on immersing the legs in warm water and aggravated during walking, lying down and standing. With all these complaints patients visited a number of the hospitals for seeking treatment but the ulcers did not respond to any form of treatment, be it oral high dose steroids or dressing of the wounds, rather the conditions deteriorated more and more with time passage. According to the patient, the nature of the ulcer was spreading and crawling from one site to another. There is no history of fever, shivering, fracture of lower limbs and nausea and vomiting. With all these complaints, the patient visited NIUM surgical OPD and was admitted for further evaluation and management.

Local examination

1. Positions: There were multiple ulcers on bilateral lower limbs as described below.

Right lower limb*:* At knee joint anteriorly with size of 1.5x1.5cm and at mid leg anteriorly with size of 1x1cm. 10cm and 20cm above the ankle joint posteriorly with size of 1.8x3.8cm and 1.3x1.6cm respectively.

Left lower limb: 5cm, 7cm and 10cm above the ankle joint anteriorly with size of 3.5x3cm, 2x3cm and 1.3x2.3cm respectively. No ulcer on posterior aspect. Multiple ulcers were also present on upper limbs on different sites.

2. Number: Multiple ulcers on different parts of lower and upper limbs.

3. Shape: Oval shaped.

4. Edges: Irregular and violaceous.

5. Floor: Angry floor with oozing of serosanguinous discharge.

6. Discharge: Serosanguinous discharge.

7. Surrounding area: Mildly hyperemic.

8. Tenderness: Severe tenderness present.

9. Discharge on touch: Bloody discharge present on pressing the surrounding of the ulcers.

10. Examination for vascular insufficiency: All the pulsations like dorsalis pedis, anterior tibial artery, posterior tibial artery, popliteal artery and femoral artery were very well palpable.

Investigations

Patient, after admission in our hospital, was advised all routine investigations to rule out underlying morbid factors like essential hypertension, anemia and diabetes mellitus etc. The laboratory investigation values were as follows. Hb- 11.8%, Total counts- 10,000 cells/mm 3, Differential counts (polymorphs- 81%, lymphocytes- 10%, esinophils- 05%, monocytes- 04%, basophils- 0.0%) and ESR- 56mm/1hr. Blood sugar level was within normal limit i.e. random blood sugar- 118 mg/dl. Lipid profile was too within normal limit i.e. serum cholesterol- 153mg/dl, serum triglycerides- 92mg/dl and HDL cholesterol- 37mg/dl. Serological findings were normal i.e. HIV I & II as non-reactive and HbsAg as negative. Wound swab was sent to lab for culture and sensitivity and the report showed no bacterial growth after 48 hours of aerobic incubation. Edge biopsy showed the features of pyoderma gangrenosum.

Treatment Given to the Patient

After deep insightfulness of detailed clinical picture, physical examination, and laboratory investigations, the patient was diagnosed as Pyoderma Gangrenosum. Patient was advised Unani medical intervention. An ointment i.e. *Marham-e-raal* was used for topical application after proper washing and cleaning of the wound area with decoction of neem leaves and *sufuf-e-zaaj* (alum powder solution/alusol) twice a day. For the purpose of *Ta'deel-e-dam* (blood purification), an eminent and well established blood purifier i.e. *Majoon-e-Ushba* was given orally in a dose of 6gm twice a day with plain water. As described above, the disease is an autoimmune one, therefore a Unani immune-modulator i.e. decoction of *Asgand (Withania somnifera), Banafsha (Viola odorata)* and *Daar-chini (Cinnamomum zyelanicum)* (5gm each) was given orally in a dose of 20ml twice a day. In addition to this, he was instructed to maintain the personal hygiene, daily changing of costumes and intermittent movement of bilateral knee and ankle joints in order to avoid arthrosis.

DISCUSSION

Pyoderma gangrenosum (PG) is a rare ulcerative skin illness having frequently associated with systemic illness.[1] It is one of the various types of *Qurooh-e-aseerat-ul-indamaal/* non healing ulcers. The disease is also known with other terminologies like dermatitis gangrenosa, Phagedena Geometrica and phagedenic pyoderma.[2] The disease was first deeply mentioned by Brunsting, Goeckerman and O'Leary in 1930.[3] The three firmly believed that streptococcal infection was the secondary infection resulting into cutaneous gangrene and called it as Pyoderma Gangrenosum. Hence, it can be said that the term Pyoderma Gangrenosum be a misnomer.

The accurate etiology of PG is mysterious. Even though it is frequently linked with autoimmune illness and the exact mechanism of autoimmune illness in producing the cutaneous gangrene is not known. 2 number of studies have revealed defective cell-mediated immunity and weakened phagocytosis by neutrophils.[4] Another micro-organism; chlamydia pneumonia (an intracellular parasite) having ability to infect endothelial, smooth muscle cells and monocytes has been supposed to be a potent etiologic factor for development of PG.[5,6] As per several scientific studies, PG has also been found to occur after treatment with granulocyte colony stimulating factor (G-CSF).[7,2] The disease prevails between 25 and 45 years of age.[8,2] The prevalence among children accounts for 4% of all the patients of PG. Both the sexes are equally affected.

The diagnostic criteria depend mainly on identification of the growing clinical features since the histopathological findings are not specific.[9] The diagnosis is highly suggestive of PG if there is massive infiltration with neutrophils in the absence of vasculitis and granuloma.[10] But the recent studies have shown that the histopathological findings of PG in association with Crohn's disease may possess granulomatous foci as compared to the histopathological findings of lesions of PG without Crohn's disease.[11] Corticosteroid (prednisolone in the range of 40-80mg/day) and immune-suppressant (like azathioprine, mercaptopurine, cyclophosphamide, arabinoside, chlorambucil, colchicine and daunorubicin) therapy is the stronghold in the treatment of PG in modern medicine.[12] The treatment of the causal disease may support the healing of ulcer.[13] Local therapy includes topical and intralesional corticosteroids, topical 5-aminosalicylic acid, benzoyl peroxide, topical sodium cromoglycate, intralesional cyclosporine and topical nitrogen mustard.[14,15] But interesting and noteworthy point is that there is not even a single research publication describing the complete cure of PG without recurrence.

On the basis of clinical history, examination and necessary investigations including edge biopsy of the ulceration, we finally diagnosed the patient as Pyoderma gangrenosum without association of any underlying disease. The patient had visited number of the hospitals in order to get the treatment and he got treatment but did not cure completely and instead the ulcers recurred frequently. After we admitted him in our hospital, we started the treatment modality as an ointment i.e. *Marham-e-raal* for local application after thorough washing of the wound area with decoction of neem leaves and *sufuf-e-zaaj* twice a day. For the purpose of *Ta'deel-e-dam*, an eminent and well established blood purifier i.e. *Majoon-e-Ushba* was given orally in a dose of 6gm twice a day with plain water. As described above, the disease is an autoimmune one, therefore a Unani immune-modulator i.e. decoction of *Asgand* (*Withania somnifera*), *Banafsha* (*Viola odorata*) and *Daarchini* (*Cinnamomum zyelanicum*) (5gm each) was given orally in a dose of 20 ml twice a day. In addition to this, he was instructed to maintain the personal hygiene, daily changing of costumes and intermittent movement of bilateral knee and ankle joints in order to avoid arthrosis. With this treatment, ulcers completely healed and the burning sensations subsided. Ulcers did not recur at the follow up after one month. Figures 1, 2 and 3 illustrate anterior aspect of lower limbs from day 0 to day 30 and 4, 5 and 6 posterior aspect from day 0 to day 30.

Anterior aspect of bilateral lower limbs

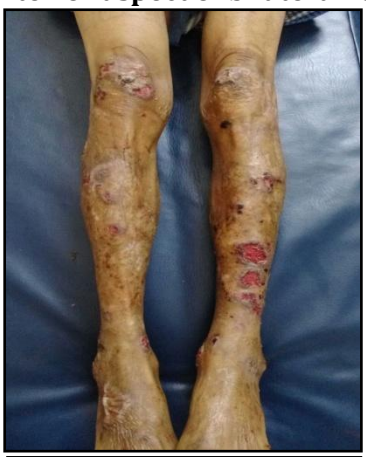

Figure 1: Day '0'

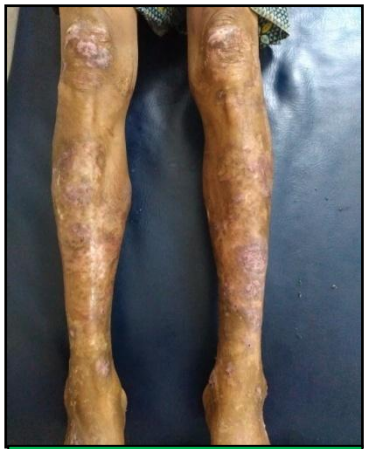

Figure 2: Day '15'

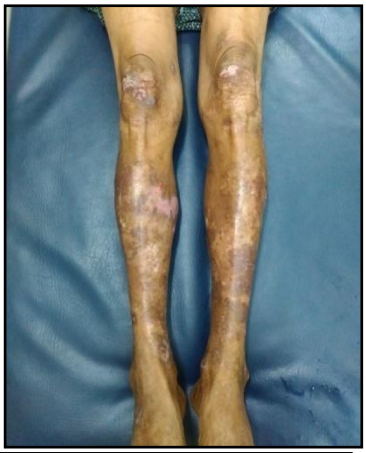

Figure 3: Day '30'

Posterior aspect bilateral lower limbs

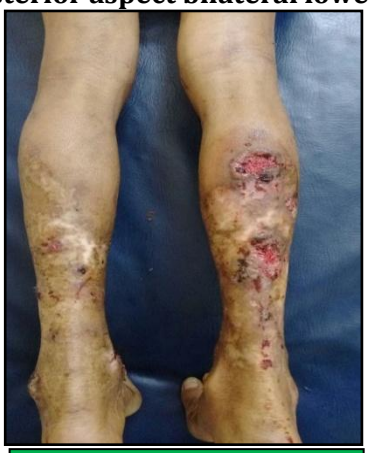

Figure 4: Day '0'

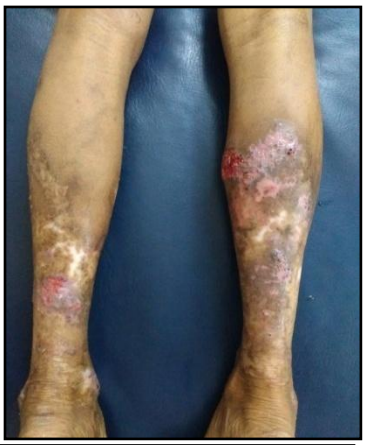

Figure 5: Day '15'

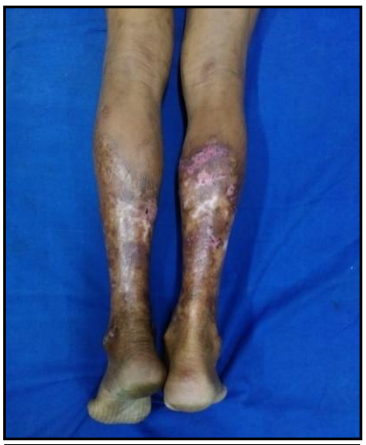

Figure 6: Day '30'

Majoon-e-Ushba is a potent blood purifier with main ingredient as *Ushba.* The *Ushba* (*Smilax aristolochiae* folia Miller), in English, *Sarsaparilla*, is anti-inflammatory, antipruritic, blood purifier and antiseptic. The roots and rhizomes of *Sarsaparilla* contain saponins, the major one being parillin which shows antibiotic activity.[16] As per the literature of *Unani* medicine *Marham-e-Raal* is indicated in the treatment of chronic ulcers. It ensures the growth of healthy tissue and thereby helps in wound healing. It also removes the dead and devitalized tissue from the wound.[17] Molecular action of *Marham-e-raal* has been explained as the enhancing action for the collagen concentration and stabilization of fibers at wound bed. It also hastens the epithelialization process and adds more to wound contraction.[18] *Mom* (bees wax) is one of the most important content of the *Marham-e-raal* (an ointment). It increases the effectiveness of this ointment by increasing the penetration of its contents in to the tissue. *Kafoor (Cinnamomum camphora)* is another important constituent of the *Marham* (ointment). It has antiseptic, stimulant and rubefacient activity. When *Kafoor* is applied locally, it results in hyperemia at the site through its venous dilatation activity and aids in healing.[19] It also exhibits antiseptic, demulcent and anodyne properties.[20,21] *Raal hindi* (*Vateria indica* Linn) has detergent activity[21] and helps in the cleaning of the wound by removing the pus and discharge from the wound. Ointment containing *Raal hindi* (*Vateria indica* Linn) are beneficial in treating long standing wounds.[19] Apart from above, *Raal hindi* possesses anti parasitic and rubefacient properties.[20] *Kaat hindi (Acacia catechu)* has anti pruritus activity. Ointment of *Kaat hindi (Acacia catechu)* is effective in management of ulcers due to burn and as well as syphilis. Its *Sufuf* (Powder) exhibits haemostatic activity when sprinkling over the wound.[19] *Kaat hindi* has been well known for possessing intense astringent and anti parasitic properties.[20, 21]

Zaaj abyaz (alum) is widely known for exhibiting a potent *Qaabiz* (astringent) and *Mundamil-e-qurooh* (healing) characteristics. If applied locally, it results in drying up the wound discharge thereby developing a ground for further healthy granulations.[22]

Neem leaves (*Azadirachta indica*) is a well known and potent Unani *Da'fe-ta'affun* (anti microbial) drug. It also possesses the properties like *Muhallil-e-auraam* (anti inflammatory), *Musakkin-e-auja'a* (analgesic), *Musaffi-e-khoon* (Blood purifier) and *Mundammil-e-qurooh* (healing agent). When applied locally, it kills the micro organism, relieves pain, resolves local inflammatory involvement and triggers granulation therefore contributing a lot in wound healing with control of local infection.[22] Plant tetranortriterpenoids have been examined extensively for their antibiotic, insecticidal, antibacterial and antifungal activities. The aqueous extract of leaves exhibited antiulcer and anti-inflammatory activity.[16]

Asgand is *muhallil-e-auram* (anti inflammatory) and *musaffi-e-khoon* (blood purifier).[22] Root of *Asgand* is used as an anti-inflammatory drug for swellings and as a sedative and hypnotic. Anti-bacterial and anti inflammatory activities are due to Withaferin-A. Sedative and hypnotic activities are due to Withanine.[16] *Banafshaa* is an anti inflammatory and used in diseases of liver and intestine. This activity is reported due to major component violanthin.[16] *Daarchini* is antibacterial, nerve stimulant, analgesic and exhilarant.[22] The bark oil and extracts exhibit antibacterial, antifungal and antiviral activities, and enhance trypsin activity. Eugenol content of the leaf oil is antiseptic and

anaesthetic.[16] This formulation i.e., *Asgand, Banafshaa* and *Daarchini* exhibits combined role as anti inflammatory, antibacterial, antifungal, antiviral, blood purifier, sedative, hypnotic, hepato-protective, nervine stimulant exhilarant and anaesthetic in body thereby drawing the functions of liver towards normalcy and hence improves immunity.

CONCLUSION

The Unani formulation; *Marham-e-raal* must be tried on the large number of cases of PG in order to draw inference in terms of its healing property. Moreover, the safety, adverse effects and efficacy should be evaluated on the basis of scientific clinical trials and evidences.

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