EUROPEAN JOURNAL OF BIOMEDICAL AND PHARMACEUTICAL SCIENCES
http://www.ejbps.com

ISSN 2349-8870
Volume: 9
Issue: 10
244-246
Year: 2022

A CASE STUDY ON PYODERMA GANGRENOSUM – AN INFLAMMATORY NEUTROPHILIC DERMATOSES

S.P. Akshara[1*], M. Arumugavignesh[1], M. Abdulla[1], P. Jeevitha Lakshmi[1], P. Jessica[1]

Clinical Intern, Doctor of Pharmacy, Virudhunagar Government Medical College Hospital, Tamilnadu, India.

***Corresponding Author: Ms. S. P. Akshara**
Clinical Intern, Doctor of Pharmacy, Virudhunagar Government Medical College Hospital, Tamilnadu, India.
Email ID: aksharasp76@gmail.com**; Phone no:** +91 7708280973

Article Received on 02/08/2022 **Article Revised on 22/08/2022** **Article Accepted on 13/09/2022**

ABSTRACT
Pyoderma gangrenosum is a reactive non-infectious inflammatory dermatoses falling under the spectrum of the neutrophilic dermatoses. *Pyoderma gangrenosum* is not caused by infection or gangrene. There is a female predominance in this disease. Presenting a clinical case of a young female patient with *Pyoderma gangrenosum* and discussing about her disease's pathophysiology along with treatment provided for her is the specific objective of this case study. A 27 years old female patient with complaints of fluid filled pustules, dark colored and itchy patches over the legs for the past four months was admitted to the general medicine department of the hospital. On investigation, blood report showed that the patient was anaemic. The local examination of patient revealed the presence of multiple hyper pigmentation and dark coloured plaques with oozing over both legs. The patient had been given cefotaxime 1g intravenously every twelve hourly. Ranitidine 50mg was administered before food every twelve hourly via intravenous route. The given antibiotics for this patient were indicated towards the treatment of eczema, which is feared to be a complication of *pyoderma*. The lesions were only partially healed by treating with antibiotics. For complete remission, immunosuppressants and corticosteroids therapy is absolutely necessary for this patient. Anaemia is often under diagnosed in these busy hospital settings. It must be properly monitored in order to avoid complications associated with anaemia in women of child-bearing age.

KEYWORDS: *Pyoderma gangrenosum, corticosteroids, immunosuppressants, anaemia.*

INTRODUCTION
Pyoderma gangrenosum is a reactive non-infectious inflammatory dermatosis falling under the spectrum of the neutrophilic dermatoses, which include sweet's syndrome and Bechet's syndrome.[1] *Pyoderma gangrenosum* was first described by Brocq in 1916 as "phage denisme geometrique" and later named by Brunsting et al.[2] The latter author considered *Pyoderma gangrenosum* to be the dissemination of a distant focus of infection.[3] The women are predominantly affected by *Pyoderma gangrenosum.*[4] *Pyoderma gangrenosum* is not caused by infection or gangrene.[5] The most common clinical variants are ulcerative, pustular, bullous and vegetative forms. Certain rare types have also been described.[6] In more than 50% of cases, a systemic association is documented.[7] Pathogenesis is not well understood, but studies have suggested an abnormal immune response in patients with genetic predisposition, Hence *Pyoderma gangrenosum* is classified within the spectrum of neutrophilic and auto-inflammatory syndromes.[8] Presenting a clinical case of a young female patient with *Pyoderma gangrenosum* and discussing about her disease's pathophysiology along with treatment provided for her is the specific objective of this case study.

CASE PRESENTATION
A 27 years old female patient with complaints of fluid filled pustules, dark colored and itchy patches over the legs for the past four months was admitted to the general medicine department of the hospital. The patient had history of on and off occurrence of lesions.

On investigation, blood report showed that the patient was anaemic. The local examination of patient revealed the presence of multiple hyper pigmentation and dark coloured plaques with oozing over both legs.

PARAMETERS	OBSERVED VALUES
TEMP	98.4^{O}F
PULSE RATE	80/min
BLOOD PRESSURE	110/70mmHg
RESPIRATORY RATE	22/min
SPO2	99%
CNS	Conscious, NFND
CVS	S1S2, No murmur
RESPIRATORY SYSTEM	CLEAR
ABDOMEN	SOFT

BLOOD PARAMETERS

PARAMETERS	OBSERVED VALUES	NORMAL VALUES
TOTAL COUNT	7600cells/mm^3	4000-11000cells/mm^3
DIFFERENTIAL COUNT	P-62% M-5% L-33%	P-40-70% M-2-6% L-20-40%
HAEMOGLOBIN	10.7g/dl	12-14g/dl
RBC	2.6Million	4-5Million
PLATELETS	3.3Lakhs	1-4.5Lakkhs
RANDOM BLOOD SUGAR	115mg/dl	80-120mg/dl
UREA	28mg/dl	20-40mg/dl
CREATININE	0.9mg/dl	0.6-1.0mg/dl
SERUM BILIRUBIN	0.6mg/dl	
SODIUM	136meq/l	135-145meq/l
POTASSIUM	3.3meq/l	3-5.5meq/l
CHLORIDE	102meq/l	90-101meq/l

The physician advised to monitor the CBC with ESR, RBS, LFT and serum electrolytes.

The patient had been given cefotaxime 1g intravenously every twelve hourly. Ranitidine 50mg was administered before food every twelve hourly via intravenous route. Cetrimide cream was applied over the affected area for three times every day. The patient was instructed to take 500mg paracetamol tablet only if necessary. Cetrizine 10mg was prescribed for once a day at night to prevent itching.

On discharge, injection cefotaxime is converted to capsule cephalexin 500mg every eight hourly.

DISCUSSION

Pyoderma gangrenosum is an idiopathic disease which is primarily manifested as sterile inflammatory neutrophilic dermatoses.[9] *Pyoderma* literally refers to 'pus in the skin'. Epidemiologically, there is a female preponderance seen in this disease.[10] This disease generally affects young adults. The patient was also a 17 years old young woman.

The legs are the most commonly affected organs in this disease.[11] Mucous membranes are the next common site which is affected by this disease. This patient was also admitted with the complaints of fluid filled pustules and itchy plaques over both legs.

Infective eczema is feared to be the most common complication of *pyoderma*.[12] So the patient was provided with antibiotic cefotaxime 1g twice daily intravenously. Drug cefotaxime is a broad spectrum third generation cephalosporin. Upon discharge, the intravenous regimen was changed in to oral regimen i.e. cephalexin, a first generation cephalosporin 500mg thrice daily.

The patient is mildly anaemic and it is evident from the lab parameter i.e. haemoglobin but the patient was not provided with iron, B complex vitamins or folic acid supplements. Anaemia should be treated properly in order to eschew other complications in this patient.

Eventhough lesions were healing and no new bullae were formed as an effect of antibiotic therapy, the standard of care for *pyoderma* were immunosuppressants like cyclosporine and topical antibiotics like dapsone.[13]

Cetirizine is effective in the management of atopic dermatitis (eczema) which is feared to be a complication for this patient.[14] Topical cetrimide cream as an antiseptic and disinfectant and it can be helpful to cleanize wounds in this patient. The clinical advantage of providing ranitidine to this patient cannot be justified properly.

Hispathological examination of wound ulcer for neutrophil infiltrate is the gold standard for the diagnosis of pyoderma.[15] That kind of investigation was not done and it is highly recommended. There are no drug-drug interactions in this prescription.

CONCLUSION

Pyoderma gangrenosum is a rare condition that causes large painful sores which develop on the skin, mostly on legs. It appears to be a disorder of immune system. It is also known as neutrophilic dermatoses. Pyoderma represents the second most common cutaneous manifestation of inflammatory bowel disease (1-3%). It is the most common complication of ulcerative colitis than crohn's disease. Small ulcers are treated by topical steroid ointments, tacrolimus ointment, cyclosporine solution, and oral anti-inflammatory drugs.

Systemic treatment is recommended only for large ulcers. It is treated by prednisolne for three to five days. Biological agents such as infliximab, adalimumab, baricitinib, anakinra, and others like dapsone; a20thiopine, methotrexate, cyclophosphamide, mycophenolatemofetil are also play a role in the management of large ulcers. The given antibiotics for this patient were indicated towards the treatment of eczema, which is feared to be a complication of

pyoderna. The lesions were only partially healed by treating with antibiotics. For complete remission, immunosuppressants and corticosteroids therapy is absolutely necessary for this patient. Anaemia is often under diagnosed in these busy hospital settings. It must be properly monitored in order to avoid complications associated with anaemia in women of child-bearing age.

REFERENCES

1. Christina Geroge, Dermatology registrar, A Florence Deroide, Consultant in hispathology, B and Malcolm Rustin, Professor of dermatology. Clin Med (Lond), 2019 may; 19(3): 224-228. DOI: 10.7861/clinmedicine.19-3-224
2. BhatRM. PyodermaGangrenosum: An update. Indian dermatology online Journal, 2012 Jan; 3(1): 7.
3. Binus AM, Qureshi AA, Li VW, Winterfield LS. PyodermaGangrenosum: A retrospective review of patient characteristics, comorbidities and therapy in 103 paatients. Br J Dermatol, 2011; 165-1244-50.
4. SkokP, Kristijan S, Acute febrile neutrophilicdermatosis in a patient with crohn's disease: Case report and review of the literature. Actadermatovenerologica Alpina, Pannonica, et Adriatica. 2018 sep.
5. Mamta A Joshi A, Gulati A, Bansal R, PathakVP. Localized granulomatous pyodermagangrenosum. Indian J Dermatol Venereol Leprol, 2003; 69 Suppl S1; 80-2.
6. Ye MJ, Ye JM. Pyodermagangrenosum: Dermatol Res Pract, 2014; 461-467.
7. N.Pereira, M.M. Brites, M.Goncalo, O.Teliechea, A. Figueiredo. Pyodermagngrenosum. Int J Dermatol, 2013; 52: 938-945.
8. A.V. Marzano, A. Borghi, D.Wallach, M.Cugno. A comprehensive review of neutrophilic disease. Clin Rev Allergy Immunol, 2018; 54: 114-130.
9. Weinberg I, Jaff MR. PyodermaGangrenosum. Atlas of Clinical Vascular Medicine, 2013 Mar 11: 128-9.
10. Binus AM, Qureshi AA, Li VW, Winterfield LS. Pyodermagangrenosum: a retrospective review of patient characteristics, comorbidities and therapy in 103 patients. British Journal of Dermatology, 2011 Dec; 165(6): 1244-50.
11. Mlika RB, Riahi I, Fenniche S, Mokni M, RaoufDhaoui M, Dess N, Dhahri AB, Mokhtar I. Pyodermagangrenosum: a report of 21 cases. International journal of dermatology, 2002 Feb; 41(2): 6.
12. Rolstad BS, Erwin-Toth P. Peristomal skin complications: prevention and management. Ostomy/wound management, 2004 Sep 1; 50(9): 68-77.5-8.
13. Ormerod AD, Thomas KS, Craig FE, Mitchell E, Greenlaw N, Norrie J, Mason JM, Walton S, Johnston GA, Williams HC. Comparison of the two most commonly used treatments for pyodermagangrenosum: results of the STOP GAP randomised controlled trial. bmj., 2015 Jun 12; 350.
14. Martin PE, Matheson MC, Gurrin L, Burgess JA, Osborne N, Lowe AJ, Morrison S, Mészáros D, Giles GG, Abramson MJ, Walters EH. Childhood eczema and rhinitis predict atopic but not nonatopic adult asthma: a prospective cohort study over 4 decades. Journal of allergy and clinical immunology, 2011 Jun 1; 127(6): 1473-9.
15. Brooklyn T, Dunnill G, Probert C. Diagnosis and treatment of pyodermagangrenosum. Bmj., 2006 Jul 20; 333(7560): 181-4.