Case Report

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Case Report on pyoderma gangrenosum associated with Ulcerative Colitis

Anusha Narayanan[1], Rama P Venu[2], Roshni PR*[1]

[1]Department of Pharmacy Practice, Amrita School of Pharmacy, Amrita Vishwa Vidyapeetham, AIMS Health Sciences Campus, Ponekkara PO, Kochi-682041, Kerala, India
[2]Department of Gastroenterology, Amrita Vishwa Vidyapeetham, AIMS Health Sciences Campus, Ponekkara PO, Kochi-682041, Kerala, India

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Abstract

Pyoderma gangrenosum is rare neutrophilic dermatoses that exist as inflammatory and ulcerative disorders of the skin and is neither an infectious nor gangrenous condition. It is commonly associated with an autoimmune disease like ulcerative colitis and crohn's disease. It has an estimated incidence of 3-10 cases per million people per year. This is a case of a 28-year-old patient who was admitted with features of pyoderma gangrenosum: papule over the shin of the right leg which progressively increased in size. She had a history of ulcerative colitis and type 2 Diabetes mellitus and developed a papule in the right leg one month back which progressed to a larger ulcer and a similar lesion developing proximal to this. The lesions were painful, two lesions over the right tibial shin each measuring about 5x5cm, with erythema, pedal oedema and associated with fever and She was treated with antibiotics, steroids (hydrocortisone), cyclosporine and other supportive care. Daily dressing of the wound was done, and saline compresses were applied and was advised to continue the same after discharge. With the above measures, she improved clinically and was stable at discharge. As there is no diagnostic test for PG (since it is a diagnosis of exclusion) and if the disease is present but unrecognized, the results can be devastating. Hence timely onset of therapeutic approach is of utmost importance.

*Corresponding Author

Name: Roshni PR
Phone: 9048540788
Email: roshnipr@aims.amrita.edu

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INTRODUCTION

Pyoderma gangrenosum (PG) is an uncommon dermatological condition which is identified by the rapid advancement of the painful necrotic ulcer which frequently affects the lower extremities. It is indicated by repetitive cutaneous ulceration with hemorrhagic exudate.1-2% patients with (Inflammatory bowel disorder) IBD has the chances of assimilating PG. Pain with hemorrhagic pustules, plaques, red papules, and immediately growing nodules is how the PG begins. It also causes ulceration with indefinite purple-coloured boundaries frequently on lower extremities (Andrisani *et al.*, 2013). Pathogenesis of PG has not been discovered yet. But studies have proven that it is linked with abnormal T cell response and the production of TNF-α, which is a pathway involved in the pathogenesis of IBD.PG is related to IBD and rheumatic disorder in most cases. The occurrence of PG is generally seen on lower legs, mainly in the pretibial area. Other areas which have been noted to show the ulcers are breast, hand, trunk, neck and peristomal skin. The

beginning of ulcer is with follicular pustule having rapid growth, necrosis of tissue and the expansion of the area. The neighbouring skin shows redness along with oedema. A strong perception of pain is often correlated with PG.50% of patients diagnosed with PG has been proven to have an underlying disorder. Ulcerative colitis is seen in 10% of patients. Another close related disease which is seen in 3% of patients is crohn's disease (Wollina, 2007; Argüelles-Arias *et al.*, 2013).

Case Report

The 28-year-old patient is a known case of ulcerative colitis and type 2 diabetes mellitus presented with an abscess over the shin of the right leg, which progressively increased in size over the last five days. Two ulcerative lesions over the right tibial shin were found with each measuring about 5x5cms. A similar lesion also developed proximal to it. The lesions are painful and are associated with fever and chills. The patient was admitted with features of pyoderma gangrenosum. She was admitted here further evaluation and management.

Investigations and Diagnosis

Laboratory reports showed elevated inflammatory markers and mild hypokalemia(2.7mEq/L). Initial blood tests revealed that the patient is anaemic (haemoglobin 8.2 g/dL). The platelet level was found to be 750ku/L. The value of C reactive protein increased from 20.96 on the first day to 87.48 on the second day. Her renal function test was normal, and liver function tests were slightly elevated from the normal level. (SGOT -3.2IU/L,SGPT-3.2IU/L).Wound swabs show the growth of the pathogen. Enterobacter cloacae complex was the isolated organism. Aerobic blood culture did not grow any pathogen (Table 1).

Table 1: Diagnosis of the disease

Procedure	Impression
1.Barium meal follow-through	Jejunisation of ileum
2.Ileal and colonic biopsies	Inflammatory bowel disease
3.Clonoscopic biopsy a)Transverse colon b)Rectum	Active chronic destructive colitis consistent with inflammatory bowel disease Evidence of chronic destructive colitis

Treatment

She was treated with antibiotics, steroids – hydrocortisone, cyclosporine and other supportive care. The patient was initially started on intravenous broad-spectrum antibiotics such as piperacillin /tazobactam. Ceftriaxone 1g is used to treat certain infections caused by bacteria. Systemic corticosteroids (20mg/day prednisolone) and immunosuppressors (25mg/day of cyclosporine) were the first-line systemic therapy. Mesalazine 800mg tab was the subsequent therapy added to treat the ulcerative colitis. She was started on tramadol 100mg for treating painful lesions. A folic acid supplement is administered due to the elevated haemoglobin level as it represents the patient is anaemic. Daily dressing of wound and saline compresses should be applied. Blood sugar level increased by following initiation of steroids, and insulin therapy was started. The patient had the following therapy administered: metformin 500 mg/day, Novo rapid 300IU/3ml pen fill TID. The patient showed improvement in the wound and is stable at discharge.

DISCUSSION

PG is a peculiar, ulcerating skin disease of unknown aetiology which is often the cutaneous manifestation of systemic disease. Based on the clinical evaluation of the patient and by focusing on the appearances of a cutaneous lesion, the diagnosis of PG can be made. The lesions of PG begin as a small erythematous papule that spreads concentrically. Lesions could be single or multiple that progresses simultaneously or in sequence (Brooklyn *et al.*, 2006). In the case of IBD, the most affected extraintestinal organ is skin. It is represented as painful pustules or nodules which expand to well-demarcated ulcers. After the ulcers are healed, they leave behind the cribriform appearance.

Lesions have a predisposition for lower limbs, but it can be seen in other sites. The occurrence of fever, malaise and arthralgia are associated with PG (Marinopoulos *et al.*, 2017). Combination of systemic, topical therapy along with wound care is the treatment for PG. Every type of lesion requires proper wound care. For the wound healing to be effective, a moist environment should be maintained. It is crucial to observe the signs of infections. Topical immunotherapy is used to treat localized lesion while the combination with systemic therapy can be used for a severe lesion. Corticosteroids, tacrolimus, cyclosporine and 5-aminosalicylic acid are the commonly used topical therapy (Mithun and Harikrishnan, 2019). Cyclosporin and azathioprine are the cytotoxic agents used in the patient having IBD (Shahid *et al.*, 2014).

CONCLUSIONS

The utmost importance is for the identification of pyoderma gangrenous. Patient history, physical examination and biopsy findings consistent with PG should be included inpatient evaluation to rule out the disease. For the diagnosis of malignant, tuberculous and fungal cause of disease, wound swab and biopsy are done. The signs and symptoms of PG vary from patients to patients. Combination of anti-inflammatory and immunosuppressive medications are the mainline treatment. Proper wound care and antimicrobial agents are used for secondary infections. Adequate treatment can reduce the morbidity associated with PG.

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Conflict of Interest

The authors declare that they have no conflict of interest for this study.

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