Pyoderma Gangrenosum in an Elderly Woman: Case Report

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Abstract

Pyoderma gangrenosum (PG) is a rare neutrophilic dermatosis that presents with rapidly progressive, painful ulcers and may be diagnostically challenging because it mimics infection, vasculitis, and other ulcerative dermatoses. This report describes an 88-year-old Minang woman who presented with multiple enlarging, painful ulcers on both lower legs and thighs over six months, with significant functional limitation requiring wheelchair use. Dermatological examination showed multiple ulcers with granulation to necrotic bases, irregular margins, and undermined edges, with surrounding erythema and hyperpigmentation. Laboratory evaluation demonstrated mild anaemia with otherwise unremarkable results, while Gram staining showed no bacteria. Dermoscopy revealed irregular ulcer borders with yellow-brown crusting on an erythematous background. Histopathology supported ulcerative PG by demonstrating epidermal hyperplasia with acantholysis, inflammatory cell infiltration including polymorphonuclear leukocytes and lymphocytes, mixed dermal infiltrate, and evidence of vascular destruction. The patient was treated with systemic methylprednisolone alongside topical wound care (saline compresses, topical antibiotics, and topical corticosteroids), resulting in reduced pain and lesion improvement at two-week follow-up with no new ulcers. This case highlights the importance of recognising characteristic clinical features, excluding infection, and using histopathology to support diagnosis, particularly in elderly patients where disease burden and complications may be greater and management must prioritise gentle wound care and avoidance of trauma.

Keywords: *PyodermaGangrenosum;NeutrophilicDermatosis; Elderly; Ulcerative Skin Disease and Corticosteroid Therapy.*

I. INTRODUCTION

Pyoderma gangrenosum (PG) is a rare yet severe neutrophilic dermatosis characterized by the sudden onset of painful ulcers, primarily affecting the lower extremities [1]. The condition is believed to arise from a complex interplay of immune dysregulation, influenced by various environmental and genetic factors, making its exact etiology challenging to determine [2], [3]. PG is often observed in patients with underlying chronic conditions, particularly inflammatory bowel disease, rheumatoid arthritis, and certain malignancies [4]. As a rare clinical entity, it poses significant implications for both diagnosis and management, especially in elderly populations where associated comorbidities may further complicate clinical outcomes [5], [6].The clinical manifestations of pyoderma gangrenosum can be classified into several subtypes, with the ulcerative type being the most prevalent.

This variant typically presents as necrotizing ulceration with violaceous borders, often leading to considerable morbidity [7], [8]. In contrast, other variants such as bullous, pustular, and vegetative forms are less common, which adds an additional challenge in diagnosing this condition effectively.In elderly patients, the presentation of PG can be particularly concerning, as age-related changes in immune function and skin integrity may exacerbate the disease's severity [9]. Compounding these factors, age-related comorbidities and polypharmacy can complicate both diagnosis and therapeutic approaches [10]. Recent studies have indicated a marked increase in morbidity and mortality associated with PG, reinforcing the need for vigilant monitoring and personalized treatment strategies [5], [6]. Treatment typically includes systemic immunosuppressants and may require multidisciplinary collaboration involving dermatologists, rheumatologists, and other specialists [11], [12].

II. CASE REPORT

An 88-year-old Minang woman (married, junior high school education) working as a masseuse, presented to the Dermatology and Venereology Department of Dr. M. Djamil Hospital, Padang City with multiple painful ulcers on both lower legs that had increased in size and number over the previous two months. History was obtained from the patient and her daughter. Six months before presentation, she noticed a coin-sized erythematous patch on the right lower leg that gradually progressed into a painful ulcer. She sought care at Government Hospital and was advised to undergo a biopsy at a tertiary centre, but she refused. She received paracetamol, oral clindamycin, and topical fusidic acid, which temporarily reduced pain but did not resolve the ulcers. Two months before referral, the disease progressed rapidly: ulcers multiplied, enlarged beyond coin size, and extended to both thighs. She reported no purulent discharge and lesions were not easily bleeding; however, pain became severe and unresponsive to analgesics, leading to marked functional impairment. She stopped working, developed difficulty standing and walking, and required a wheelchair. One week before admission, she returned to the local hospital and was referred for further evaluation. She denied trauma, fever, prior topical drugs or traditional herbs, prolonged drug use, and ulcers elsewhere.

She also denied gastrointestinal symptoms, constitutional symptoms, and musculoskeletal complaints. Past medical history was negative for diabetes mellitus, arthritis, gastrointestinal disease, and blood disorders; family history was negative for similar ulcers and malignancy. On examination, she was conscious and cooperative with severe pain (VAS 6–7). Vital signs were stable (BP 120/80 mmHg, pulse 84/min, RR 20/min, temperature 36.5°C) and BMI was 20.0 kg/m². Systemic examination was unremarkable, with no lymphadenopathy and no oedema. Dermatological examination revealed multiple ulcers on both thighs and lower legs with defined borders. Ulcers ranged from 5 cm × 2.5 cm × 0.5 cm to 1 cm × 1 cm × 0.5 cm, with granulation to necrotic bases, irregular margins, undermined edges, and yellow-brown crusting, surrounded by erythema and hyperpigmented macules/plaques. DLQI was 9.Pyoderma gangrenosum was the working diagnosis, with necrotising vasculitis and Sweet syndrome as differentials. Laboratory tests showed mild anaemia (Hb 11.8 g/dL) with otherwise normal results; Gram stain showed no bacteria. Dermoscopy supported an inflammatory ulcer, and histopathology was consistent with ulcerative pyoderma gangrenosum. Treatment included systemic methylprednisolone 40 mg/day, paracetamol, lansoprazole, and topical wound care. Pain and ulcers improved with no new lesions; steroids were tapered and culture-sensitivity was planned.

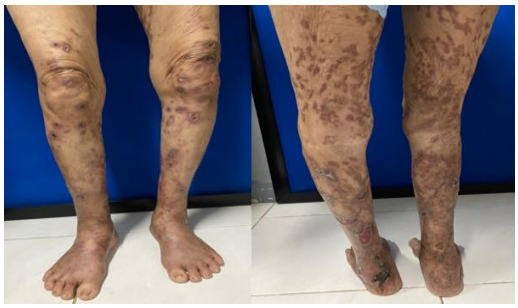

Fig 1. Multiple ulcers with granulation base, red-brown crust, surrounded by erythema to hyperpigmented macules on the lower extremity

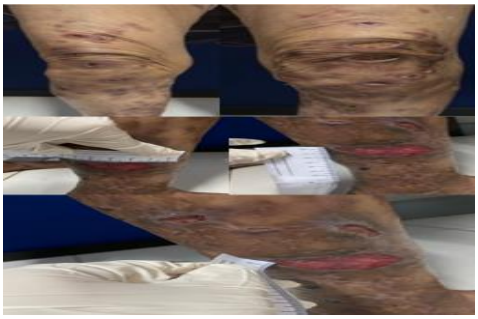

Fig 2. Multiple ulcers with granulation base, red-brown crust, surrounded by erythema to hyperpigmented macules on the thigh region

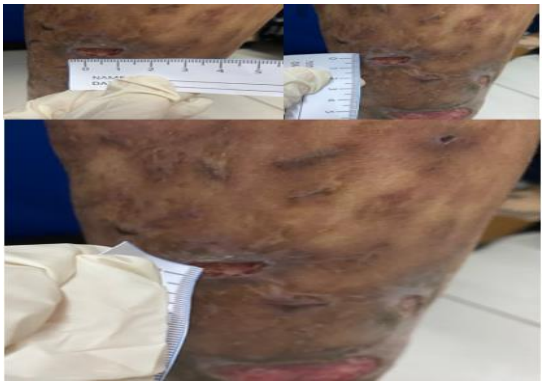

Fig 3. The largest ulcer measuring approximately 5 cm × 2.5 cm × 0.5 cm with irregular margin and undermined edge

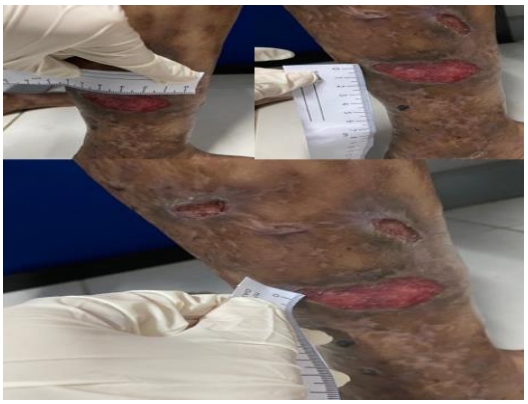

Fig 4. The smallest ulcer measuring approximately 1 cm × 1 cm × 0.5 cm with granulation base and crusting

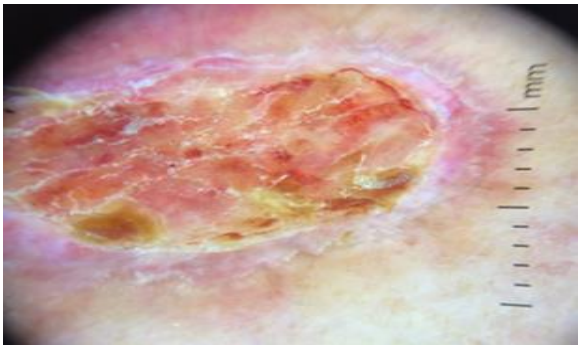

Fig 5. Dermoscopy showing an ulcer with yellow-to-brown crust, irregular border, and erythematous background

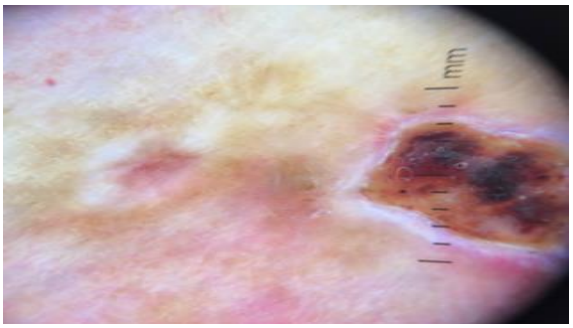

Fig 6. Dermoscopy showing brown crust with irregular border and undermined edge on an erythematous background

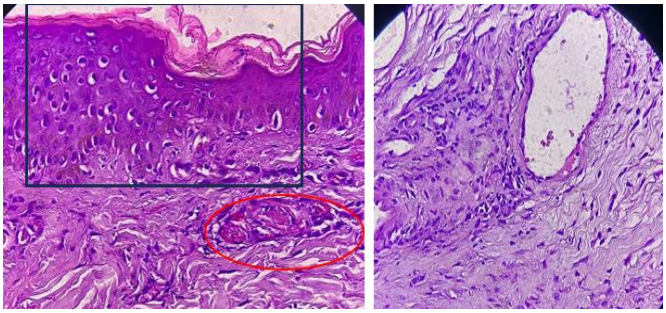

Fig 7. Histopahologic Finding show on the epidermis, there was hyperplasia and acantholytic (black square). There was an infiltration of PMN leucocytes, lymphosites on the stratum corneum. Dermis consisted of plasma, hystiocides epyteloid. There was a destructive vessel with lymphocites infiltration (red circles).

III. RESULT AND DISCUSSION

Pyoderma gangrenosum (PG) is a rare neutrophilic dermatosis that typically presents with painful, rapidly progressive ulceration. Clinically, the ulcers often begin as erythematous papules, pustules, or plaques that break down into ulcers with irregular, undermined edges and a violaceous or dusky border. The base may show granulation tissue and necrosis, and surrounding erythema and hyperpigmentation can be present. These classic features are important because PG frequently resembles other ulcerative conditions such as infectious ulcers, vasculitis, venous ulcers, or malignancy, which can delay diagnosis if PG is not considered early [13], [14].Histopathology supports the diagnosis but is not pathognomonic. Typical findings include a dense neutrophilic infiltrate in the dermis, sometimes accompanied by secondary vascular damage. Therefore, biopsy is mainly used to exclude mimickers such as infection, vasculitis, and neoplasms, while also providing supportive evidence for PG [15], [16]. Excluding infection is especially critical, as PG lesions may look “infected” clinically due to ulceration and inflammation, yet microbiological tests may be negative. In this case, the clinical pattern of painful ulcers with undermined edges and progressive enlargement, along with a Gram stain showing no bacteria, strengthened suspicion for PG. Dermoscopy also supported an inflammatory ulcer process by demonstrating irregular borders, yellow-brown crusting, and erythematous background. Ultimately, histopathology showing neutrophilic inflammation with associated vessel destruction and lymphocytic infiltration was consistent with ulcerative PG.PG can mimic other ulcerative dermatoses, clinicians must maintain a high index of suspicion, particularly in older adults where atypical presentations, delayed care-seeking, and overlapping conditions may blur the clinical picture [17], [18].

In the elderly, age-related immune dysregulation and reduced skin barrier function may contribute to more severe symptoms, slower healing, and higher risk of complications. Comprehensive assessment is therefore essential, including careful history taking, evaluation for systemic associations, and structured exclusion of infection and vasculitis.[7], [19] Another key diagnostic and management consideration is pathergy worsening of lesions after minor trauma such as scratching, debridement, or biopsy making gentle handling and minimally traumatic wound care particularly important [20].Management of PG requires a systematic, individualised approach aimed at rapidly controlling inflammation, relieving pain, and promoting wound healing. First-line systemic therapy often involves corticosteroids (e.g., methylprednisolone or prednisone) because they can quickly suppress the neutrophilic inflammation driving ulcer progression. Topical therapy complements systemic treatment through wound cleansing, moisture balance, infection prevention, and reduction of surrounding inflammation. Patient and family education is a core component of care, particularly regarding avoidance of trauma, early recognition of deterioration, and adherence to follow-up to monitor both disease activity and treatment side effects.In this case, systemic corticosteroid therapy combined with supportive topical wound care led to marked improvement at follow-up, with reduced pain, decreased ulcer activity, and no new lesions. This clinical response highlights a practical lesson: prompt recognition and early anti-inflammatory treatment can significantly improve outcomes in ulcerative PG, especially in frail elderly patients where pain and mobility impairment can rapidly reduce quality of life.

Research Implications

This case of pyoderma gangrenosum (PG) in an elderly patient highlights the need for further research on how age-related factors, such as immune dysregulation and skin fragility, affect the progression and treatment of PG. Studies focusing specifically on elderly populations would help address the unique challenges they face with comorbidities and polypharmacy. Additionally, given the diagnostic challenges PG poses, future research should refine diagnostic criteria using advanced imaging, dermoscopy, and histopathology to distinguish PG from other ulcerative conditions like vasculitis and infection. Furthermore, while systemic corticosteroids proved effective in this case, exploring alternative or adjunctive treatments with fewer side effects, particularly in older patients, is essential. Investigating the underlying immune mechanisms driving PG could also lead to more targeted therapies. Finally, research assessing the long-term impact of PG on the quality of life, mobility, and psychological well-being of elderly patients is necessary to better understand the holistic burden of the disease.

Research Limitations

This case report is limited by its focus on a single patient, which reduces the generalizability of its findings to other elderly individuals with pyoderma gangrenosum. The short follow-up period of only two weeks also limits the ability to assess the long-term effectiveness of the treatment and the possibility of recurrence. Additionally, the absence of a control group makes it difficult to compare the effectiveness of the treatment regimen. While histopathology and dermoscopy were performed, the report lacked more extensive laboratory testing, such as culture sensitivity or genetic analysis, which could provide a deeper understanding of the disease's pathogenesis. Lastly, the treatment plan did not involve a multidisciplinary approach, and the inclusion of other specialists like rheumatologists or immunologists could have offered valuable insights into managing PG, especially in patients with underlying comorbidities.

IV. CONCLUSION

This case illustrates ulcerative pyoderma gangrenosum in an elderly patient presenting with rapidly progressive, painful ulcers with undermined edges on the lower extremities extending to the thighs. Because PG can closely resemble infectious or vasculitic ulcers, accurate diagnosis requires careful clinical correlation, exclusion of infection, and supportive histopathological findings. Early initiation of systemic corticosteroids combined with appropriate topical wound care and education to avoid trauma led to meaningful clinical improvement, emphasising that prompt recognition and tailored therapy are essential to reduce pain, prevent progression, and improve function in older patients.

V. ACKNOWLEDGMENTS

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