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Case Report

Pyoderma gangrenosum triggered by insect bite: two case reports

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Abstract Pyoderma gangrenosum is rare, probably autoimmune vascutitis and non-infective ulceration of skin. Two case reports are presented here, with interesting similarities and probable cause.

Key words
Pyoderma gangrenosum, insect bite, corticosteriods.

Introduction

Pyoderma gangrenosum (PG) is an autoimmune neutrophilic dermatosis without prominent vasculitic changes.[1] It presents as a furuncle-like nodule or haemorrhagic bullae[2] with blue centre or may resemble transient acantholytic dermatosis.[3] The lesion enlarges and acquires the size of large ulcerating lesion as much as 10cm or more within 5 to 7 days. Edges of ulcer are often bluish in colour, raised, undermined and overhanging with surrounding erythema in early stage. Any area of body can be involved e.g. lower extremities, buttocks, abdomen, face. Dermatopathology is not pathognomonic and shows neutrophilic abscess formation and necrosis.[4] Exact pathogenesis is unknown, though defective immune mechanisms i.e. T cell imbalance[5] or failure of phagocytosis by monocytes are implicated in many cases.[6]

PG may be associated with a number of diseases (**Table 1**). However, about 50% of cases are idiopathic.

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We report two cases of PG in whom the disease was triggered by insect bites.

Case 1

A 58-year-old female presented at dermatology outpatient department of District Headquarter Hospital, Tando Muhammad Khan with huge ulcerative lesion over extensor aspect of right forearm. Ulcer had erythematous base with purulent areas and ragged edges. It was painful and tender. Patient told the history of insect bite over forearm about 8 to 10 days back, after that a small nodule appeared which ulcerated and acquired present size (15cmx6cm) within 4 to 5 days.

Patient was fully conscious and well oriented. She was anemic with moderate fever (temperature 101.2^{o}F). No other systemic abnormal finding was revealed.

Following investigations were done. Urine examination, blood counts, X-ray chest, X-ray right forearm, (to see deeper tissue involvement and gas in and around muscle), blood sugar, stool examination, rheumatoid arthritis factor, ANA, liver function tests, pus from ulcer for Gram stain and culture. All investigations except for the hemoglobin level of 7.5gm/dl were

Table 1 Pyoderma gangrenosum associated diseases [7]

I.	*Diseases of Gastrointestinal Tract*
i.	Ulcerative Colitis
ii.	Crohn's disease
iii.	Diverticulosis
iv.	Gastritis
v.	Gastric or duodenal ulcers
vi.	Intestinal polyps
II.	*Diseases of liver*
i.	Chronic active hepatitis
ii.	Primary biliary cirrhosis
iii.	Sclerosing cholangitis
III.	*Arthropathies*
i.	Rheumatoid arthritis
ii.	Ankylosing spondylitis
iii.	Osteoarthritis
iv.	Polychondritis
IV.	*Hematological disorders*
i.	Leukemias
ii.	Myeloproliferative syndrome
iii.	Hyperglobulinemia
iv.	Thrombocythemia
v.	Splenomegaly
vi.	Myelodysplasia
vii.	Dysglobulinemia
viii.	Congenital hypogammaglobulinaemia
ix.	Monoclonal hypergammaglobulinaemia
x.	Myeloma
xi.	Lymphoma
V.	*Neoplasia*
i.	Cancer of the colon, prostate, breast or bronchus
ii.	Carcinoid tumour
VI.	*Infectious disease*
VII.	*Posttraumatic*
VIII.	*Postoperative*
IX.	*Miscellaneous*
i.	Thyroid disease
ii.	Diabetes
iii.	Diseases of lung
iv.	Takayasu arteritis
v.	Lupus erythematosus
vi.	Sarcoidosis
vii.	Wegener's disease
viii.	Mondor's disease
ix.	Insect bite
x.	Postvaccinia
xi.	Disseminated intravascular coagulation
xii.	Afibrinogenaemia
xiii.	Retinoid treatment of acne
xiv.	Hidradenitis suppurativa
xv.	Palmoplantar pustulosis
xvi.	Subcorneal pustulosis
xvii.	Transient acantholytic dermatosis
xviii.	Dermatitis herpetiformis
xix.	Erythema elevatum diutinum
xx.	Immunosuppression
xxi.	Acquired immune deficiency syndrome

Cont…

normal or inconclusive. Biopsy showed heavy infiltration of polymorphonuclear cells with necrotic cells.

Patient was admitted and treated with intravenous glucocorticoids. Healing started within 48 hours of therapy. Complete healing by scar formation occurred in three weeks. Patient was discharged and referred to tertiary care hospital for management of anaemia.

Case 2

A 65-year-old male presented at Dermatology outpatient department, District Headquarter Hospital, Tando Muhammad Khan with large ulcerating lesion over lateral aspect of left thigh. This patient also gave history of insect bite about 10 to 12 days ago after which a furuncule-like nodule appeared, enlarged and burst and achieved present size within 5 to 6 days. The lesion was accompanied by high grade fever. Rest of systemic inquiry was unremarkable.

Patient was conscious, well-oriented with body temperature of 99.4^{o}F. Lesion was tender and painful. On lower thigh, there was a 12cmx5cm ulcer with a reddish base with purulent areas and ragged edges (**Figure 2**).

Investigations including urine examination, complete blood counts, X-ray chest, X-ray left thigh, blood sugar, RA factor, ANA, liver function tests, and pus for Gram staining and bacterial culture, were within normal range. Skin biopsy showed neutrophilic infiltration and necrosis.

Patient was prescribed oral predinisolone

Figure 1

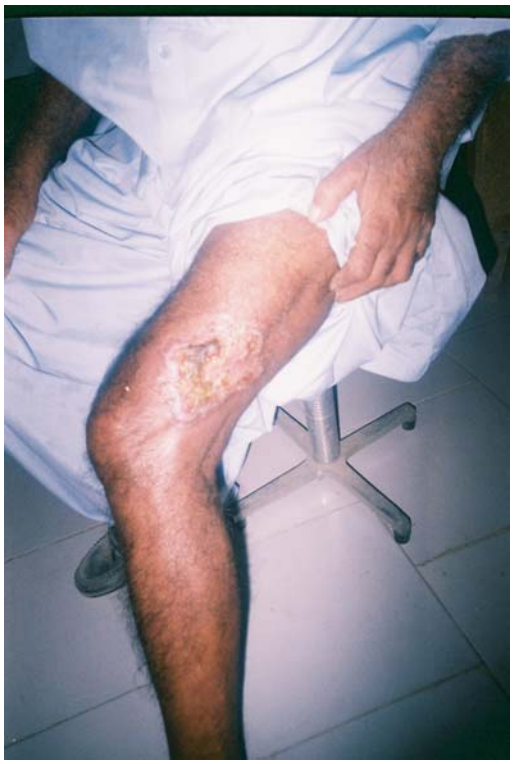

Figure 2

60mg/day in three divided doses for 1st week then tapered off. Complete healing occurred within six weeks of treatment.

Discussion

Interesting similarity in two cases presenting on the same day prompted to report them. Both cases gave the history of insect bite, belonged to the same locality and closely resembled in clinical appearance, development and resolution of lesion.

Since the first association of PG with ulcerative colitis,[8] many triggering causes have been described (**Table 1**). Insect bite, as in our two cases, has been reported an occasional cause.

Clinically, PG has a wide array of differential diagnosis. Ulcerative PG may resemble any ulcer of infective, vasculitic, ischemic or malignant origin.[13-21] Similarly, the histopathology is not pathognomonic and may resemble dermatoses with predominant neutrophilic infiltrate.[12] There are no characteristic laboratory indices to confirm the PG. All these make PG a diagnosis of exclusion. The most important challenge is to find out the underlying cause which remains obscure in the majority. Like all other dermatoses of autoimmune origin, the disease responds to glucocorticoids, immunosuppressives and anti-inflammatory drugs.[21-24]

References

1. Barham KL, Jorizzo JL, Grattan B, Cox NH. Vasculitis and neutrophilic vascular reactions. n: Burns T, Breathnach SM, Cox N, Griffiths C, eds. *Rook's Textbook of Dermatology, 7th edn.* London: Blackwell Science; 2004. p. 49.1-49.46.
2. Perry HO, Winkelmann RK. Bullous Pyoderma gangrenosum and leukemia. *Arch Dermatol* 1972; **106**: 901-5
3. Andersen BL. Pyoderma gangrenosum associated with transient acantholytic dermatosis and para proteinaemia. *Acta Derm Venereol* (Stockh) 1981; **61**: 77-9.
4. Su WD, Schroeter AL, Perry HO *et al.* Histopathologic and immunologic study of pyoderma gangrenosum. *J Cutan Pathol* 1986; **13**: 323-30.
5. Check IJ, Ellington EP, Moreland A *et al.* T helper – suppressor cell imbalance in pyoderma gangrenosum. *Am J Clin Pathol* 1983; **80**: 396-9.
6. Jones RR, Black AK, Metal D. Defective monocyte function in

pyoderma gangrenosum. *Clin Exp Immunol* 1983; **52**: 685-92.
7. Chevrant Breton J, Logeais B, Piboin M. Pyoderma gangrenosum. Pyodermite phagedenique *Ann Dermatol Venereol* 1989; **116**: 577-89.
8. Brunsting LA, Goeckerman WH, O'Leary PA. Pyoderma gangrenosum. *Arch Dermatol Syphilot* 1930; **22**: 655-80.
9. Stathers GM, Abbot LG, McGuiness AE. Pyoderma gangrenosum in association with regional enteritis. *Arch Dermatol* 1967; **95**: 375-80.
10. Philpott JA, Goltz RW, Park RK. Pyoderma gangrenosum, rheumatoid arthritis and diabetes mellitus. *Arch Dermatol* 1966; **94**: 732-8.
11. Byrne JP, Hewitt M, Summerly R. Pyoderma gangrenosum associated with active chronic hepatitis. *Arch Dermatol* 1976; **112**: 1297-9.
12. Su WP, Schroeter AL, Perry HO, Powell FC. Histopathologic and immunologic study of Pyoderma gangrenosum. *J Cutan Pathol* 1986; **13**: 323-3.
13. Caughman W, Stern R, Haynes H. Neutrophilic dermatosis of myeloprotiferative disorders. Atypical forms of pyoderma gangrenosum and Sweet's syndrome associate with myeloproliferative disorders. *J Am Acad Dermatol* 1983: **9**; 751-8.
14. Auletta MJ, Headington JT, Purpura fulminans. *Arch Dermatol* 1988, **124**: 1387-91.
15. Poller C. Disseminated intravascular coagulation *Prescribers J* 1989; **29**: 234-8.
16. Baglin T. Disseminated intravascular coagulation. Diagnosis and treatment. *Br Med J* 1996; **312**: 683-7.
17. Drouhet E, Destombes P, Carrizales D. Cryptoccocose cutanee, confrontations histologiques et mycologiques. *Bull Soc Dermatol Syphiligr* 1970; **77**: 735-41.
18. Rook A, Woods B. Cutaneous cryptococcosis *Br J Dermatol* 1962; **74**: 43-9.
19. Darke SG, King AM, Slack WK. Gas gangrene and related infections. A report of 88 cases. *Br J Surg* 1977; **64**: 104-12.
20. Weinstain L, Barza M. Gas gangrene. *N Engl J Med* 1973; **289**: 1129-36.
21. Curley RK. Macfarlane AW, Vickers CFH. Pyoderma gangrenosum treated with cyclosporin A. *Br J Dermatol* 1985, **113**: 601-4.
22. Rasmussen I. Pyoderma gangrenosum treated with clofazimine. *Acta Derm Venereol* (Stockh) 1983; **63**: 552-3.
23. Berth-Jones J. Tan SV. Graham Brown RAC *et al*. Successful use of minocycline in pyoderma gangrenosum in a report of seven cases. *J Dermatol Treat* 1989; **1**: 23-5.
24. Gupta AK, Sheer NH, Sander DN. Efficacy of human intravenous immune globulin in pyoderma gangrenosum. *J Am Acad Dermatol* 1995; **32**: 140-2.