

1 Case Report – Pyoderma gangrenosum following Laparotomy – A diagnostic
2 challenge

3

4 **Abstract**

5 Pyoderma gangrenosum (PG) is a rare, non-infectious inflammatory neutrophilic
6 dermatosis characterized by rapidly progressive painful ulcerations, often
7 associated with systemic auto immune diseases such as IBD¹. It can also be
8 associated with solid tumors and hematologic malignancies². It is neither an
9 infectious disease nor a gangrenous disease as suggested by its name but an
10 autoimmune disease caused by an abnormal immune response, neutrophil
11 dysfunction³.

12 The condition poses diagnostic challenges due to its resemblance to infectious
13 or vascular ulcers with absence of any pathognomonic feature except presence
14 of neutrophile infiltration on skin biopsy. It is usually a diagnosis of exclusion.

15 Any skin trauma, such as a surgical incision, can trigger an outbreak of lesions⁴.

16 Early recognition and management by steroids and anti-inflammatory drugs are
17 the mainstay in management.

18

19 **Keywords:** pyoderma gangrenous, autoimmune, painful skin ulcers, steroids

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21 **Case Report**

22 We report a case of PG in a 25-year college student reported to surgical
23 emergency with a 1-day old peritonitis due to perforation of Meckel's
24 diverticulum without any underlying systemic disease.

25 The patient developed large painful superficial ulcers which improved on
26 systemic and topical steroids and anti-inflammatory therapy. This case
27 emphasises the importance of clinical suspicion, exclusion of mimics, and
28 prompt immunosuppressive therapy.

29 **Conclusion**

30 This case underscores the importance of clinical awareness of pyoderma
31 gangrenosum which is a rapidly progressive, painful ulcers following any major

32 or minor trauma and is unresponsive to antibiotics but with dramatic
33 improvement after immunosuppressive therapy

34

35 **Keywords:** Pyoderma gangrenosum, painful skin ulcers, neutrophilic dermatosis,
36 immunosuppression.

37

38 Case Report

39 25-year college student reported to surgical emergency with a 1-day old
40 peritonitis due to perforation of Meckel's diverticulum. She underwent
41 exploratory laparotomy with resection of MD and primary anastomosis of ileum.

42 The patient had unusual pain at operation site from day 0.

43 By post-op day 2 the wound started gaping with serous discharge and fever and
44 extreme pain.

45 The skin around the incision too was inflamed so the Laparotomy stitches were
46 removed on suspicion that there was a collection and NPWM (negative pressure
47 wound management) was started.

48 At the same time there was a painful swelling over left deltoid region where an
49 injection had been given.

50 Because it had all signs of an abscess an incision was given to drain it but only
51 some serous fluid and no pus was drained. Vacuum dressing was applied but the
52 lesion persisted with spread

53 A superficial spreading extremely painful ulcer appeared at the laparotomy site
54 and the left deltoid which spread laterally rapidly.

55 All the lab reports were normal except for extremely high TLC and ESR with low
56 hemoglobin (Hb-8 gm%). Her CRP (24mg/L) too was markedly raised.

57 Swab for C/S and GM stain and ZN stain all turned out to be negative.

58 Her ANCA was done which was negative

59 A dermatology reference was taken and a skin biopsy done which reported as
60 acute inflammation with neutrophilic infiltration

61 A diagnosis of Pyoderma granulosa was suspected and oral prednisolone in dose
62 of 1mg/kg/day was started.

63 The wound was managed with saline wash and with local application of
64 Triamcilonide and tacrolimus ointment by POD 10

65 The lesion continued to spread with newer patches appearing till post-op day 20
66 then started improving. Pain persisted and was controlled by IV paracetamol and
67 later a Buprenorphine 10 mg patch.

68 The lesions healed almost completely with a large scar by POD 40

69 She was discharged with advice to continue with local application of Triamcilonide
70 and Tacrolimus ointment till complete healing which occurred after 60 days post
71 op.

72

73 Discussion

74 Pyoderma gangrenosum is an alarming condition for both the patient and the
75 surgeon and more importantly is a diagnosis of exclusion. It is a painful
76 ulcerative auto inflammatory condition which best responds to steroids and at
77 times immunosuppression⁵.

78 There are 3 systems of criteria – Mayo, Delphi Consensus, and PARACELUSUS-
79 score⁶ and Maverakis / **Delphi consensus criteria (2018)**⁷ criteria was used to help
80 diagnose this condition.

81 It consists of:

82 Major criterion

83 ➤ Histopathology of ulcer edge must show a neutrophilic infiltrate.

84 Minor criteria

85 ➤ Exclusion of infection

86 ➤ Pathergy

87 ➤ History of inflammatory bowel disease or inflammatory arthritis

88 ➤ History of papule, vesicle, or pustule ulcerating within four days

89 ➤ Peripheral erythema, undermining border, and tenderness at the ulcer
90 site

91 ➤ Multiple ulcers, at least one on the anterior lower leg

92 ➤ Cribriform or wrinkled paper scars at the site of the healed ulcer

93 ➤ Decreased size of the ulcer within one month of initiating
94 immunosuppressive medication.

95 But presence of lot of these is absent in most cases.

96 Management

97 In case of painful spreading ulcers after trauma a prompt diagnosis to exclude
98 any infection together with skin biopsy showing neutrophilic infiltration which
99 responds to immunosuppression and anti-inflammatory agents is the key to
100 management.

101

102 Conclusion

103 This case underscores the importance of clinical awareness of pyoderma
104 gangrenosum which is a rapidly progressive, painful ulcers following any major
105 or minor trauma and is unresponsive to antibiotics. It may be associated with
106 some auto-immune conditions most commonly being IBD. Prompt diagnosis and
107 immunosuppressive therapy can lead to excellent outcomes and prevent
108 unnecessary surgical intervention.

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111 Figure 1 POD5



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113 Figure 2 POD 20

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