Case report

Pyoderma gangrenosum and ulcerative colitis

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SUMMARY The relationship of pyoderma gangrenosum and ulcerative colitis remains uncertain. We investigated 14 patients with pyoderma gangrenosum by colonoscopy with multiple biopsies. Six patients had ulcerative colitis and all of these had disease affecting the whole colon. There were no correlations between exacerbations of the colitis and the onset or course of pyoderma gangrenosum. The remaining eight patients with pyoderma gangrenosum had no other disease and they were found to be significantly older than those patients with coexisting colitis ($P < 0.002$).

Since its first description in 1930,¹ pyoderma gangrenosum has become well established as a clinical entity. It is a rare skin disease usually starting as one or more discrete pustules which may coalesce or break down to form gangrenous ulcers. The characteristic ulcer is irregular in outline with a ragged, overhanging edge and an oedematous, necrotic base. It may wander serpiginously over the skin or remain unchanged for weeks and months.²

The aetiology of pyoderma gangrenosum remains obscure. Various bacteria have been isolated from the lesions but the initial pustules are frequently sterile.³

The association of pyoderma gangrenosum with ulcerative colitis is well known. However, estimates of how often patients with pyoderma gangrenosum have underlying ulcerative colitis vary from just over half to almost 100% of cases.^{4, 5} Reasons for this discrepancy in reported incidence may be the selection of patients from a largely gastroenterological source, and the use of barium radiology—used to diagnose colitis in previous series—which may fail to detect some cases of inflammatory bowel disease.^{6, 7} In an attempt to determine the true incidence of ulcerative colitis in patients with pyoderma gangrenosum and to clarify the relationship of the two diseases, we endoscoped all 14 patients with this skin condition known to our Department of Dermatology.

Methods and results

While the appearance and course of pyoderma gangrenosum are characteristic, the histological appearance of the lesions is not diagnostic.⁸ Therefore, in all the cases, diagnosis was based on the

opinions of two or more consultant dermatologists and the finding of compatible histology.

In the majority of patients, the skin condition pursued a relapsing and remitting course. In 10 of the 14 patients, the first episode of pyoderma gangrenosum occurred on the legs. This site was affected at some time in all but one patient and in half the patients was the only one ever involved by the skin disease.

All 14 patients were investigated by colonoscopy with multiple biopsies. The Table shows the clinical details of the patients and the endoscopic findings. Only six patients (43%) were found to have ulcerative colitis and, in all of these, the diagnosis had previously been revealed by barium enema. In one of these patients, the bowel symptoms were minor and the diagnosis of colitis was established only after the onset of the skin disease. However, all the patients with ulcerative colitis were found to have disease affecting the whole colon. The average duration of colitis before the development of pyoderma gangrenosum was 10 years.

Apart from their skin condition, the remaining eight patients had no other disease. These patients were almost all elderly, only one being younger than 65 years of age. Their mean age (69 ± 4 years) was significantly older than those patients with coexisting colitis (45 ± 5 years, $P < 0.002$).

Discussion

Less than half our patients with pyoderma gangrenosum had ulcerative colitis and the remainder had no other serious coexisting or preceding disease. Our series shows that pyoderma gangrenosum occurring alone is predominantly a disease of the elderly.

How ulcerative colitis causes pyoderma gan-

Table Clinical details and endoscopic findings in patients with pyoderma gangrenosum

Patient	Sex and age (yr)	Evidence of ulcerative colitis			Extent of colitis	Interval between diagnosis of bowel and skin disease (yr)	Sites of skin lesions
		Barium enema	Colonoscopy	Biopsy			
1	F57	+	+	+	Total	0	Legs, shoulders
2	M41	+	+	+	Total	1	Legs
3	F27	+	+	+	Total	9	Ankle, scalp
4	F36	+	+	+	Total	10	Legs, breasts
5	F57	+	+	+	Total	20	Legs
6	F53	+	+	+	Total	20	Leg
7	M66	—	—	—	—	—	Back, groin
8	M65	—	—	—	—	—	Legs, shoulder
9	M82	—	—	—	—	—	Legs, back, abdomen, shoulders
10	M68	—	—	—	—	—	Legs
11	F44	—	—	—	—	—	Arms, legs
12	M69	—	—	—	—	—	Legs, shoulders
13	F82	—	—	—	—	—	Legs
14	F78	—	—	—	—	—	Legs

grenosum remains unclear. Speculation that it is the result of an immunological reaction to bacterial or dietary antigens absorbed through a damaged colonic mucosa⁵ remains unconfirmed. However, there seems little doubt that the two conditions are related, as total colectomy causes the disappearance of the skin disease.⁹

Some authors suggest a relationship between exacerbations of the colitis and the onset of pyoderma gangrenosum.^{2, 5, 10} Others have found no correlation.³ While all our patients with ulcerative colitis had total involvement of the colon, the first attack of pyoderma gangrenosum always began during a clinically quiescent phase of their colitis.

Medical treatment of the bowel disorder with either corticosteroids or sulphasalazine has been claimed to benefit the skin condition.^{4, 5} While this was not our impression, this may be because our cases had clinically inactive colitis.

We conclude that, while ulcerative colitis is a common cause of pyoderma gangrenosum, the relationship between these two conditions is less close than has previously been believed. Furthermore, pyoderma gangrenosum often occurs without any coexisting disease, particularly in the elderly.

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References

- ¹Brunsting LA, Goeckerman WH, O'Leary PA. Pyoderma (Ecthyma) gangrenosum: clinical and experimental observations in five cases occurring in adults. *Arch Dermatol Syph* 1930; **22**: 655-80.
- ²Rook A, Roberts SOB. Bacterial infections. In: Rook A, Wilkinson DS, Ebling FJG, eds *Textbook of dermatology*. Oxford: Blackwell 1972: 475-537.
- ³Johnson ML, Wilson HTH. Skin lesions in ulcerative colitis. *Gut* 1969; **10**: 255-63.
- ⁴Perry HO, Brunsting LA. Pyoderma gangrenosum: a clinical study of nineteen cases. *Arch Dermatol* 1957; **75**: 380-6.
- ⁵Edwards FC, Truelove SC. The course and prognosis of ulcerative colitis, part III, complications. *Gut* 1964; **5**: 1-15.
- ⁶Teague RH, Thornton JR, Manning AP, Salmon PR, Read AE. Colonoscopy for investigation of unexplained rectal bleeding. *Lancet* 1978; **1**: 1350-2.
- ⁷Swarbrick ET, Fevre DI, Hunt RH, Thomas BM, Williams CB. Colonoscopy for unexplained rectal bleeding. *Br Med J* 1978; **4**: 1685-7.
- ⁸Lever WF, Schaunburg-Lever G. *Histopathology of the skin*, Philadelphia. Lippincott, 1975.
- ⁹Watts JM, De Dombal FT, Goligher JC. Long-term complications and prognosis following major surgery for ulcerative colitis. *Br J Surg*, 1966; **53**: 1014-23.
- ¹⁰Russell B. Phagedenic and gangrenous ulceration of the skin complicating ulcerative colitis. (Phagedena Geometricum). *Br J Dermatol* 1950; **62**: 114-24.