

LETTER TO THE EDITOR

Pyoderma gangrenosum as a late complication in tattoos: A case report series

Dear Editors,

In some patients who were treated in wound centres, it was observed that there was an occurrence of pyoderma gangrenosum (PG) in tattoos that had existed for a long time.

PG is a rare neutrophilic dermatosis that leads to very painful ulcerations with typically livid and undermined margins because of non-infectious inflammation. Pathophysiologically, granulocyte dysfunction, increased inflammation, and genetic disposition are discussed.¹ Associations with chronic inflammatory comorbidities such as bowel disease and rheumatoid arthritis or haematologic neoplasia are commonly known. With the PARACELSUS score, a diagnostic tool has been validated that can clarify the diagnosis by summing up various individually unspecific criteria.² One of the aspects listed here is the pathophysiological phenomenon known as pathergy, in which the occurrence of a PG can be caused by an unspecific physical stimulus. The latency between the stimulus and the occurrence of PG is usually a few days or weeks.¹

We report a total of six patients in whom PG appeared in tattoos that had existed for a long time (Figure 1). In none of the histopathological findings was there evidence of a granulomatous or other genesis of the ulceration. In all patients, the diagnosis of PG was checked and confirmed by the PARACELSUS score.

Patient 1 was 66 years old at first presentation and had ulcerations on both lower legs in the area of two black tattoos, which had existed for over 30 years. Patient 2 was 48 years old at the time of diagnosis and suffered from a total of four ulcerations on both lower legs on both sides; two of the ulcerations occurred within two different black tattoos. All tattoos had existed for several years. Patient 3 was 38 years old when a wound appeared on her right thigh in a black tattoo that had existed for several years. A further ulceration developed caudally in the area of non-tattooed skin. Patient 4 was 36 years old at first diagnosis. The tattoo on her upper arm had been there for 11 years when the ulceration occurred and was also black. Patient

5 was 46 years old. She had a large ulceration on her right lower leg in the area of the black tattoo that had been present for several years. Patient 6 was 28 years old at first diagnosis. He had multiple black and red tattoos on the entire integument, which had existed for many years. In several of the tattoos, there was a PG.

In our case report series, five of the six patients are women who spontaneously developed PGs in tattooed skin. Although PG is somewhat more common in women than in men, a gender ratio of about 2 to 3:1 is usually described. In four of the six patients, the lower legs were affected. The extensor sides of the lower legs are described as the predilection sites of the PGs, at a rate of



FIGURE 1 Patient with a pyoderma gangrenosum that started spontaneously in an older tattoo on the distal lower leg

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about 70%.¹ In three patients, PG manifestations outside of tattoos occurred simultaneously.

Up to now, the occurrence of PG as a complication after tattooing has been described very rarely. Ulcerations occurred shortly after tattooing, so the authors discussed a physically triggered pathergy phenomenon.^{3,4}

This temporal correlation did not exist in the six patients we described. All tattoos were already several years old and had been clinically inconspicuous until then. It is therefore not to be assumed that this was a classical pathergy phenomenon. Rather, a delayed immunological reaction appears to have occurred, which ultimately led to the PG. A delayed contact allergic reaction to the colour used, which has already been described as a potential trigger, is also conceivable.⁵ However, allergic reactions were less frequent in the black tattoos described here, which were usually described in the case of red, blue, or green dyes.⁶ A closer look at the known late complications after tattoos reveals granulomatous skin changes in up to 30% of cases, which in individual cases can also cause ulcers.⁷ These skin changes often occur for the first time several years after tattooing, just like ulcerative processes of necrobiosis lipoidica.^{8,9} A retrospective analysis of 1.4% of the 493 complications caused by tattoos described ulcerations that were not further differentiated.¹⁰

The proportion of people with tattoos is increasing worldwide. For example, in Italy, about 48% of the population has a tattoo; in Germany, it is currently about 24% (de.statistica.com). Even though the causal connection between the occurrence of PG in tattoos, which have existed for several years, cannot be clearly clarified, we would like to point out this late complication of tattoos, which has not been described so far, especially in women and tattoos on the lower legs.

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