Imatinib-induced pyoderma gangrenosum in a patient with chronic myeloid leukemia

Sir,

Pyoderma gangrenosum is an uncommon neutrophilic dermatosis presenting with sterile pustules that rapidly progress to painful skin ulcers with undermined, violaceous borders.[1] Imatinib is a tyrosine kinase inhibitor used to treat certain types of cancer, including chronic myeloid leukemia and gastrointestinal stromal tumor. Herein, we present a case of severe pyoderma gangrenosum induced by imatinib.

A 59-year-old obese woman was diagnosed with chronic myeloid leukemia and started on imatinib mesylate 400 mg/day. Over the following six months, she gradually developed painful, large and variously interconnected skin ulcers with ragged erythematous-violaceous edges, and abundant reddish discharge at their base on pubis, inguinal, perianal, and gluteal areas. Clinical examination revealed full-thickness tissue loss with exposed fascia and muscle [Figures 1a and b]. Skin histopathology demonstrated epidermal ulceration associated with a dermal-hypodermal neutrophil-rich inflammatory infiltrate [Figures 2a and b]. Wound cultures for aerobic and anaerobic bacteria or fungi yielded negative results. Laboratory studies revealed anemia, neutrophilic leukocytosis, and elevated acute-phase reactants. Polymerase chain reaction on ulcer swabs failed to detect DNA of herpes simplex viruses 1 and 2. Magnetic resonance imaging and colonoscopy ruled out underlying bone or visceral involvement and inflammatory bowel disease, respectively. A diagnosis of pyoderma gangrenosum probably induced by imatinib (Naranjo score = 5) was made and this drug was withdrawn. Immunosuppressive treatments were avoided due to the risk of chronic myeloid leukemia progression and no specific therapies were administered, apart from opioid analgesics and

Figure 1a: Large and deep skin ulcers located on the pubis and inguinal folds of a 59-year-old woman

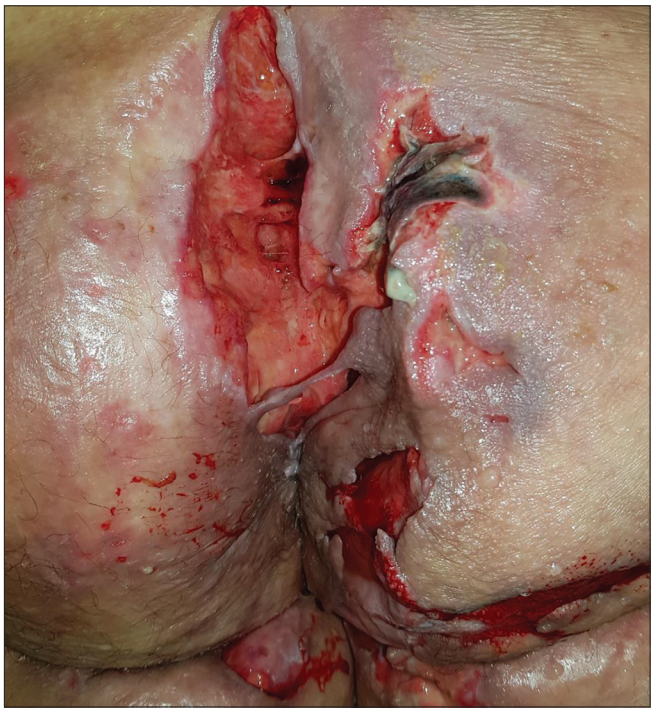

Figure 1b: Large and deep skin ulcers located on the perianal-gluteal area of a 59-year-old woman

How to cite this article: Faraci AG, Genovese G, Ferrucci S, Marzano AV. Imatinib-induced pyoderma gangrenosum in a patient with chronic myeloid leukemia. Indian J Dermatol Venereol Leprol 2021;87:704-6.

Received: September, 2020 **Accepted:** January, 2021 **EPub Ahead of Print:** May, 2021 **Published:** August, 2021

DOI: 10.25259/IJDVL_1158_20 **PMID:** 34114414

systemic antibiotic in addition to potassium permanganate bathing to prevent ulcer superinfection. Wounds progressively healed with residual cribriform and hypertrophic scarring, and concomitant pain relief. At six-month follow-up visit, almost complete pyoderma gangrenosum remission was observed [Figures 3a and b] and drug discontinuation was supported by chronic myeloid leukemia stability on molecular biology (BCR-ABL1 levels of 0.471%).

Pyoderma gangrenosum is a neutrophil-mediated disease rarely triggered by drugs.[2] Although tyrosine kinase inhibitors, particularly sunitinib,[3] may induce pyoderma gangrenosum by fostering chemokine release, vascular permeability, and neutrophil migration from peripheral blood into the skin and rarely internal organs,[2] a single case of imatinib-induced pyoderma gangrenosum has been reported in a patient with gastrointestinal stromal tumour.[4] Indeed, imatinib has been demonstrated either to promote myelopoiesis or to accelerate neutrophil maturation through a c-kit-dependent mechanism, with no effects on lymphopoiesis.[5] Thus, the alteration of neutrophil homeostasis by imatinib might explain its pyoderma gangrenosum inducing effect. Other cutaneous

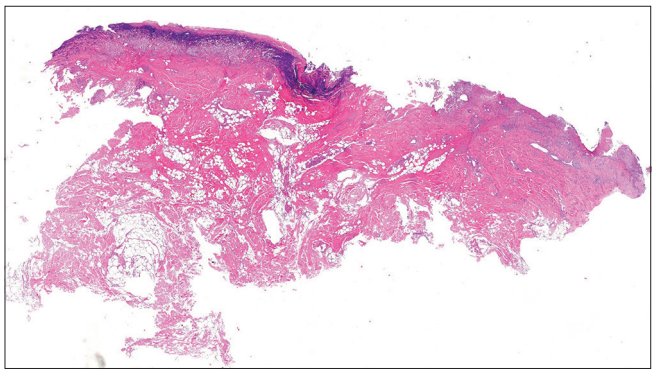

Figure 2a: Skin histopathology showing epidermal ulceration and a dermal-hypodermal inflammatory infiltrate predominantly consisting of neutrophils (hematoxylin-eosin staining, original magnification ×10)

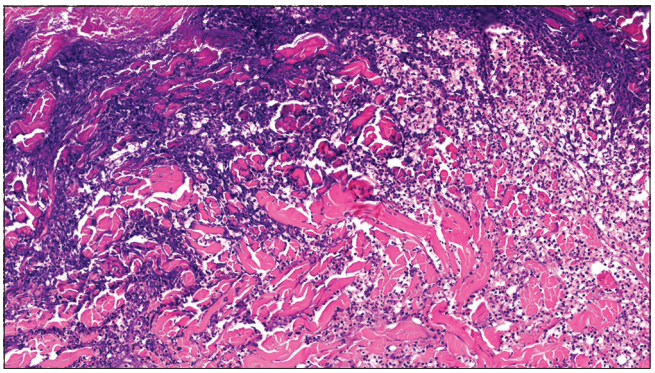

Figure 2b: Close-up view of skin histopathology showing a dermal neutrophil-rich infiltrate (hematoxylin-eosin staining, original magnification ×200)

Figure 3a: Almost complete remission of lesions located on the perianal-gluteal area on imatinib withdrawal at 6-month follow-up visit

Figure 3b: Almost complete remission of lesions located on the pubis and inguinal folds on imatinib withdrawal at 6-month follow-up visit

reactions to imatinib include erythematous maculopapular eruptions, periorbital edema, toxic epidermal necrolysis, Stevens-Johnson syndrome, acute generalized exanthematous pustulosis, purpuric vasculitis, and mycosis fungoides-like reactions.[6] The close temporal association between drug initiation and pyoderma gangrenosum onset, the severity of our patient's lesions, and the dramatic remission following drug suspension, makes our case worth reporting. We aim to make clinicians aware of this extremely rare adverse skin reaction in patients receiving tyrosine kinase inhibitors.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

Andrea Giuseppe Faraci, Giovanni Genovese, Silvia Ferrucci[1], Angelo Valerio Marzano

Department of Pathophysiology and Transplantation, Università degli Studi di Milano, Milan, Italy, [1]Dermatology Unit, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy

Corresponding author:
Prof. Angelo Marzano,
Via Pace 9, Milan-20122, Italy.
angelo.marzano@unimi.it

References

1. Maverakis E, Ma C, Shinkai K, Fiorentino D, Callen JP, Wollina U, *et al*. Diagnostic criteria of ulcerative pyoderma gangrenosum: A Delphi consensus of international experts. JAMA Dermatol 2018;154:461-6.
2. Wu BC, Patel ED, Ortega-Loayza AG. Drug-induced pyoderma gangrenosum: A model to understand the pathogenesis of pyoderma gangrenosum. Br J Dermatol 2017;177:72-83.
3. Wang JY, French LE, Shear NH, Amiri A, Alavi A. Drug-induced pyoderma gangrenosum: A review. Am J Clin Dermatol 2018;19:67-77.
4. Pinato DJ, Sharma R. Imatinib induced pyoderma gangrenosum. J Postgrad Med 2013;59:244-5.
5. Napier RJ, Norris BA, Swimm A, Giver CR, Harris WA, Laval J, *et al*. Low doses of imatinib induce myelopoiesis and enhance host anti-microbial immunity. PLoS Pathog 2015;11:e1004770.
6. Scheinfeld N. Imatinib mesylate and dermatology part 2: A review of the cutaneous side effects of imatinib mesylate. J Drugs Dermatol 2006;5:228-31.

Induction of localized bullous pemphigoid on a young woman following a chemical peel

Sir,

Bullous pemphigoid is a senile acquired autoimmune bullous disorder and its localized variant is rare in young adults. Several known triggering factors exist such as drugs, trauma, surgery and radiation therapy.[1] Here, we report a young female who developed localized facial bullous pemphigoid following a glycolic acid chemical peel.

A 26-year-old female presented with itchy erythema and vesicles on her face since two months.The patient had history of acne vulgaris for seven years, which improved with treatment one year before her visit. To improve her skin-texture, she underwent a single session of glycolic acid chemical peeling (unknown concentration) in a local beauty salon 20 days preceding her clinical symptoms. She noticed gradual development of erythema and vesicles over her healed acne lesions. A local physician diagnosed it as impetigo and she applied mupirocin ointment for two weeks without any appreciable benefit. On cutaneous examination we observed scattered erythema and papulovesicles distributed over her cheeks, chin, root of the nose, temples and forehead [Figure 1a]. Tense, clear, fluid-filled vesicles sized 0.3–1.0 cm occupied the edge of the erythema [Figure1b]. Nikolsky's sign was negative. Ruptured vesicles resulted in superficial erosion and crusts. No similar lesions were observed on any other part of her body. The patient denied any exposure to photosensitive food, outdoor work, drugs, radiationor other chemicals. There was no history of photosensitivity. A family history was non-contributory. Routine biochemistry including complete metabolic panels and auto-antibody screens were within normal limits. An HIV test was non-reactive.

How to cite this article: Gu A, Zhang L, Ma F, Kong X. Induction of localized bullous pemphigoid on a young woman following a chemical peel. Indian J Dermatol VenereolLeprol 2021;87:706-8.

Received: August, 2020 **Accepted:** May, 2021 **EPub Ahead of Print:** July, 2021 **Published:** August, 2021

DOI: 10.25259/IJDVL_1116_20 **PMID:** 34379953