Acute Gingivitis as an Early Sign of Dapsone-Induced Agranulocytosis

Dear Editor,

Agranulocytosis is a rare but potentially fatal idiosyncratic adverse effect of dapsone. We report as well as discuss a case of Hansen's disease with dapsone-induced agranulocytosis, which presented as acute gingivitis. A 33-year-old male patient who was a known case of pure neuritic type of Hansen's disease with left ulnar claw hand was started on multi-drug therapy consisting of dapsone, clofazimine, and rifampicin along with tapering doses of prednisolone since 6 weeks, presented with severe pain and swelling of gums around the right upper incisors along with fever and chills of 2 days duration and giddiness, body ache, loss of appetite, and malaise of 1-day duration. He didn't consume alcohol, smoke or chew tobacco and maintained a good oral hygiene. Examination of the head and neck revealed right submandibular tender lymphadenopathy and oral cavity showing severe inflammation of the gingiva around the upper two incisors on the right side [Figure 1]. The rest of the oral cavity and dermatological examination were normal. Orthopantomogram was normal. Hematological investigations revealed leucopenia with a total leucocyte count of 1,200 per mm^3 with an absolute neutrophil count of 402 per mm^3. His hemoglobin was 12 gm/dL with platelets of 3, 44,000 per mm^3. A peripheral blood smear was consistent with leucopenia. Routine liver and renal function tests were within normal range and blood culture yielded no growth. He was diagnosed as a case of dapsone-induced agranulocytosis presenting as acute gingivitis. Dapsone and prednisolone were withheld and he was started on intravenous fluids and antibiotics with advice to maintain oral hygiene. His sequential counts on subsequent days continued to improve and reached normal limits in 5 days, following which he was shifted to oral antibiotics for gingivitis with the continuation of multi-drug therapy without dapsone. The gingivitis resolved over a fortnight.

Figure 1: The gingiva around the right first incisor and adjacent to the left first and right second incisors show a well-defined area of discolored mucosa suggestive of necrosis

Neutrophils constitute the first line of defense against micro-organisms comprising 50%–70% of the circulating white blood cells.[1] Trivial infections otherwise easily taken care of in a healthy state can spread rapidly within patients having agranulocytosis. When oral hygiene is compromised, the gingival crevice becomes rife with bacteria. In neutropenic conditions, bacterial infections are not contained and progress rapidly leading to necrotizing gingival lesions. A normal absolute neutrophil count (ANC) is >1,500 cells/mm^3; an ANC <1,000 cells/mm^3 indicates a moderate risk of infection; and an ANC <500 cells/mm^3 is defined as neutropenia with severe risk of infection.[2] Fever and/or a sore throat, which are often the earliest presentations of drug-induced agranulocytosis, and other oral manifestations such as gingival necrosis and ulcerations may be the first signs of neutropenia. In reducing order of frequency, dapsone-induced agranulocytosis presents with the following symptoms—fever, sore throat, or odynophagia, dermatologic manifestations (including rash, pyoderma, furuncles, cellulitis, angioedema), malaise and/or weakness, cough, headache, chills, and confusion.[3] When unchecked, the infection may spread to cause fever, bacteremia, and sepsis leading to prostration, hypotension, systemic inflammatory response syndrome, shock, and death.[4] Neutropenic oral-care protocols that diminish microbial colonization of the periodontium and dentition are of great importance. A similar scenario is seen in cases of gum hypertrophy in patients taking cyclosporine and occurs due to poor oro-dental hygiene.[5] Also, patients with cyclic neutropenia present with recurrent periodontitis and upper respiratory tract symptoms in a cyclical manner every 3 weeks.[6] It is imperative to educate patients taking dapsone to be alert to the onset of symptoms such as fever, sore throat, and gingivitis and that they should discontinue dapsone and get tested for complete blood counts immediately if these symptoms occur. We report this case for sensitizing the readers about the importance of early identification of acute gingivitis with fever as one of the described yet less-known presentation of agranulocytosis.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given consent for images and other clinical information to be reported in the journal. The patient understands that names and initials will not be published and due efforts will be made to conceal patient identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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