Imatinib-induced dental hyperpigmentation in chronic myeloid leukemia in an adult female

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ABSTRACT

The course of chronic myeloid leukemia (CML) has changed since the introduction of imatinib, and its side-effects are still being reported. We are reporting a case of a CML patient who presented to us with discoloration of the upper front teeth following 6 months of therapy with imatinib. On detailed evaluation, the patient was found to have imatinib-induced dental hyperpigmentation.

KEY WORDS: Chronic myeloid leukemia, imatinib, tooth discoloration

Introduction

Chronic myeloid leukemia (CML) belongs to a heterogeneous group of diseases characterized by infiltration of the bone marrow, blood, and other tissues by neoplastic cells of the myeloid series. The diagnosis of CML is made by identifying a clonal expansion of hematopoietic stem cells that possess a reciprocal translocation between chromosomes 9 and 22 (Bcl-Abr). Untreated, the disease is characterized by a transition from a chronic to an accelerated phase and finally a blast crisis (which is usually fatal) in around 4 years. The diagnosis is based on identifying a clonal expansion of hematopoietic stem cells that possess a reciprocal translocation between chromosomes 9 and 22 (Bcl-Abr). Imatinib mesylate (STI-571, Gleevec), a tyrosine kinase inhibitor, is a first-line drug for treating CML at present. It is quite selective for Bcr-Abl; however, it also inhibits other targets such as c-kit and platelet-derived growth factor receptor (PDGF-R). This drug revealed excellent hematological responses with many documented side effects and rarer side effects are still being reported.

Case Report

A 32-year-old female who was diagnosed as CML 6 months back, on treatment with imatinib mesylate 400 mg once a day, presented to us with the chief complaints of discoloration of teeth. There was no history of any such pigmentation prior to onset of therapy, no history of trauma, and intake of any other drugs such as hydroxyurea, minocycline, or antimalarial agents. There was no history of diabetes mellitus, hypertension, or ATT intake and the patient was a nonsmoker and nonalcoholic. The patient was also taking ibuprofen and ranitidine occasionally.

On examination, vitals were stable; there was no pallor, icterus, cyanosis, clubbing, edema, and jugular venous pulse was normal. Per abdomen examination revealed mild splenomegaly. Cardiovascular, respiratory, and neurological examinations were within normal limits. Investigations revealed hemoglobin - 8.6 g%, total leucocyte count - 8700/mm³, differential leucocyte count - N63 L29 E3 M5, platelet count - 194,000/mm³, packed cell volume - 26.3, mean cell volume - 104.3, mean corpuscular hemoglobin - 32.5, mean corpuscular hemoglobin concentration - 32.1, and the GBP showed macrocytic anemia. Liver function tests were normal with serum glutamic oxaloacetic transaminase/PT-24/29, serum bilirubin T=1.0, D=0.6, I=0.4, and a serum albumin - 3.4. The urine examination was normal. There was no hyperpigmented lesion in the oral cavity, and hence we made a diagnosis of imatinib-induced dental hyperpigmentation by exclusion since...
no other cause was found. We continued the medicine as this side effect seemed only of cosmetic misery. Figure 1 shows the dental hyperpigmentation in the patient.

Discussion

Tyrosine kinase inhibitors have changed the management protocols of CML. Common side effects of imatinib include muscle pain, bone pain, abdominal pain, vomiting, diarrhea, cytopenias, especially neutropenia (16-35%), thrombocytopenia, and anemia (4-40%). However until now, only three cases of imatinib-induced mucosal pigmentation and one case of tooth discoloration have been reported.[5] Imatinib, apart from blocking Bcr-Abl, also inhibits other targets such as c-kit and PDGF-R. Since dental pulp is extremely rich in stem cells, which are c-kit positive, it is hypothesized that the blockage of c-kit in the dental pulp may be responsible for pigmentation of the teeth.[6] Physicians should consider the possibility of imatinib-induced dental hyperpigmentation as a differential diagnosis for dental hyperpigmentation of teeth.

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Conflicts of Interest
There are no conflicts of interest.

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