

QUIZ SECTION

Bluish Pigmentation of the Gingiva in a Homeless Patient: A Quiz

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A 31-year-old white homeless man presented with a 5-month history of severe asthenia and chronic abdominal pain. His medical history was notable for intravenous drug addiction with buprenorphine and heroin consumption, and hepatitis C infection with no current follow-up. Physical examination revealed abdominal sensitivity, muscular pain and weakness and paraesthesia of both feet. Careful examination of the oral mucosa disclosed a narrow, leaden-blue line discoloration of the gums overlying poor dental hygiene (Fig. 1). Laboratory findings included a normochromic, normocytic anaemia (10.9 g/100 ml; mean corpuscular volume 81 μm^3 ; mean corpuscular haemoglobin concentration 32.8%), with no anomaly on the white cell lines and no iron deficiency.

What is your diagnosis? See next page for answer.



Fig. 1. Narrow bluish line discoloration of the gums associated with defective dental hygiene.

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ANSWERS TO QUIZ

Bluish Pigmentation of the Gingiva in a Homeless Patient: Comment

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Diagnosis: Burton's line revealing chronic lead poisoning (plumbism)

Anamnesis, abdominal pain, gingival discoloration and low haemoglobin levels prompted us to analyse lead levels in the patient's blood and urine. Elevated blood lead levels (1,000 µg/l, normal <200 µg/l) and urine lead levels (6 µg/l, normal <0.4 µg/l) were found. The patient refused further investigation and admission.

Despite better controls in food, water, air and in industries, lead poisoning has not yet disappeared. Exposure can be related either to industrial respiratory intoxication or to accidental domestic exposure by ingestion. In the above case, lead poisoning was related to deficient housing (1). The patient had been living for 3 years in two different houses and had been drinking from water pipes that were partly made of lead. Whereas the guideline value according to the World Health Organization (WHO) for lead concentration in water is 10 µg/l, concentrations were 80 µg/l and 100 µg/l in the two houses, respectively (2). Chronic lead poisoning is responsible for a wide range of symptoms, which vary according to lead blood levels. They can be misleading if no link is found with potential lead exposure. Symptoms include the classic "lead colic", with abdominal pain, nausea and constipation, peripheral neuropathy (pain, numbness, tingling of the extremities, muscular weakness), central nervous system involvement with encephalopathy (asthenia, headaches, memory loss, delirium, coma), renal proximal tubulopathy and chronic renal failure, and male infertility. Blood cell count may provide a clue, with highly evocative anaemia and punctate basophilia (3, 4).

In 1840, Burton described an asymptomatic blue-purplish discoloration of the gums in a series of patients with lead poisoning (5). The edges of the gums are distinctly bordered by a narrow leaden-blue line approximately 1.2 mm wide (about 1/20 inch according to Burton's description) (5–9). The rest of the gingiva appear normal, with no tumefaction,

or tenderness. Other authors have also described a discoloration of the saliva in addition (5) and a sweet taste in the mouth (6). Such phenomena are caused by a reaction between circulating lead and sulphur ions released by oral bacterial activity, which deposits lead sulphide at the junction of the teeth and gums (7). These lines are seen mainly in patients with defective oral hygiene, which is independent from lead intoxication, as in our case (7). Of note, such a blue line does not appear if the patient has no teeth (6). The pigmentation may also be one of the sole signs indicating chronic intoxication (8). Gubler's sign, which was described by a French physician in the 19th century, and defined as tattooed blue grey spots in the internal part of the cheek, is similar to Burton's lines (6).

This sign is rarely reported in the literature and may be overlooked. In agreement with other authors (7, 9), we are of the opinion that this sign remains highly useful, despite it not being a constant for the diagnosis of lead poisoning.

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