Sir,

Methemoglobinemia (MetHb) is the presence of a higher than normal level of methemoglobin in the blood. Because methemoglobin cannot bind oxygen, functional anemia and cellular hypoxia develop in the case of MetHb. Methemoglobinemia may be seen as a complication of local anesthetics. It is a rare but still significant complication, which may even be fatal.

A 19-year female with an unremarkable past medical history was admitted to our emergency department after a car accident. Her Glasgow Coma Scale score was 15, and peripheral oxygen saturation (SpO2) was 100%. She had multiple skin lacerations on face and knees. No abnormal findings, except the presence of a small area of contusion in the right lung on the computed tomography scan of her chest, were detected in the imaging studies. While repairing her skin lacerations, 800 mg of prilocaine was given through subcutaneous infiltration. Her SpO2 dropped to 81% gradually, although she was given 100% oxygen. Then arterial blood gas analysis (ABG) showed her arterial oxygen saturation (SaO2) as 98.9%, but methemoglobin level was 18.4%. Hence, she was given 250 mg vitamin C through intravenous infusion over 15 minutes and 50 mg of methylene blue orally. Her SpO2 reached 94% in a few hours. The color of her urine changed to green due to excretion of methylene blue by the kidney. The patient was hospitalized by the Thoracic Surgery Department for treatment of the lung contusion, when the methemoglobin level dropped to 5.4%.

Methemoglobin is normally produced and scavenged at a constant rate. MetHb occurs when the rate of production exceeds the rate of reduction. Persistent cyanosis, low SpO2, lack of response to 100% oxygen therapy, the classic chocolate-colored arterial blood sample, and results of the ABG are valuable clinical clues. The diagnosis of MetHb can be confirmed by methemoglobin measurement, positive co-oximetry results, positive Kronenberg test result, or confirmation of the oxygen saturation gap.

The first steps of the management of MetHb are discontinuation of the causative agent and supplementation of the patient with high-flow oxygen. Methylene blue is the treatment of choice. Exchange transfusion, hyperbaric oxygen therapy, and ascorbic acid may also be considered.

MetHb should be considered when low pulse oximetry develops in a patient having history of recent exposure to an oxidizing agent like a local anesthetic, and it should be treated promptly when the diagnosis is confirmed.

REFERENCES