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A Case of Carbon Monoxide Poisoning

A 12-year-old boy was brought unconscious to our casualty nearly 12 hours after he fell asleep in a covered tractor, close to a working generator. He was normotensive, had decerebrate rigidity, equal and reacting pupils, normal optic fundi and no focal deficits. Pulse oximetry showed 95% saturation. ECG revealed sinus tachycardia. Liver and kidney functions were normal. Blood spectrophotometry showed a band of carboxy-hemoglobin (COHb). CT scan revealed bilateral symmetrical white matter hypodensity and bilateral round hypodensities in the globus pallidus extending to the internal capsule (*Fig. 1*). He was treated with cerebral decongestive measures and oxygen (10 L/min) delivered by facemask. He expired on the third day of admission. Autopsy disclosed softening of the globus pallidus and other evidence of generalized hypoxic damage.

Carbon monoxide poisoning is the leading cause of death by poisoning in industrialized countries(1). There is a dearth of Indian literature on this subject; a PUBMED search yielded only two references(2,3). Underdiagnosis is probably the reason for this. Nonlethal exposure often goes undetected; the estimate is that 30% of cases are undiagnosed even in the best of centers(4). Exposure to

vehicle exhaust fumes, generator fumes, fires in closed spaces, "bukhari" burning and vapours of paint removers containing methylene chloride can all lead to CO poisoning(2).

CO alters the dissociation properties of Hb and reduces oxygen delivery to tissues, leading to central hyperventilation and respiratory alkalosis, which further shifts the oxygen-hemoglobin dissociation curve to the left. The half-life of COHb is 320 minutes, which is drastically reduced to 80 minutes by 100% oxygen at 1 atmosphere and to 23 minutes by 100% oxygen at 3 atmospheres(5). This is the basis for the use of hyperbaric oxygen in the treatment of poisoning.

Diagnosis can be made by spectrophotometry and estimation of COHb. If facilities are not available, Kunkel's test may be done. A few drops of 3% tannic acid are added to patient's blood diluted 1:10 with distilled water; the appearance of a crimson red coagulum indicates the presence of COHb(2). Early initiation of oxygen therapy is essential. 100% oxygen should be provided with a non-rebreathing mask to the conscious patient and via endotracheal tube if comatose.

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Plasma Cell Granuloma of the Lung

A 9-year-old girl presented with history of high-grade fever and cough for 2 months duration. She was thin built, febrile and had mild pallor. Systemic examination revealed dullness and decreased breath sounds in right infraclavicular region. Other systems were normal. Chest skiagram revealed a rounded opacity in right upper lobe (*Fig. 1*). CT chest revealed a mass in right upper lobe. On thoracotomy there was a 6.5 -7 cm mass in the right upper lobe with few hilar nodes. Right upper lobectomy was done and the mass was removed in toto. Cut section showed a well-demarcated pale white solid mass. Histopathological examination was suggestive of plasma cell granuloma.

Plasma cell granuloma, an inflammatory pseudotumor is a non-neoplastic process characterized by unregulated growth of inflammatory cells. It is a rare lesion that usually presents as a solitary nodule, but may be multiple and involve more than one ipsilateral lobe or both the lungs in children(1).

This is frequently seen in adults and occurs rarely in children younger than 10 years of age, however this is the most common benign lung mass in infant and children. Various terms like inflammatory myofibroblastic tumor, fibrous xanthoma, xanthogranuloma, xanthofibroma, histiocytoma and fibrous histiocytoma are used based on predominant cell type and stroma. The pathogenesis is not clear, but is considered as a reparative process of an inflammatory lung lesion. Most of them are asymptomatic at the time of presentation, but some may have symptoms like fever, chest pain, cough, hemoptysis, airway obstruction

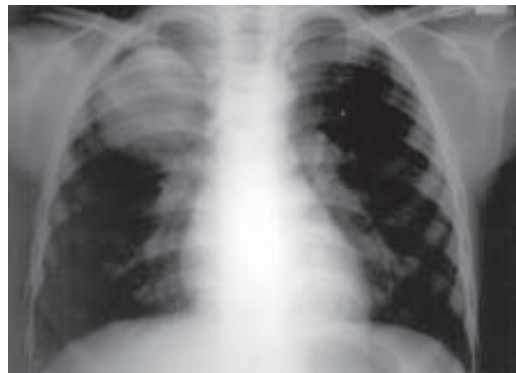


Fig. 1. Chest X-ray showing a rounded opacity in right upper lobe.