PICTORIAL CME

Imaging Appearances following Oral and Parenteral Mercury Poisoning

Deepashree T[1], Mayank Jain[2], Jayanthi V[2]

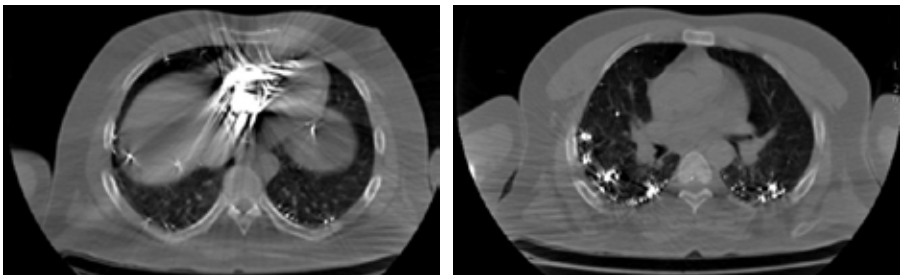

Fig. 1: (a & b) showing very high density in right atrium and dependant portions of lungs

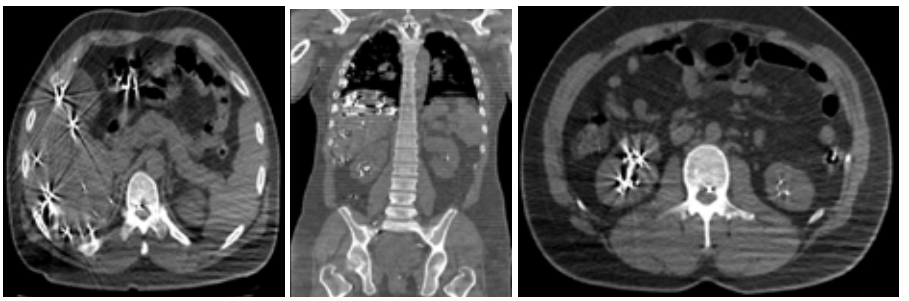

Fig. 2: (a, b & c) in sagittal and coronal section of computed tomography showing very high density in lungs, heart, liver and intestine (both small and large bowel)

A 29 year old male patient presented with alleged history of taking intravenous mercury (75 to 100 mL on 2 occasions within a span of 24 hours) in right upper limb reported to our hospital . He had simultaneously also swallowed 75 mL mercury. CT of chest and abdomen (Figures 1 to 2) showed well defined hyperdense foci scattered throughout lung fields, right side of heart, liver, small and large bowel, pelvicalyceal system of kidneys, spinal canal, and soft tissue in gluteal region and upper thighs. Ingested mercury was seen delineating both small and large bowel. On follow up after a month, there was clearance of mercury from the gut lumen but it was retained in lung parenchyma, liver and kidney. He was managed conservatively as the chelating agents were not available. He developed acute tubular necrosis and is being closely monitored on follow up.

Mercury is a toxic heavy metal which is widely dispersed in nature. Human mercury exposures occur chiefly[1,2] through inhalation of elemental mercury vapour via occupational or dental amalgam exposure or through ingestion of mercury bonded to organic moieties (methyl, dimethyl, or ethyl mercury), primarily from seafood.

Exposure to mercury vapour is associated with erosive bronchitis and bronchiolitis potentially leading to respiratory failure and CNS symptoms such as tremor or erethism.[3] Chronic exposure causes symptoms like weakness, fatigue, anorexia, weight loss, neurological deficits and gastrointestinal disturbance.[4] Acute poisoning with mercuric salts (typically $HgCl_2$) generally targets the gastrointestinal tract and the kidneys. Extensive precipitation of enterocyte proteins occurs, with abdominal pain, vomiting, and bloody diarrhea with potential necrosis of the gut mucosa. Surviving patients commonly develop renal tubular necrosis with anuria.[5] Chronic poisoning with mercury salts is rare. Brain dysfunction is less evident than with other forms of mercury.

Organic mercury poisoning damages many parts of the brain and peripheral nervous system.[6]

Mercury toxicity should be included in differential diagnosis of common subjective complaints such as fatigue, anxiety, depression, odd paresthesias, weight loss, memory loss, and difficulty concentrating, as these symptoms have been described in low-grade chronic mercury exposure. Given the ability of the various forms of mercury to deposit in most parts of the human body, the range of symptoms potentially caused by mercury is quite large.[7]

Diagnosis of mercury overload is difficult. The commonly used modalities (blood, urine, and/or hair levels) do not correlate with total body burden and offer little diagnostically useful information. Provocation with DMPS (2,3 Dimercapto-1-Propanesulfonate) appears to offer a more accurate assessment of body burden.[7]

References

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[1]Consultant, Department of Interventional Radiology, [2]Consultant, Department of Gastroenterology, Global Health City, Chennai, Tamil Nadu
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