



## CLINICAL IMAGES

## Swallowing a thermometer bulb – is this clinical mishap dangerous?

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A paraplegic man was referred for excretory urography as part of a urological work-up.

The 20-minute full-length abdominal radiograph (Fig. 1) shows normal upper renal tracts with a hypertonic neurogenic bladder. Note also the old crush fracture of L4 with AO fixators *in situ*.

Attention is directed to a small, broad linear opacity, which is of metallic density, seen overlying the right ilium, within the caecum. A number of associated tiny globular densities can also be seen extending upwards into the ascending colon.

On questioning, the patient said he had sneezed while his temperature was being taken with a mercury bulb clinical thermometer a few days earlier. As a result he had inadvertently crushed the thermometer in his mouth and swallowed the bulb. The metallic density within the caecum therefore represents the bulb of the mercury thermometer and the small globular densities small globules of metallic mercury within the colon.

Mercury is potentially a highly toxic substance, but the toxicity varies according to the chemical form in which it is encountered<sup>1</sup> and also depends on the portal of entry into the body.

Metallic (elementary) mercury is quite volatile and the mercury vapour can readily be absorbed through the lungs. Inhaled mercury vapour is the primary source of occupational exposure.<sup>1</sup>

Metallic mercury is insoluble in water, alcohol and hydrochloric acid.<sup>2</sup> Oral ingestion of metallic mercury therefore has little effect,<sup>1</sup> and indeed this patient suffered no detectable toxicity.

Where toxicity from oral ingestion has occurred, it has most often resulted from ingestion of mercury salts. Oral mercurous chloride has relatively low toxicity. However, mercuric chloride is highly toxic and causes acute kidney damage. Organic mercury compounds (used as fungicides) are usually distributed to the central nervous system.



Fig. 1. Twenty-minute supine abdominal film from intravenous pyelogram showing contrast-opacified renal collecting systems, ureters and bladder. Note the small tubular opacity in the right iliac fossa, representing the bulb of a mercury thermometer within the caecum. A number of small, discrete mercury globules are also visible. Note also the old spinal injury with AO fixators and the internal fixation of the left femoral neck.

Chronic mercury poisoning is often associated with personality changes with unusual fearfulness, inability to concentrate and irritability. An alteration of handwriting is frequently observed. This psychological disorder is known as erethism and may be difficult to diagnose, particularly as chronic mercury poisoning is now rare and therefore rarely considered as a diagnostic possibility.

Oral ingestion of a small amount of metallic mercury is (fortunately) generally harmless.

1. Katzung BG. *Basic and Clinical Pharmacology*. 3rd ed. Norwalk, CT/Los Altos, CA: Appleton & Lange, 1987: 734-735.
2. Todd RG. *Extra Pharmacopoeia Martindale*. 25th ed. London: The Pharmaceutical Press, 1967: 762.

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