Abnormal Chest Roentgenogram following Cantor Tube Removal*

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A 31-year-old woman was admitted for a cesarean section. Four days afterward, she still had not had a bowel movement and complained of abdominal distress. Abdominal roentgenograms were taken and revealed ileus with multiple air fluid levels. A Cantor tube was passed into her stomach in an attempt to decompress the small bowel. Soon afterwards, she removed the tube by herself; it was replaced by another which she also removed. Following the second extubation a film of the abdomen was taken (Fig 1).

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Diagnosis: Aspiration of metallic mercury

Following the second extubation, the mercury balloon of the Cantor tube was noted to be empty. Figure 1 shows metallic densities outlining bronchi and alveoli in the right lower lobe. Metallic density is also present in the stomach. Figure 2 is a closeup of the right lower lung.

The ileus persisted, and seven days after the cesarean section a laparotomy was performed, with resection of a segment of necrotic small bowel. Postural drainage was successful only in slightly changing the distribution of the mercury within the lung.

The patient was discharged 30 days after the cesarean section. A year later, a chest roentgenogram (Fig 3) revealed persistence of a small amount of the mercury in the small bronchi and bronchioles of the right lower lobe. At no time did she develop signs or symptoms of mercury toxicity. However, during the 18-month period following the aspiration, serum mercury levels were measured several times and showed widely fluctuating levels, highest during the first month, but still above normal on one determination three months later.

The fate of metallic mercury aspirated into the tracheobronchial tree has not been clearly ascertained, nor is the clinical significance of this event well understood. Zimmerman reported the only known fatal case, a 41-year-old man with Hodgkin's disease who had aspirated about 10 ml of mercury. Einarsson et al and Wallach each reported a patient with mercury aspiration with documented elevation of serum and urine levels of mercury but without evidence of mercurialism.

Our case fits the pattern of these latter reports, suggesting a benign course. Reports of intravenous injection of metallic mercury with subsequent embolization of the lungs have also been vague regarding the occurrence of mercurialism. Recent reports describe no symptoms of mercury toxicity after the intravenous injection of up to 10 ml of the metal.

Some hint as to the fate of the aspirated mercury may be obtained from a study done by Hursh et al. They had five human volunteers inhale radioactive mercury vapor and then measured the rate of excretion in the breath and the half-life in different body compartments by scintillation counting. They found that most of the mercury was retained in the alveoli and that 7 percent was lost in the breath, with a half-life of 18 hours. The scintillation counter revealed a half-life for body compartments that varied from 1.7 days for the lung to 64 days for the kidney.

References
1 Zimmerman JE. Fatality following metallic mercury aspiration during removal of a long intestinal tube. JAMA 1969; 208:2158-2160