

Abstract

**Subcutaneous and Gastrointestinal Exposure to Metallic Mercury:
Report of 2 Cases**

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Background: Mercury poisoning presents a variety of clinical pictures depending on the chemical structure, the route of exposure, the amount absorbed and other individual factors. Therefore, the ingestive and subcutaneous absorption of elemental(metallic) mercury can be considered to be relatively harmless in contrast to the inhalation of mercury vapor.

Case reports: A 72-year-old man presented to the department of urology due to tenderness, edema and a necrotic abscess of his penis after trauma. The soft tissue abscess required a surgical resection of the penis. For chelation therapy, oral D-penicillamine was administrated. 7 months later, he showed no subjective or objective signs of mercury poisoning. Another 5-year-old girl presented to the emergency department after accidental self-ingestion of elemental mercury. She was followed clinically and did not show any systemic mercury poisoning.

Conclusion: The Mercury concentrations in the blood and urine were elevated in the case of subcutaneous exposure, but was unchanged in the case of ingestion. Subcutaneous and gastrointestinal exposure to metallic mercury has a minimal risk for systemic mercury poisoning, which is in contrast to the exposure by inhalation.

Key Words: Mercury poisoning, Metallic mercury, Subcutaneous exposure, Gastrointestinal exposure, D-penicillamine

(Sue, 2002).

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(Gerstner & Huff, 1977).

(elemental mercury; H⁰) (inorganic mercury; Hg⁺, Hg²⁺), (organic mercury; alkyl-mercury, aryl-mercury)

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(Hohage, 1997).

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Winker (2001) 1923 2000
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McKinney(1999)

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(Fig.1).

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(10.7



Fig. 1. Simple radiographs of the chest, abdomen, pelvis, penile area, demonstrating mercury droplets (arrowheads).

g/dL) : 가 가
 (AST, 83 IU/L; ALT, 65 IU/L) creati :
 nine (Cr, 1.8 mg/dL) :
 42 µg/dl(; :
 <5.0 µg/dl) 24 875 µg/24 :
 hr(; <20 µg/L) :
 :

(Fig. 3a).

creatinine : 가 (Fig.
 (Fig.2). Chelation therapy 3b) 2 (iliocecal valve)
 D-Penicillamine 750 mg/day 가(Fig. 3c) 4

(Fig. 3d)

24 2
 0.5 µg/dL, 4.4 µg/L, 4 0.4 µg/dL, 2.8 µ
 g/L, 11 0.4 µg/dL, 2.7 µg/L
 25 25.5 µg/dL , 32.7 µ 1
 40 24 7
 g/dL, 856 µg/L 7
 17.5 µg/dL, 751 µg/L

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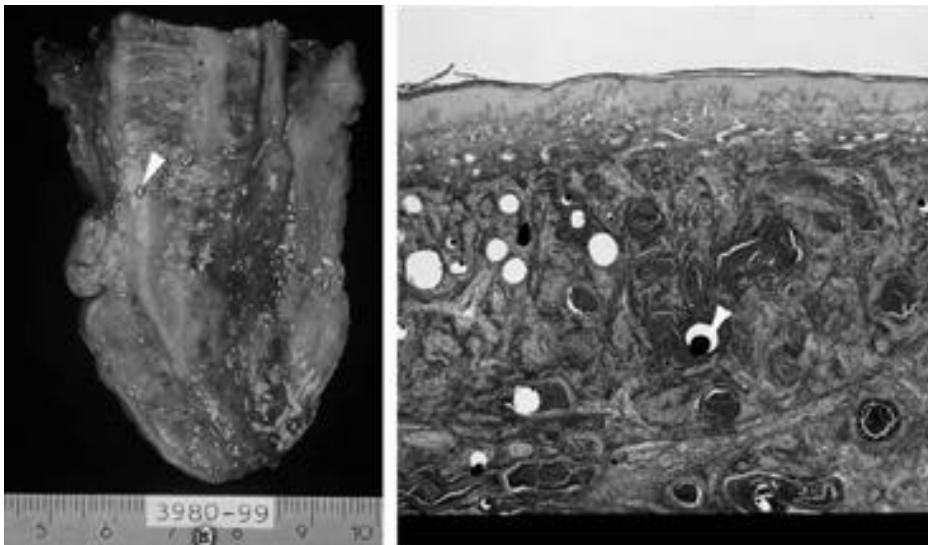


Fig. 2. Gross finding and microscopic findings of the resected mass.
 Arrowheads indicate mercury droplets.

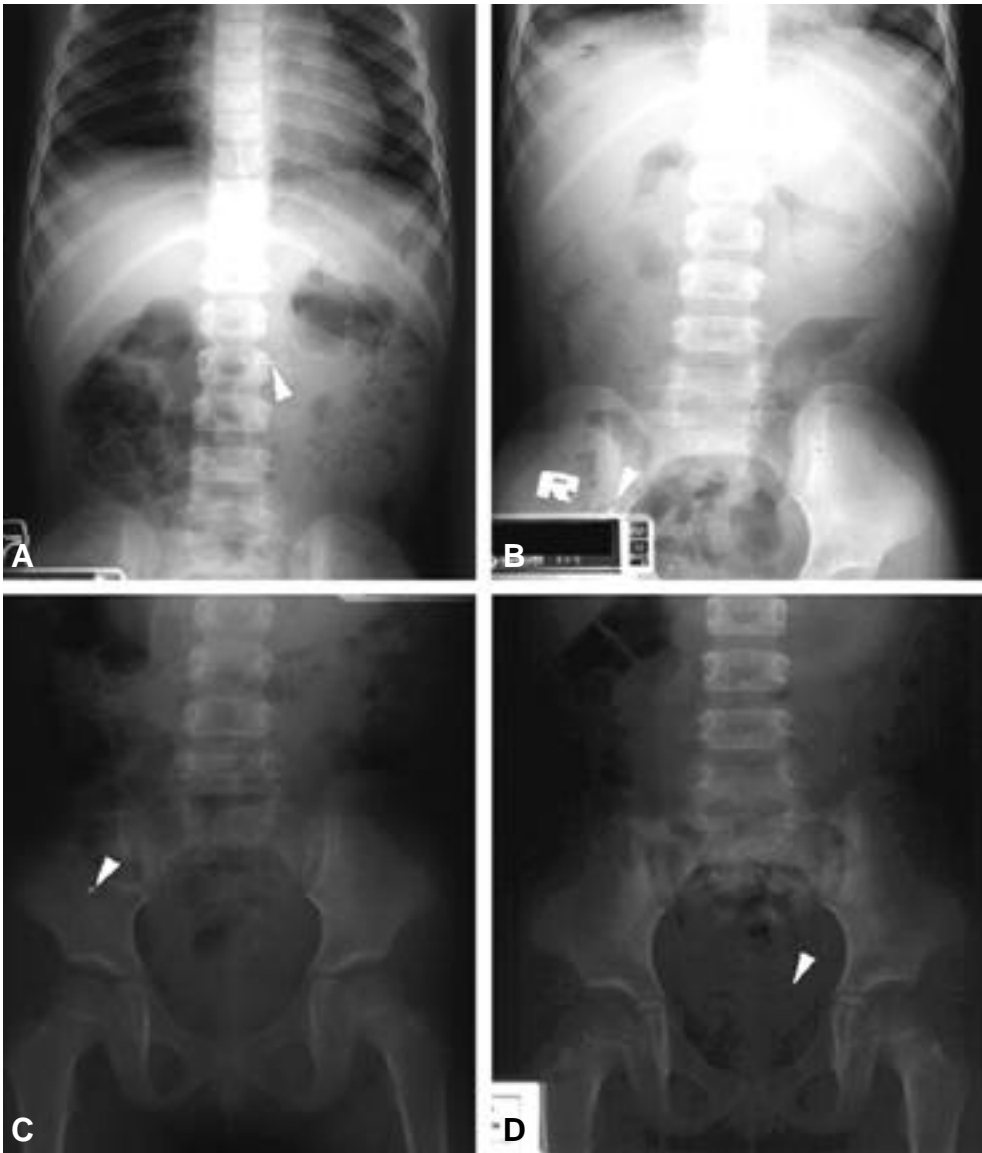


Fig. 3. Radiograph series after ingestion. Small particles of mercury (arrowheads) in the stomach(A, 1 day after ingestion), the small intestine(B, 2 days after ingestion), the ileocecal valve(C, 3 days after ingestion) and the rectum(D, 4 days after ingestion)

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(Sue, 2002).

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(Hohage ,

1997; Kern , 1972)

가 (Smith , 1997),

(Lin, 1993)

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1 (Hg⁺) 2 (Hg²⁺)

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(Anne-Michelle, 2001; Isik, 1997; Krohn, 1980)

2001; Isik, 1997; Krohn, 1980)

(Bradberry, 1996).

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(Sue, 2002).

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D-Penicillamine

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