Radiopaque Material in the Intestines Following Swallowing of Soil During a Flood

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The opacification of the gastrointestinal tract by soil is related to several factors [1]. In this short communication the appearance radiopaque material in the intestines secondary to accidental swallowing of soil during a flood, will first time be reported.

A 3-year-old boy was admitted to hospital 13 hours after being rescued from a flood during which his whereabouts were not known to rescuers for nearly 50 minutes. The boy was initially found to be confused but was later described as completely conscious 30 minutes after being rescued from flowing muddy water. The delay in reaching the hospital was due to transportation difficulties.

Past medical history subsequently revealed no prior illness nor had the patient ever undergone any radiological diagnostic procedures prior to admission.

His physical findings were within normal limits, except for multiple bruises and ecchymoses over the scalp, face and extremities. The injured areas were swollen and tender. There were dry mud particles in the external auditory canals, nose, mouth, and pharynx. Physical examination revealed that the abdomen was slightly distended but not tender to palpation. Bowel sounds were moderately increased. Pieces of mud mixed with feces were found in his rectum by digital examination. The remainder of the physical examination was unremarkable.

Laboratory studies demonstrated normal hematologic and biochemical findings, including urinalysis and roentgenograms of the skull, neck, and extremities. The chest film obtained on admission showed bulky radiopaque material in the small intestine (Figure 1).

In the light of the findings, the radiopaque density in the intestine was interpreted as likely to be impacted soil and since no evidence of intestinal obstruc-
tion was present, conservative follow up was considered appropriate. Intravenous fluids were administered as indicated. Subsequent plain abdominal roentgenograms taken 8 hours and 24 hours after admission showed gradual passage of the radiopaque masses to the cecum and distal colon, respectively (Figure 2). On the second day of admission, the patient defecated pieces of mud and impacted soil mixed with feces. Oral laxatives and a soft diet were initiated on the 3rd hospital day, at which time all radiological evidence of soil in the digestive tract had disappeared.

Although it would provide some additional information, the defecated material and the soil from the area could not be checked to determine the metallic composition.

Geophagia with iron deficiency, zinc deficiency, growth retardation, hepatosplenomegaly, hypogonadism is well known and in this condition some radiopaque material can be seen on X-ray films (2).

However, radiopaque material in the gastrointestinal tract consisting of mud has not been described.

Submersion in muddy water could also be expected to lead to accidental swallowing of soil, particularly in children. Swallowing could be facilitated by loss of consciousness, as exemplified by the confusion in our patient. When taking the history and making a physical examination of a flooding victim, the patient has to be evaluated for swallowing dirt as well as for trauma, foreign material aspiration and water intoxication.

The patient described here is the first reported case of radiopaque material due to swallowed and impacted soil in the intestines.

![Figure 2](image_url)

**Figure 2.** Abdominal plain roentgenogram of the abdomen on the 3rd hospital day showing the radiopaque mass in the ascending and transverse colon.

References
