the ileocecal valve, a right colectomy may be necessary to prevent compromised ileocecal valve function. If reduction is accomplished without a residual tumor, then cecotomy or colecexy should be performed to eliminate cecal mobility as a causative factor.

References


Oral Metallic Mercury

A Folk Medicine Remedy for Gastroenteritis

Mitchell E. Geffner, M.D., Alan Sandler, M.D.

This report describes two patients with acute gastroenteritis who received a folk treatment of oral administration of metallic mercury, presumably aimed at dislodging a "bolus."

Case Reports

Case 1. A 6-month-old Mexican-American girl, was well until one week prior to admission when she developed diarrhea. Her parents denied use of any medication on initial questioning. Admission physical examination revealed a mildly lethargic, dehydrated infant weighing 5.6 kg. Vital signs included: temperature, 36.1C; pulse, 100/minute; respiratory rate, 28/minute; and blood pressure, 80/40 mm Hg. The abdomen was soft with
normal bowel sounds and no palpable masses or enlargement of viscera were detected. Rehydration was accomplished with parenteral fluid therapy and the baby was able to tolerate a soy formula on the third day. On the second hospital day, however, droplets of metallic mercury were found in her diaper. Abdominal radiogram revealed multiple globular opacities in the large and small bowel. On careful questioning the child’s grandmother admitted that she had visited a curandera (folk doctor) who had given the child a “yellow liquid” as treatment for her gastroenteritis symptoms.

**Case 2.** A 15-month-old Mexican-American girl was well until one week prior to admission when she developed diarrhea. Prior to admission she had been seen by a chiropractor and later by a pediatrician who prescribed paregoric and Donnagel®. In addition, the father had treated the child with Enteroxiform®. Admission physical examination revealed an irritable, mildly dehydrated child weighing 9.2 kg. Vital signs included: temperature, 38°C; pulse, 126/minute; respiratory rate, 36/minute; and blood pressure, 104/70 mm Hg. The abdomen was soft with normal bowel sounds and no masses or enlarged viscera were palpable. This infant also required parenteral fluids. After 36 hours she was able to take diluted whole milk, bananas, and rice. On the second hospital day, however, beads of metallic mercury were found in her diaper. An abdominal radiograph (Fig. 1) revealed multiple globular opacities throughout the bowel. Despite careful questioning of the parents, no source for this mercury could be found. However, the maternal grandmother did admit to an interest in herbal medical remedies.

**Discussion**

Symptoms of empacho include loss of appetite, stomach ache, diarrhea, vomiting, fever, and in children, crying and irritability. Reported treatment for detachment of the food “bolus” from the stomach wall includes rubbing the stomach or back or, more directly, grasping a fold of skin on the back, pulling it up, and releasing it until the “bolus” is dislodged. Additionally, herbal tea or a purgative or both may be given. The tea may be made from estafate (larkspur), hojas de sen (senna leaves), manzanilla (chamomile), or from the ashes of the food that caused the empacho. Purgatives used include castor oil. In fact, some adults use cathartics routinely to keep the stomach “clean” and to “prevent empacho.”1 The clinical presentation of our two patients with gastroenteritis is consistent with empacho.

Throughout history, mercury has found widespread medicinal use as an antiseptic, antisyphilitic, unguent, and purgative. Sollman cites the 18th century usage of metallic mercury for treatment of adynamic ileus in doses of 100 to 500 gm.2 As late as 1923, Abt recommended mercury cathartics in the form of calomel (mercurous chloride).3 In our first case, the grandmother reluctantly admitted that a folk doctor had administered a “yellow liquid” to the infant. Although no specific source could be implicated in the second case, detailed discussion with the family uncovered the grandmother’s interests in Indian herbal medicine. In neither of our cases was it possible for the child to have received the mercury in any other manner, e.g., via a broken thermometer. All thermometers used were checked and found intact. The presence of beads of mercury throughout the intestinal tract as seen on the abdominal radiographs suggested the likelihood of oral administration.

Neurologic toxicity of organomercury compounds was noted to be associated with Minamata disease in the 1950s and 1960s.4 Similarly, toxic effects of inorganic mercury have been noted in the kidney, lungs, and liver.5 Free metallic mercury, on the other hand, has limited systemic absorption after oral administration, hence minimal toxicity. With conversion of metallic mercury to the divalent merccuric ion, systemic absorption may occur.6 If the integrity of the intestinal mucosa is preserved, metallic mercury normally passes through the gut rapidly enough to preclude significant conversion to divalent mercury. However, if a site for mercury stasis exists, an oxidative-reduction reaction may occur slowly in the presence of water and chloride at body temperature, ultimately transforming...
metallic mercury into divalent mercuric compounds. Such an occurrence was recently reported in a patient with a ruptured Miller-Abbott tube, the mercury contents of which collected in a cutaneous-intestinal fistula and were ultimately absorbed. Our patients had no such predisposing factors and were discharged from the hospital after 10 and 2 days, respectively, with full resolution of their symptoms and without signs of mercury intoxication.

To our knowledge the use of metallic mercury purgatives for the folk treatment of empacho has not previously been reported in the medical literature. Metallic mercury found in the stools of patients with acute gastroenteritis should prompt the investigation of possible folk-medicine therapies. Although systemic absorption of metallic mercury is probably minimal in uncomplicated cases, such therapy may be harmful if stasis occurs long enough for the metallic mercury to be converted to toxic mercuric compounds.

References

**BOOKSHELF**

**Female Adolescent Development.** Max Sugar, Ed. New York, Brunner/Maze, 1979, 342 pp, $19.95

This book is a welcome attempt to close the gap between women's new roles in society and the body of knowledge about their emotional, social and cognitive development which has been largely derived by male researchers primarily studying males as noted by Dr. Sugar. It is a refreshing counterpart to the prevailing view, as expressed by Eric Erikson, that the adult role girls will play is determined by the men they marry, not their own individual choice. A good overview is presented of all the studies directed at defining female developmental patterns. The paucity of studies about females is striking and would seem to corroborate Dr. Sugar's point that until recently, research on women was devalued just as women themselves have been devalued by society as a whole.

An interesting section on the biologic issues of adolescence attempts to relate physical and cognitive development. The development of sex-related differences in cognitive functioning is explored and the evidence for and against prevalent hypotheses presented. Specifically it is accepted that adolescent males score higher on tests of spatial and mathematical ability and females higher on tests of verbal ability. These differences are then analyzed in terms of underlying societal pressures such as course selection (boys generally elect more higher mathematics courses). Recent evidence also shows that the number of mathematics courses can affect spatial ability. In addition, girls are hampered by the fact that society generally views high academic achievement as unfeminine so that this additional pressure is brought to bear on adolescent girls. An effective plea is made for a schema of sex-related differences in cognitive functioning as being a result of the interaction of brain organization, endocrine influences, socialization and educational experiences.

Two outstanding chapters mark the section on societal issues, female delinquency and female adolescents and the law. It is pointed out that there is a small increase in female delinquent activity and a decline in male delinquent activity where there is an acceptance of gender convergence as opposed to a traditional gender role distinction. Likewise, it is notable that female delinquents are underinvolved in crimes that express masculinity, such as violent crimes against property and person. Since social change is a process that constantly redefines traditional female roles, increased participation of females in male type crimes may be an unavoidable byproduct.

The chapter on the female and the law is informative and provides necessary background information for providers of health care to teenagers. The extension of the right to due process protection to adolescents and the development of separate laws for female adolescents with their special problems secondary to sex related medical conditions are two extremely important developments in recent years. An interesting and well written discussion ensues elaborating the interactions of the courts with the health care system.

The final section of this book on psychodynamics is the least useful to the non-psychiatrist treating adolescents. It is analytically, rather than pragmatically oriented. The section on developmental issues in adolescent motherhood however, is timely and overwhelming. Since more than one million teenagers become pregnant each year resulting in or about 600,000 births per year (2% of all births), the outcome of these mothers and their infants is of great importance. Data that show that 24 per cent of adolescent mothers gave inadequate stimulation to their infants compared to 11 per cent of adult mothers is of great concern. For most of these girls the developmental process of separation and individuation is retarded. Add to this the fact that adolescent mothers have 1½ times more crises than adult mothers and the stage is set for feelings of inadequacy, and failure. Without question, this chapter underscores teenage pregnancy as the most critical medical, social and developmental problem that female adolescents face today. This leaves health care providers with an important if unstated issue, namely prevention of teenage pregnancy. To whom falls this task? — **Marie A. Collins, MD, Philadelphia, PA**