

中文題目：一個以腸胃道症狀表現的鉛中毒病例個案

英文題目：A lead poisoning case with gastrointestinal presentation

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Background:

Lead is undoubtedly one of the oldest known toxins to humans which was known to be produced 5000 years ago. The earliest recorded lead poisoning was probably described by Hippocrates in 370 BC with a metal extractor presented with severe colic. A better description of clinical manifestation by lead poisoning was established by Greek physician Nikander in 2 BC with constipation, colic, pallor and paralysis followed by lead ingestion. Lead was added in the early wine-making process as a sweetener to counteract the astringent flavor of tannic acid in grapes. Lead-sweetened wine, containing as much as 20mg/L of lead, was an important part of the diet of upper-class Romans. The decrease in fertility and increase in psychosis among the Roman aristocracy was speculated as the cause of lead poisoning in the fall of Rome. After the death penalty was imposed on winemakers in 1600 AD, lead poisoning through food or beverage ingestion became less of a problem as it compares to occupational exposure in industry and environmental exposure in lead-containing paint in the 19th century. We report a rare case of lead poisoning associated with Chinese herbal medicine ingestion of up to two years here.

Case presentation:

A 33-year-old previously healthy male presented to the out-patient department session due to aggravating epigastric pain for six days. He takes Chinese herbal regimens as supplements for two years from a licensed Chinese medicine physician. He first presented to the Out-Patient Department (OPD). He experienced epigastric pain, muscle soreness and fatigue since 6 days ago. He vomited lunch a day before. There is no diarrhea. He is a social drinker of 400 cc whiskey twice a week since 17 years old. Health examination six months ago revealed hepatobiliary profiles within normal limits with no undetectable HBV or HCV infection. Laboratory examination ordered in OPD revealed Total/direct bilirubin = 3.45/1.54 mg/dL, ALT/AST = 1522/689 IU/L, gGT = 610 IU/L. Sonographic Murphy sign was negative. There is splenomegaly of 5.47cm * 4.35cm and gallbladder polyp of 0.43 cm in size. EKG revealed sinus rhythm. The patient was admitted and advised to keep a light diet. He was under supportive care with the use of glycyrrhizin 120mg QD and ursodeoxycholic acid 200mg TID for 7 days. There was improvement on epigastric discomfort with normalization of total bilirubin and ALT/AST. HBsAg (nonreactive), Anti-HBs (reactive), HbeAg (nonreactive), Anti-HBc IgM (nonreactive), HCV ab (nonreactive). But, the improvement of the condition did not last. The patient was presented with abdominal dull pain and bloating followed by a diarrhea 30 minutes after intake of a piece of pizza and some noodle. KUB revealed distended large intestine with stool impaction. Stool routine was unremarkable. Laboratory examination on HSV I, HSV II, CMV, Chlamydia, HIV, RPR, EBV, Chlamydia, and Neisseria gonorrhoea were all negative. The mother of the patient was noted with gradual onset of similar symptoms with elevated liver profile. In addition, she would be woken up at midnight with bilateral hand numbness. They live under the same household and receives the same Chinese herbal prescription from the same physician. The herbal prescription is in powder form. It was sent to the Ministry of Health (MOH) for heavy metal testing which reported positive for lead content of 15,281 ppm. The diagnosis of lead poisoning was established by basophilic stippling presented on peripheral blood smear,

and a blood lead level of 83.31 ug/dL. The patient tolerated oral Dimercaptosuccinic acid 400mg TID for 3 days without of skin rash. He was further treated with Dimercaptosuccinic acid 400mg BID for 4 weeks. The patient continues to improve clinically.

Discussion:

A dose correlation of blood lead level and clinical manifestation has been established in the previous literature. No symptoms would be observed on a blood lead level of < 5 ug/dL. Hypertension, kidney dysfunction, and spontaneous abortion has been reported on blood lead level of 5-10 ug/dL. Besides, there were reported cases of neurocognitive deficits, reduced birth weight and postnatal development delay under a blood lead level of 11-39 ug/dL. Anemia, abdominal colic pain, and sperm abnormalities were much more apparent on blood lead level of 40-79 ug/dL. When blood lead level is > 80 ug/dL, peripheral neuropathy and encephalopathy could be observed. When a patient is presented with clusters of signs or symptoms described above, a diagnosis of lead poisoning is opted to be considered. As laboratory examination of urine lead level takes days, and blood lead level takes a week, clinical presentation of Burtonian line, and basophilic stippling on blood smear are useful tools to help in OPD or ER clinical setting.

Conclusion

This is a lead poisoning case with clinical presentation of ileus, epigastric discomfort, nausea, vomiting, diarrhea, and with possible neuropathy of both legs. Regardless of the high blood lead level of 83.31 ug/dL, the patient did not develop kidney dysfunction, neurocognitive deficits, or encephalopathy. The diagnosis was established by high level of lead tested on patient blood level and Chinese herbal medicine. The high level of lead content was confirmed by law enforcer on the addition of cinnabar powder (硃砂) to the prescription as tranquilizer.