



Recurrent Abdominal Pain of Unusual Cause: An Elaborative History is always Rewarding!

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Authors' contributions

This work was carried out in collaboration among all authors. Author DPY worked up and assigned the case study. Author SD wrote the first draft of the manuscript and managed the literature searches. Authors SKS and VKD managed the analyses of the study. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Lead poisoning has been recognized as a major public health risk. We present a case of middle aged female, who presented with recurrent episodes of severe abdominal pain, which remains obscure even after thorough clinical evaluation and extensive investigations. Lastly, blood lead levels were ordered which came out to be significantly raised and diagnosis of lead intoxication was made convincingly. On reviewing the case, history of intake of herbal medication containing lead based ingredient justified the diagnosis. Therefore, even though the diagnosis represents a challenge, a physician must always include this possibility in the differential diagnosis for cases with suggestive symptoms.

Keywords: Lead intoxication; nag bhasma; herbal medication; pain abdomen.

1. INTRODUCTION

Lead poisoning has been recognized as a major public health risk, particularly in

developing countries [1]. It may involve major organs. The following case report argument about GI presentation of lead toxicity.

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2. CASE PRESENTATION

A 34 years old woman, resident of North India, presented to us with complaint of diffuse abdominal pain for last 3 days. Pain was acute onset, moderately severe in intensity, colicky, starting from lower abdomen, involving whole abdomen over few hours with increased severity. No precipitating and relieving factors were present. It was not associated with abdominal distention or vomiting.

Patient also gave history of similar episodes in last 2 months. No history of chronic drug intake, substance abuse or surgical intervention in past. She consulted a gynaecologist few months back for primary infertility, but no records were available.

On examination, vitals were stable and mild pallor was present. Per abdomen examination showed diffuse tenderness but no guarding or rigidity was present. Bowel sound were sluggish. Per rectal examination was normal.

Patient was admitted in Acute care unit and Urgent X ray Abdomen erect posture was performed which showed few dilated large bowel loops, but essentially ruled out perforation. She was started on conservative management in the form of restricted diet and IV fluids.

Routine investigations showed moderate Anemia with Hemoglobin of 8 gm/dl (MCV- 72 fL) and low platelets (1.2 lakh/mm³) with normal total leucocyte counts. Liver functions were also mildly deranged in form of transaminitis (SGOT/PT =72/67 IU/L) with normal renal functions and serum amylase/ lipase levels. CT Enterography was done which turned out to be normal.

Patient got improved with conservative measures after 2 days and was discharged on SOS pain killers and laxatives, to follow up for further evaluation.

Just 3 days after discharge, she again presented with similar nature of pain for last 2 days, not associated with vomiting / abdominal distention or non passage of flatus or stools. She was admitted and conservative management was started. Repeat CT Enterography and Angiography was done which was reported normal. Prepared full length Colonoscopy and Esophagogastroduodenoscopy were also performed on the following days, but were

essentially normal. Routine investigations showed bicytopenia in form of Hb=9 gm/dl and marginally low platelets. General blood picture showed predominantly microcytic cells with hypochromia and few cells showing basophilic stippling. Taking clue from that, serum lead levels was ordered, which came out to be raised (75µg/dl, five times the ULN). For making a consolidate diagnosis, it was repeated from another standard lab, which again came high (65 µg/dl). Simultaneously urine porphyrin levels were done, which came out to be normal.

On reviewing the history, patient admitted to consumption of an ayurvedic preparation for last few months for improving her fertility issues. On analyzing the preparation, it was found to contain Nag Bhasma, which contain containing lead as the principle ingredient. The suspected source of exposure in our patient was herbal-based medication (Fig. 1). Though toxicological analysis was not performed, absence of any other source of poisoning and circumstantial evidence of herbal-based medicinal use, which have been widely reported to cause lead poisoning, supports our diagnosis.

Various chelating agents like dimercaprol, ethylene diamine tetra-acetic acid (CaNa₂EDTA), D-penicillamine are available for treatment. We considered the toxicology references [2], and found that only oral chelator (DMSA/Succimer) was recommended for the patient. Succimer, or meso 2,3-dimercaptosuccinic acid(DMSA), is an analogue of dimercaprol. It comes in form of 100/200 mg capsule with a nominal pricing. It was started at the recommended dose of 10 mg/kg three times a day for five days, followed by 10 mg/kg twice a day for next two weeks (maximum 500 mg/dose). Patient improved symptomatically and repeated serum lead levels were also reported within the normal range.

3. DISCUSSION

Common sources of lead exposure include lead paint, lead-acid batteries, soil contamination near factories, lead soldering, cosmetics and herbal-based medications [3].

The ways of contamination include ingestion, inhalation, prenatal exposure, and dermal exposure, but the most important and frequent ones are ingestion and inhalation [4]. The half-life

of lead is between 30 and 40 days in human body and it binds to the sulfhydryl group of proteins leading to toxicity for multiple enzyme systems [5].

There are only a few case reports available from our country of chronic accidental lead exposure leading to toxicity. The clinical presentation of lead poisoning involves nervous, hematologic, and renal systems impairment, but it can also lead to gastrointestinal disorders (anorexia, vomiting, constipation, colicky abdominal pain), hypertension, and fertility impairment [6]. Neurological symptoms include foot/wrist drop, ataxia, stupor, coma, convulsions, hyperirritability. Oral examination commonly reveals the Burtonian line on gum [7]. Impairment of the hematological system may involve either disruption of heme synthesis or hemolysis, leading to Basophilic stippling with microcytic hypochromic anaemia and thrombocytopenia has also been reported.

The effects of lead on the renal system consist of proximal tubular function impairment leading to aminoaciduria, glycosuria [8], and

hyperphosphaturia, interstitial nephritis in chronic exposure, and also impairment of calcium metabolism by interfering with activation of vitamin D 1,2- dihydroxy cholecalciferol.

The findings pertaining to lead poisoning in our patient were - Recurrent abdominal pain (saturnine colics), anaemia, thrombocytopenia and deranged transaminases.

The diagnosis is established on the basis of blood lead levels higher than 10 µg/dl [1]. If a patient is found with high blood lead level, the test must be repeated before considering any therapy. Serum samples of 2-4 ml are taken in a EDTA/ specified container, can be stored at room temperature for a maximum of 6 hours. Lead level in the sample is measured by Atomic Absorption Spectrometry technique with zeeman correction. Chelating agents are recommended only if the level is above 45 µg/dL, and the type should be chosen according to the blood level and symptoms [9]. The available agents nowadays include: 2,3 dimercaptosuccinic acid (DMSA), dimercaprol, ethylene diamine tetra-acetic acid (CaNa2EDTA), D-penicillamine [10].



Fig. 1. Herbal preparation containing Nag Bhasma (Lead)

4. CONCLUSION

In absence of history of lead exposure, poisoning with lead easily may be misdiagnosed. Even though the diagnosis represents a challenge, a physician must always include this possibility in the differential diagnosis for cases with suggestive symptoms. Early diagnosis of lead poisoning by assessing the Serum lead levels in suspected cases can prevent unnecessary investigations and interventions, and permits early commencement of the treatment.

CONSENT

As per international standard or university standard, patient's consent has been collected and preserved by the authors.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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