



ANAEMIA DUE TO LEAD TOXICITY IN PATIENT WITH PROGRESSIVE SUPRANUCLEAR PALSY- A RARE CASE PRESENTATION

Dr.Sanjay Khare*

MD(Internal Medicine)Chief consultant-Internal Medicine Director- Bariatric Medicine Coordinator- Academics & Clinical Training at Apollo Hospital -Navi mumbai. *Corresponding Author

Dr.Kapil Nikam

MBBS.FCPS(Medicine) Children's wellness clinic Sai dhyan apartment sector 20 Kamothe Navi mumbai-410209.

ABSTRACT Anaemia is characterised by decrease in total amount of red blood cells or decrease in level of haemoglobin in blood. We present a case of a patient who had DM, HT and progressive supranuclear palsy (Steele-Richardson-Olszewski syndrome). After having consumed some ayurvedic product, there was a steady fall in Hb, the cause of which was ascertained to be due to lead toxicity.

KEYWORDS : anaemia, lead toxicity , ayurvedic medicine, supranuclear palsy

INTRODUCTION

This patient with progressive supranuclear palsy, out of frustration at not recovering with usual neurological medications, started taking ayurvedic medicine. There was severe weakness and breathlessness within a few days of starting ayurvedic medications. Hb was found to be low. Basophilic stippling was noted on peripheral smear. Lead levels were checked and were found to be high. The ayurvedic powder was analysed and lead content was found to be extremely high.

Anaemia caused by lead toxicity is due to haemolysis, impaired synthesis of red cells and shortened red cell survival. The ayurvedic powder was immediately stopped. Fortunately, patient recovered without having to use any lead chelating agents or blood transfusion.

CASE STUDY

A 55 yrs. old male patient having history of progressive supranuclear palsy (Steele-Richardson-Olszewski syndrome)-3 years, hypertension since 8 years and diabetes mellitus since 5 years, presented to our clinic with complaints of fatigue, weakness and breathlessness since 1.5 to 2 months. Patient had taking some ayurvedic powder in hope of recovery from his neurological condition which had confined him to his bed and deprived him of his employment. His day to day life was quite pitiable. He had to be helped for almost every activity. On clinical examination, patient was conscious, oriented, obeying oral commands. There was severe pallor present. No tachycardia/gallop/ pedal oedema. A soft hemic murmur was heard. Vitals were stable. Spo2-99%. Speech was dysarthric. Cerebellar signs ++, power good. Sensations normal, hyperreflexia++, Ataxic gait ++, Nystagmus++, Skew deviation of eyes++.

Lead toxicity was immediately thought of, as anaemia is associated with lead levels higher than 50 µg/dL.

Lab Reports - Haemoglobin had fallen from 14 to 7.2 in a month. Severely black stool had been noted once in Feb 2017. (details are mentioned in table 1 and 2)

Table 1: LEAD Levels In Blood By TCPMS

04/03/2017	66.03
30/03/2017	54.86
07/07/2017	37.55

Table 2: Levels Of Haemoglobin In Blood

27/09/2016	14.1
08/02/2017	8.9
02/03/2017	8.3
03/03/2017	8.6
14/03/2017	8.2
29/03/2017	9.2
22/05/2017	14.3

Investigations- done with us were complete blood count Renal profile, FT3/FT4/TSH, Stool for routine, microscopic and occult blood (3 samples) Lead levels, Blood group, free erythrocyte protoporphyrin levels.

After doing substance analysis in a reputed Lab, it was confirmed that the ayurvedic preparation that the Patient was consuming, had very high content of lead (as shown in report below), much higher than what was acceptable.^(4,5)

Adverse Drug Reaction Monitoring Cell (Ayurveda)
Ayurveda Research Centre, Dept. of Pharmacology & Therapeutics
Seth G.S. Medical College & K.E.M. Hospital
Parel, Mumbai 400 012.
Tel: 24107482, 24181744, 24121711; Fax: 24121711; e-mail: arckem@gmail.com

REPORT

No. : ARC/ADR/STRM/2017/625 Date: 18/06/2017

Name: Sex: Male
Address: Age: 57 Yrs
Ph. No:
Referred by: Dr. Sanjay Khare

Sample No. : 844
Sample received on: 18/06/2017
Sample: Ayurvedic powder

Results :

Heavy metal	Method used	Amount detected	Limit Stipulated by Dept. of AYUSH*	Patient's daily intake	Av. daily human intake**
Lead	ICP- AES	84,960 ppm	10ppm	84,960 µg	200 µg

*Published by Department of AYUSH (Jan. 2006)
** Goodman & Gilman's Pharmacological basis of Therapeutics, 11th edition, 2006

Note- Name address and contact of patient undisclosed due to professional secrecy

Treatment Plan: After establishing anaemia was due to Lead toxicity, the ayurvedic powder was immediately stopped. Oral agents for lead chelation were considered. The son was in New York and was about to send it. However, patient started recovering with simple withdrawal of the powder containing lead. Since agents like Succimer are themselves not totally harmless, and since he was improving, chelating agents were deferred.⁽⁹⁾ Following a clinical betterment, his Hb was repeated and was indeed on the rise. So, oral chelators were never given. OHA's were stopped and Insulin was introduced. This helped his sugars to normalise, weight to increase and there was a sense of betterment. The sarcopenia also improved. Aggressive physiotherapy was started. High protein diet was instituted.

Course-His lead levels were assessed after every 3 weeks. They fell steadily after simple withdrawal of ayurvedic powder. He started putting on weight. Sugars and BP was under good control. His vague abdominal discomfort and constipation disappeared. There was a definite improvement in his tremors, insomnia, memory, general awareness/intellect in parallel to fall in lead levels. His ataxia too improved marginally and for the first time, he was able to walk on his own without support. His coordination improved to the extent that he was almost self-sufficient. He needed assistance only for shaving. This is not surprising as it's the brain that's most susceptible to lead toxicity.⁽¹⁾

CONCLUSIONS

Lead poisoning is not as uncommon as believed. Toxicities following mining and usage of lead in paints etc have been recorded since centuries, earliest record being two thousand years ago.

Lead generates reactive and toxic radicals which damage DNA and cell membranes , interferes with DNA translation and damages integrity of the cell structure.

Anemia occurs because of resultant fragility of RBC cell membranes.

We often see patients who suffer from chronic debilitating illnesses with no apparent hope of recovery, as in above case. Despite knocking on doors of reputed Doctors/ institutions, when there is no improvement, these patients and their relatives often slide deep into depression and there is a sense of hopelessness. On this background, if a neighbour or a friend tells them about someone having improved with some traditional medicines, they are only too eager to clutch at any and every straw of hope.

1) A lot of these "traditional" medications are not under the purview of existing law. There have been instances of gross deliberate adulteration of ayurvedic medications with corticosteroids, Diuretics, Calcium, lead, arsenic, mercury etc. Needless to say, there are disastrous consequences, as in above case. There must be a stricter Government control on the manufacture and sale of such products.

2) There is a popular misconception that these "traditional" medicines are, at worst, harmless. And even if they may not cure, they'll at least not harm. Nothing can be farther away from truth. In India, lots of ayurvedic preparations are toxically saturated with lead.

3) Just as Allopathic Doctors are accountable to various legal/professional bodies, these "traditional practitioners" too

MUST be made to follow some code of conduct and adhere to some law. This will go a long way in preventing cases like the one described above.

REFERENCES

- 1) "Lead poisoning and health". WHO September 2016. Archived from the original on 18 October 2016. Retrieved 14 October 2016.
- 2) Rossi, E (2008). "Low Level Environmental Lead Exposure – A Continuing Challenge". *The Clinical Biochemist. Reviews / Australian Association of Clinical Biochemists.* 29 (2): 63–70. PMC 2533151. PMID 18787644
- 3) Karri, SK; Saper, RB; Kales, SN (2008). "Lead Encephalopathy Due to Traditional Medicines". *Current Drug Safety.* 3(1): 54–9. doi:10.2174/157488608783333907. PMC 2538609. PMID 18690981
- 4) "Advisory Committee On Childhood Lead Poisoning Prevention (ACCLPP)". CDC. May 2012. Archived from the original on 4 May 2012. Retrieved 18 May 2012.
- 5) *The Code of Federal Regulations of the United States of America.* U.S. Government Printing Office. 2005. p. 116. Archived from the original on 2017-11-05
- 6) Dapul, H; Laraque, D (August 2014). "Lead poisoning in children". *Advances in Pediatrics.* 61 (1): 313–33. doi:10.1016/j.yapd.2014.04.004. PMID 25037135.
- 7) Needleman, H (2004). "Lead poisoning". *Annual Review of Medicine.* 55: 209–22. doi:10.1146/annurev.med.55.091902.103653. PMID 14746518