

Introduction

We present a unique case of acute iron toxicity in a young adult. There is limited evidence regarding acute iron toxicity in the adult population, likely due to a paucity of patients with the presentation. However rare this pathology may be, it is still pertinent to be familiar with the evaluation, management, and prognosis associated.

Clinical Presentation

- ❖ 18-year-old female presented with acute liver failure in the setting of intentional overdose with ~90 tablets of over-the-counter iron supplements and unknown amount of ibuprofen
- ❖ Past medical history consisted of depression and gender dysphoria on testosterone therapy
- ❖ She presented to the emergency department after an undetermined interval of time following ingestion, but was cognitively intact and hemodynamically stable
- ❖ Tonic-clonic seizure and hematemesis quickly developed
- ❖ Endotracheal intubation was performed for airway protection
- ❖ Immediate EGD with washout performed in attempt to remove residual iron/ibuprofen; additional EGD with washout was needed for continued hematemesis, with hemospray needed to treat diffuse mucosal oozing of the stomach
- ❖ She was promptly initiated on chelation therapy, CRRT, and N-Acetylcysteine
- ❖ Worsening hepatic dysfunction ultimately led to initiation of transfer to a facility with transplant capabilities



Figure 1. Abdominal X-ray on presentation.

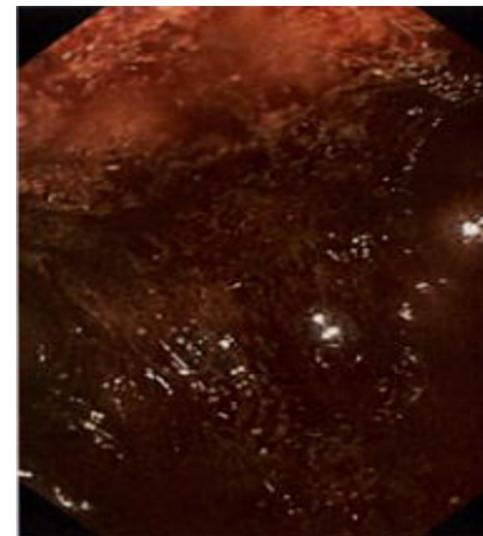


Figure 2. EGD image of the stomach lining with residual ferrous sulfate

	4/19 (0112)	4/19 (0956)	4/19 (1836)	4/19 (2130)	4/20 (0620)
AST	17	40	1252	2482	4433
ALT	9	31	1240	2419	3150
ALP	59	50	64	62	76
T. Bili	0.4	1.7	2.9	3.2	3.6
D. Bili	0.08	–	1.85	1.92	2.06

Table 1. AST: Aspartate transaminase; ALT: Alanine transaminase; ALP: Alkaline Phosphatase; T. Bili: Total Bilirubin; D. Bili: Direct Bilirubin

	4/19 (0116)	4/19 (0410)	4/19 (0956)	4/19 (1305)	4/20 (0215)	4/20 (0620)
PT	14.8	30.1	47.9	62.3	43.3	38.8
INR	1.3	2.6	4.1	5.3	3.7	3.3

Table 2. Liver function prior to liver transplantation.

	4/19 (0112)	4/19 (0410)	4/19 (0751)	4/19 (0956)	4/20 (2130)	4/20 (1010)
Fe	320	>3000	2325	1020	282	232

Table 3. Serum iron levels prior to liver transplantation

Discussion

- ❖ Acute iron toxicity (AIT) is more common in the pediatric population¹
- ❖ AIT affects numerous physiological processes and organ systems (i.e., GI, cardiovascular, metabolic, hepatic, central nervous system)¹
- ❖ The toxicity of oral iron depends upon the amount of elemental iron ingested
- ❖ The most common formulation given is ferrous sulfate 325 mg which contains 65 mg elemental iron (equivalent to 200 mg desiccated ferrous sulfate) per tablet
- ❖ As little as 20mg/kg elemental iron can cause symptoms of AIT; severe AIT is seen around 60mg/kg or higher²
- ❖ The manifestation of AIT occurs in 4 clinical phases: (I) GI toxicity; (II) apparent stabilization; (III) mitochondrial toxicity and hepatic necrosis; (IV) gastric scarring²
- ❖ Management consists of whole bowel irrigation, chelation therapy (deferoxamine), extracorporeal removal with exchange transfusion or continuous veno-venous hemofiltration, and/or liver transplantation³

Conclusion

The patient's hepatic dysfunction continued to worsen despite maximal therapeutic efforts. She was transferred to a tertiary care center with transplant capabilities and received a partial liver transplant 3 days following transfer; she has been living a full life since.

References

1. Abhilash KP, Arul JJ, Bala D. Fatal overdose of iron tablets in adults. Indian J Crit Care Med. 2013;17(5):311-313. doi:10.4103/0972-5229.120326
2. Chang TP, Rangan C. Iron poisoning: a literature-based review of epidemiology, diagnosis, and management. Pediatr Emerg Care. 2011;27(10):978-985. doi:10.1097/PEC.0b013e3182302604
3. Milne C, Petros A. The use of haemofiltration for severe iron overdose. Arch Dis Child. 2010;95(6):482-483. doi:10.1136/adc.2009.171454