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## Iron pill induced gastritis in children with iron deficiency anemia

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### Abstract

Iron deficiency anemia (IDA) is the most common nutritional anemia in India, which is managed with oral supplementation of iron. Gastritis induced with these iron pills is a common complication following of oral iron (ferrous sulfate) supplementation. So proper care must be taken when iron supplementation is prescribed. When the side effects are encountered, oral iron is stopped, and treatment should be started immediately.

**Keywords:** Iron deficiency anemia, end stage renal disease, acute iron toxicity

### Introduction

Iron, a major micronutrient is abundantly present in the body. It is a major constituent of many biologically active molecules such as hemoglobin in the red blood cells and myoglobin. Most of the absorption of enteral iron occurs in duodenum and jejunum [1-2]. Anemia due to Iron deficiency can lead to many disorders like neurological and cognitive dysfunctions [3]. Oral supplementation of iron is available as formulation of ferrous salts (Ferrous sulphate, ferrous gluconate, ferrous fumarate) and iron dextran. Ferrous sulfate is the most used oral iron supplementation even though it can cause side effects like Gastropathy at therapeutic levels. It comes in two forms, ferrous iron, and ferric iron [4-6]. Both the forms play an important role in the formation of free radicals leading to local damage. Acute iron toxicity in children is mostly due to unintentional consumption of iron tablets, as they look like chocolates [7].

### Case Presentation

A 12-year-old boy came to the casualty with progressive epigastric pain for 2 days. Oral intake has decreased since then. He underwent a renal transplant 4 years ago due to reflux nephropathy causing ESRD (end stage renal disease) and has been on immunosuppressive therapy since then. He was on oral iron for Iron deficiency anemia about 50 days before the presentation. The blood picture of the child showed hemoglobin 10.2 g per dL, hematocrit 33%, mean cell volume 78fL, ferritin levels 9 ng/ml, iron 6 micro mol/L, transferrin 33 micro moles/L, 7% transferrin saturation. Endoscopy shows red patches, thick gastric mucosal folds, and exudate at the antrum of the stomach and the 1st part of the duodenum. Multiple biopsies were examined. They show areas of sloughed epithelium and mucinous material. In the damaged areas there were collections of eosinophils and lymphocytes. Brown deposits were seen on the mucosa which was confirmed by prussian blue staining as iron deposits. Helicobacter pylori was not present in the biopsies. Patient was asked to stop the iron supplements immediately and was prescribed omeprazole 20mg BD. The boy got better in 4 days and symptoms got resolved completely in a month when he came for the follow up.

### Discussion

Gastric siderosis is the term used for accumulation of iron in gastric mucosa. This condition is associated with oral iron supplements which is the most common cause, blood transfusions, hemochromatosis, excess alcohol consumption and hepatic cirrhosis [8]. Gastric siderosis caused due to oral iron tablets is called Iron pill induced gastritis. Its clinical manifestations are abdominal pain of diffuse type, nausea, and vomiting [9]. Endoscopy and biopsy is used for investigating this condition.

Brownish yellow discoloration, ulcerations and erythematous changes are seen in the endoscopy. Biopsy helps in finding the exact site of involvement. In Gastric siderosis, there are inflammatory and regenerative changes [10].

In iron pill induced gastritis there is extracellular deposition of iron in the blood vessels, macrophages, and epithelium [11-12]. Treatment of iron induced gastritis if unidentified will lead to malabsorption leading to malnutrition and failure to thrive (FTT), developmental delay and hemorrhage [13]. Sulphate salts of iron is associated with most of the gastrointestinal side effects. Some studies have suggested that iron pill induced gastritis is mainly caused by tablet preparations and can be resolved by changing to liquid forms [14].

### Conclusion

Administration of proton pump inhibitors like omeprazole or H2 receptor antagonists is useful for treatment. Iron supplementation orally must be followed up any pill induced side effects as well as response. In case of severe drug induced side effects, child should be admitted and evaluated.

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### Author's Contribution

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### Conflict of Interest

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