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Pernicious Anemia and Iron Deficiency Anemia associated with Autoimmune Gastritis and Vitiligo

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Abstract

We present here the rare case of Pernicious Anemia and Iron Deficiency Anemia in a young female patient aged 23, who had been diagnosed and treated for gastritis over the past 4 years, and had developed generalized vitiligo 5 years prior to presentation. The patient resulted with autoimmune gastritis, positive anti-intrinsic factor antibodies. This case may be of interest in evaluating anemias in young patients when associated with co-existing autoimmune conditions.

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CASE REPORT

A young female patient aged 23, uniparous, presents at the outpatients' clinic on September 2019, with signs of an anemic syndrome which included: hair loss, palpitations, weakness, loss of concentration. She also complained of mild numbness on the tips of her fingers involving hands and feet. The patient referred she developed generalized vitiligo by the age of 18. She referred she had been diagnosed and treated for gastritis over the last 4 years. She referred she had been anemic for years, tried many oral iron formulas with no apparent results, while experiencing various gastro-intestinal side effects. Her menstruations pattern was normal.

On clinical examination the patient had generalized vitiligo with asymmetrical depigmented patches around both her eyes, her nose sides and the left side of the mouth, her neck, both her hands, on the right side of the chest, and on both legs involving feet and knee area; pale mucosae; brittle nails; hair loss; no marked hepatosplenomegaly; normal cardiac and pulmonary tests.

On presentation the hematologic values were: white blood cells 2300/ µL, red blood cells 3.820.000/µL, hemoglobin 10.1g/dL, hematocrit 31%, mean corpuscular volume 90fL, mean corpuscular hemoglobin 25.8pg, platelets 160.000/ µL. Ferritin level resulted 7.829 ng/mL, Folic Acid level was 2.375 ng/mL, Vitamin B12 level was 159.2pg/mL. The patient's endoscopy resulted in atrophic gastritis. Anti-intrinsic factor antibodies were evaluated and resulted positive.

Therefore, a diagnosis of autoimmune gastritis (AIG) was made, pernicious anemia (PA), iron deficiency anemia (IDA), associated with generalized autoimmune vitiligo. The decision to start iv iron sucrose was made, and intramuscular vitamin B12 injections, as well as oral folic acid and vitamin B6 was given to the patient. Follow up of the patient is done every 8 weeks with complete blood counts, ferritin level, as well as folic acid and B12 levels.

The patient continues taking monthly intramuscular injection of 1000mcg vitamin B12, while continuing on folic acid and vitamin B6 orally, 1 tablet per day respectively. She will be injected 200mg of iron sucrose every 8 weeks to reduce the risk of developing iron deficiency.

DISCUSSION

Vitiligo is a long-term condition where pale white patches develop on the skin. It is caused by the lack of melanin, a pigment in the skin (1).

The frequencies of six autoimmune disorders were found to be significantly elevated in vitiligo probands which included amongst others pernicious anemia, and inflammatory bowel disease (2). Our patient had generalized vitiligo, autoimmune gastritis, pernicious anemia which supports the high frequency of concomitant autoimmune disorders in vitiligo patients.

As a histopathologic entity Atrophic Gastritis is characterized by chronic inflammation of the gastric mucosa, accompanied by loss of the gastric glandular cells and replacement by intestinal-type epithelium, pyloric-type glands,

and fibrous tissue (3). Due to extensive loss of parietal cell mass and anti-intrinsic factor antibodies, individuals with autoimmune gastritis may develop pernicious anemia (4).

The term “achylia gastrica" derived from abnormal gastric secretin in patients with AIG (5,6). A reduced iron uptake was found by Cook et al., who evaluated the absorption of dietary non-heme iron in controls vs. AIG patients (19.8 vs. 35 %) (7). On the other hand, AIG patients are largely refractory to oral iron therapy (8,9). The likely causes of iron deficiency in AIG are: decreased uptake of inorganic iron due to missing reduction of ferric iron, missing degradation of iron–protein complexes as a result of lack of gastric acid, and reduced levels of ascorbic acid (10).

Vitamin B12 deficiency in AIG is not only due to loss of intrinsic factor if parietal cells are destroyed, but is also caused by loss of gastric acid, which, on the other hand, is needed for the release of the vitamins from food sources (10). Our patient had previously been treated orally with iron formulas with no significant improvement. She developed IDA and PA years after being diagnosed with vitiligo and gastritis, which turned out to be autoimmune.

Although AIG impairs both iron and vitamin B12 uptake, iron deficiency will be found at a younger age and many years before the development of pernicious anemia (8), as in younger (premenopausal) woman menstrual blood loss (and pregnancies) is an additional burden to iron metabolism. This is supported by results of several epidemiologic studies (8,11,12,13). Our patient referred she had had anemia for years, she had given birth once, while her menstruation pattern showed no excessive blood loss.

Pernicious anemia is a rather late finding in AIG and diagnosed mainly in elderly patients (8). The prevalence of PA in young <30 years is 4% (14). Due to the fact that our patient is young, we suggest that in the findings of autoimmune diseases in young patients with anemia, gastro-intestinal autoimmune diseases should be ruled out.

Endoscopy is regarded as the gold standard investigation for diagnosis of AIG (10). AIG is deemed as a risk factor for the development of gastric carcinoma and carcinoids while presence of PA increases the risk further (15). The patient was advised to undergo endoscopic surveillance with biopsy every 3 years as per European MAPS (Management of Precancerous Conditions and Lesions in the Stomach) guidelines (16).

Although some patients with gastrointestinal tract diseases may respond to oral iron supplementation, recent evidence from clinical studies and clinical experience supports that IV iron repletion is preferable (17). IV iron is more efficacious than oral iron in gastrointestinal tract diseases, because of low iron absorption from the GI tract and lower adherence to oral therapy (18).

CONCLUSIONS

As AIG and PA are often under-diagnosed entities, while evaluating a patient with

autoimmune disorders it is crucial to search for co-existence of any other autoimmune disorders. We suggest that young patients, under 30 years of age, who present with vitiligo or any other autoimmune disorder, and develop anemia, PA should be ruled out. We suggest that any patient presenting with vitiligo should be monitored long term for the development of PA, as well as other autoimmune disorders.

We conclude that oral iron therapy ought to not be regarded as a possible treatment when dealing with autoimmune disorders. Instead, we suggest iv iron therapy as the only IDA treatment in autoimmune patients involving gastrointestinal tract. Follow up must not exceed 8 weeks, with ferritin level and CBC checks, in order to keep anemia under control. Thus, we suggest maintenance iv iron therapy every 8 weeks.

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