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| RESEARCH ARTICLE

Evans Syndrome and Hashimoto's Thyroiditis in Pregnancy: A Case Report

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| ABSTRACT

Evans syndrome is a combination of autoimmune hemolytic anemia and idiopathic thrombocytopenic purpura. Evans syndrome is a rare disease encountered in medical practice. Evans syndrome can also co-occur with other autoimmune diseases, such as Hashimoto's thyroiditis, although rare. Hashimoto's thyroiditis is a condition that causes hypothyroidism, where the thyroid gland cells are destroyed so that the thyroid hormone produced cannot meet the body's needs. This case report describes a pregnant female patient who has several autoimmune conditions, namely Evans Syndrome and Hashimoto's Thyroiditis. The patient came to the hospital with bruises on the abdomen and waist and felt weak, tired, and lethargic. The previous examination showed that this patient had positive anti-platelet and anti-TPO test results, enlarged liver and spleen on ultrasound examination, and thyroid hormone examination, which showed hypothyroidism. A physical examination of the patient also showed minimal enlargement of the thyroid gland and bruising on the patient's body. The results of routine blood tests showed a decrease in hemoglobin, hematocrit, erythrocyte, and platelet counts. Morphological examination of the peripheral blood revealed the appearance of macroovalocytes and burr cells. During treatment in the ward, the patient was given therapies such as methylprednisolone, levothyroxine, and blood transfusions. During 9 days of treatment in the ward, the patient's clinical condition improved, and there was an increase in hemoglobin, hematocrit, erythrocyte, and platelet counts. The patient was discharged in good condition.

| KEYWORDS

Evans Syndrome, Hashimoto's Thyroiditis, Pregnancy

| ARTICLE INFORMATION

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1. Introduction

Evans syndrome is an autoimmune condition that presents with two or more types of cytopenias, such as autoimmune hemolytic anemia and idiopathic thrombocytopenia purpura with or without immune neutropenia. This disorder is caused by the presence of autoantibodies that destroy erythrocytes, platelets, and sometimes neutrophils, resulting in a reduced blood cell count (Jaime-Pérez, 2018). Hashimoto's thyroiditis is an autoimmune condition that attacks the thyroid gland destroying thyroid cells (Kasper, 2022). This condition is rarely seen together with Evans syndrome. Evans syndrome is an idiopathic disease and is diagnosed with exclusion (Shaikh, 2022). However, several previous case reports have reported that it is associated with other diseases, such as Hashimoto's thyroiditis. We report an interesting case of Evans Syndrome and Hashimoto's Thyroiditis in a gravid woman.

2. Case Illustration

A woman, 35 years old, gravid G2P0A1 16 weeks, came with complaints of weakness and cold sweat. Complaints such as cough, fever, and shortness of breath the patient denied. The patient previously had a history of autoimmune thrombocytopenic purpura (platelet autoantibodies +) and Hashimoto's thyroiditis (Anti-TPO +). On physical examination, the patient was generally in moderate pain, fully conscious, with a blood pressure of 100/70 mmHg and a height of 143 cm. This woman has minimal enlargement of the thyroid gland; there was no jaundice, enlarged lymph nodes, or bruises found on the body. Routine blood examination and peripheral blood morphology showed hemolytic anemia and thrombocytopenia with low levels of hemoglobin,

hematocrit, erythrocyte count, platelets (Hb 9.7 g/dl, Leukocytes 6650/m, Platelets 26000/uL, MDT described normochromic normocytic anemia with neutrophilia and thrombocytopenia with Burr cell +1, macro-ovalocyte +1) suggesting a hemolytic state.

Table 1. The results of the patient's routine blood examination when admitted to the ward

Examination	Result	Reference Value	Unit
Hb	9.7	12.0-15.8	g/dL
Ht	28.5	35.4-44.4	%
Leukocytes	6.65	3.54-9.06	x $10^3/mm^3$
Erythrocytes	3.41	4.00-5.20	million/µL
Platelets	26	165-415	thousand/µL
Basophils	0.5	0.0-2.0	%
Eosinophils	2.4	0.0-6.0	%
Neutrophils	89.2	40.0-70.0	%
Lymphocytes	3.2	20.0-50.0	%
Monocytes	4.7	4.0-8.0	%
NLR	27.88		
ALC	212.80		
RDW	13.6	<= 14.5	%
MCV	83.6	79.0-93.3	fL
MCH	28.4	26.7-31.9	pg/dL
MCHC	34.0	32.3-35.9	g/dL

Table 2. The results of the blood sugar examination, anti-platelet, and thyroid examination

Examination	Results	Reference value	Unit
Blood Sugar	116	<= 140	mg/dl
Platelets antibody	Positif (0,393)	Negative: <0,15 Borderline: 0,15-0,2 Positive : >0,201	
TPOAb	4820,62	<5,61	IU/ml
T3	1,6	1,2-2,1	nmol/L
T4	10,23	70-151	nmol/L
TSH	86,16	0,5-8,9	mikroIU/ml

The patient was diagnosed with Evans Syndrome based on the results of several examinations on the physical examination and previously written support; previous investigations were also suspected of supporting the diagnosis leading to Evans Syndrome, such as thyroid ultrasound results which showed enlargement and features of thyroiditis in the form of hypoechoic parenchyma and increased vascularity of the thyroid right and left lobes, abdominal ultrasound showed an enlarged spleen and liver. Overall,

the results of the examination in this patient found an enlarged thyroid gland; positive results for anti-TPO, Anti-platelet; hemoglobin level, hematocrit, erythrocyte count, and platelet count; increased vascularity of the thyroid gland and hypoechoic thyroid parenchyma on thyroid ultrasound; enlargement of the liver and spleen on abdominal ultrasound The therapy given was methylprednisolone, levothyroxine, and packed red cell (PRC) transfusion. After one week of treatment, the patient improved clinically and experienced an increase in the hemoglobin count, hematocrit, erythrocyte count, and platelet count to 9.9 g/dl; 29.2%; 3460000/uL; 127000/uL consecutively. This patient also performed immunoserology tests such as Anti-dsDNA and Rheumatoid Factor, and the results were negative on both tests.

Table 3. The Results Of The Patient's Routine Blood Tests Before Being Discharged

Examination	Results	Reference Value	Unit
Hb	9.9	12.0-15.8	g/dL
Ht	29.2	35.4-44.4	%
Leukocytes	9.20	3.54-9.06	x $10^3/mm^3$
Erythrocytes	3.46	4.00-5.20	million/µL
Platelets	127	165-415	thousand/µL
RDW	14.1	<= 14,5	%
MCV	84.4	79.0-93.3	%
MCH	28.6	26.7-31.9	%
MCHC	33.9	32.3-35.9	%

3. Discussion

Autoimmune disease is a disease in which the patient's immune system attacks the patient's body cells. Body cells that are the target of the immune system can be specific, or the immune system can affect the body system systemically (Koti, 2013). In Evans syndrome, the immune system attacks blood cells in humans. This syndrome results from a combination of different autoimmune conditions, such as autoimmune hemolytic anemia, idiopathic thrombocytopenia purpura, and autoimmune neutropenia (Shaikh et al., 2022). The combination of autoimmune hemolytic anemia and idiopathic thrombocytopenia purpura is the most common in patients. These two conditions can occur separately, with one of the conditions occurring first followed by the other or the conditions occurring simultaneously (Martinez, 2022). This autoimmune condition is caused by many causes, such as infection, malignancy, post-vaccination, genetics, drugs, and pre-existing autoimmune conditions, and even the cause is unknown, so that in diagnosing this disorder must go through a thorough history and examination. The disease course of Evans syndrome is caused by an alteration of the regulation of the immune system where there is an inhibition of the work of regulatory T cells and a low CD4:CD8 ratio. This reduces the work of regulatory T cells and produces a lot of cytotoxic T cells, resulting in an autoimmune mechanism that attacks erythrocytes and platelets (Jaime-Pérez et al., 2016). Clinical examination results that can be found in Evans syndrome are that the patient will experience anemia, thrombocytopenia, poikilocytosis, increased serum lactate dehydrogenase (LDH), positive antiplatelet, enlarged liver and spleen, and positive results on direct antiglobulin test (DAT) (Koti et al. 2013). In this case, there were symptoms of anemia, thrombocytopenia, positive results on the platelet antibody, and poikilocytosis in the form of burr cells on peripheral blood examination and enlargement of the liver and spleen. Clinical symptoms that can be found in Evans syndrome are weakness, fatigue, lethargy, pallor, jaundice, petechiae, ecchymosis, bleeding gums, and nosebleeds.[5] In this patient, symptoms of anemia were found, such as weakness, fatigue, lethargy, and bleeding, such as ecchymosis in the abdomen, so it supports the diagnosis of Evans syndrome. Immunoserology tests such as Anti- dsDNA and Rheumatoid Factor also has been done to exclude other causes of anemia and thrombocytopenia. Both tests' results were negative.

In addition, this patient also had Hashimoto's thyroiditis. Hashimoto's thyroiditis is an autoimmune disease that attacks the cells of the thyroid gland and causes damage to the gland. Hashimoto's thyroiditis is usually associated with molecular mimicry mechanisms after infection, mutations in the human leukocyte antigen (HLA) gene, and failure of central and peripheral tolerance (Koti, 2013). In Hashimoto's thyroiditis, there is an inflammatory process in the thyroid gland due to lymphocytic infiltration, which causes the formation of germ nuclei and oxyphil metaplasia. Over time, Hashimoto's thyroiditis results in fewer healthy cells and enzymes remaining to synthesize sufficient amounts of thyroid hormone for the body's needs. This process also results in the failure of colloid follicular formation and fibrosis formation that extends to an atrophic thyroid gland (Setiati, n.d). A positive result

on anti-TPO is a reliable finding for diagnosing Hashimoto's thyroiditis. This patient's case was also found to have positive results on anti-TPO examination and physical examination; there was a minimal enlargement of the thyroid gland and low free T4 results and TSH values that were more than normal, so the patient was diagnosed with Hashimoto's thyroiditis (Bickley et al. 2017).

Autoimmune disease may also occur concurrently. Patients have Evans syndrome and Hashimoto's thyroiditis. Cases like this are very rare. As far as the author's knowledge, there are only 5 cases that have been published to date, and no cases have occurred in gravid patients. Globally, the incidence of Evans syndrome accompanied by Hashimoto's thyroiditis is only 2%, so clinically, this case is very rare (Oh et al. 2011). There is no theory that can link Evans syndrome and Hashimoto's thyroiditis; one hypothesis is the possibility that these two diseases have the same immunopathogenic pathway that causes a person affected by one of these autoimmune conditions to be susceptible to other autoimmune diseases that are associated with the first autoimmune conditions such as Evans syndrome and Hashimoto's thyroiditis (Hanafy et al. 2018). Associated with pregnancy itself can affect the condition of Evans syndrome and Hashimoto's thyroiditis disorder experienced by the patient. Pregnancy can trigger the reactivation of T helper 2 (Th2) cells which causes an increase in the humoral immune system. The humoral immune system can induce the activity of Th1 and Th17 cells to trigger an autoimmune reaction. In addition to this trend, it is also associated with the presence of other contributing factors, such as infection, HLA gene mutations, and a history of autoimmune disease (Piccinni, 2016).

4. Conclusion

We have reported a case of Evans syndrome in pregnancy with Hashimoto's thyroiditis. This case is a very rare case where these two autoimmune conditions can share the same immunopathogenic pathway. Autoantibodies can be passed down transplacentally, which will have an impact on the fetus that can increase pregnancy morbidity and mortality. This, of course, complicates both diagnosis and therapy. In this case, adequate corticosteroid therapy, blood transfusion, and multidisciplinary intervention have responded well.

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