

# A Case of Autoimmune Hemolytic Anemia

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**Abstract:** Autoimmune hemolytic anemia occurs when your immune system makes antibodies that attack your red blood cells. It can be primary [idiopathic] or result from an underlying disease or medication. There are two main types of autoimmune hemolytic anemias-warm antibody and cold antibody hemolytic anemias. Warm antibody autoimmune hemolytic anemia is more commonly seen. The first line of treatment in this warm antibody autoimmune hemolytic anemia is glucocorticosteroids and blood transfusion.

**Keywords:** Autoimmune hemolytic anemia, Warm antibody autoimmune hemolytic anemia, Cold antibody hemolytic anemia, W-AIHA, DAT CARD, DAT antibody screening, IgG&C3d

## 1. Introduction


Autoimmune hemolytic anemia occurs when your immune system makes antibodies that attack your red blood cells. This causes a drop in the number of red blood cells, leading to hemolytic anemia.

## 2. Case Report

A 7 years old Female child born to 3<sup>rd</sup> degree consanguinous marriage brought with complaints of pallor since 1 month, fever since 2 weeks, high colored urine (dark brown) since 1 week, facial puffiness and breathlessness since 3 days. On examination there was hepatosplenomegaly, gross pallor and icterus. Hb-3.8g%, peripheral smear showed microcytic hypochromic anemia with few pencil cells, tear drop cells with relative lymphocytosis, reticulocyte count 5.6%, there was repeatedly mismatching of blood group and

incompatibility for cross matching. Direct coombs test was done it was 4+, urine routine showed no RBCs though there was dark brown urine, serum ferritin 362ng/ml, serum iron 104mcg/dl, transferrin saturation 34.1%. USG abdomen was done liver 11.5cm, spleen 12.6cm other solid organs normal, MP smear, IgM dengue, IgM scrub, IgM leptospira were negative, COVID IgG Antibodies -3.27 non reactive. In view of gross pallor, blood transfusion was done with least incompatible blood. Immunohematological work up done. Differential DAT card showed presence of IgG & C3d suggestive of warm autoantibodies. As per autoimmune hemolytic anemia treatment with steroids i.e., IV methyl prednisolone and prednisolone was started.

There was gradually decrease in dark color urine to normal color and fall in Hb was decreased. So diagnosis of autoimmune hemolytic warm autoantibodies was made.

Immunohematological workup done at our department:										
<b>I. Tube Technique:</b>										
1. Blood grouping and Rh typing at room temperature:										
Forward						Reverse				
Anti-A	Anti-B	Anti-AB	Anti-H	Anti-D1	Anti-D2	A Cells	B Cells	O Cells		
0	4+	4+	4+	4+	4+	4+	0	0		
2. Direct Anti Human Globulin Test: 4+										
3. Indirect Anti Human Globulin Test:										
IS			37°C			AHG				
0			2+			4+				
4. Auto Control:										
IS			37°C			AHG				
1+			1+			4+				
<b>II. Column agglutination technology:</b>										
1.										
DAT			IAT			AC				
4+			3+			3+				
2. Differential Card:										
IgG		IgA		IgM		C3d		C3c		
3+		1+		1+		3+		0		
3. Antibody Screening:										
I			II			III				
3+			3+			3+				
4. Antibody Identification:										
I	II	III	IV	V	VI	VII	VIII	IX	X	XI
3+	3+	3+	3+	3+	3+	3+	3+	3+	3+	3+
<b>Interpretation:</b>										
<ul style="list-style-type: none"> <li>Blood grouping &amp; Rh typing: <b>B Rh D Positive.</b></li> <li>DAT, AC, IAT, Antibody screening &amp; identification with all reagent cell panels were positive which suggests the presence of both auto &amp; allo antibodies.</li> <li>Differential DAT card showed the presence of IgG &amp; C3d, suggestive of <b>Warm autoantibodies.</b></li> <li>Since the patient had been transfused recently, adsorption and elution techniques couldn't be carried out to identify the specificity of the alloantibodies. Three months transfusion-free interval is necessary to do the same.</li> <li>Clinical management of WAIHA shall be continued.</li> <li>If blood transfusion is needed in emergency, group specific least incompatible PRBCs shall be transfused under steroidal / Intravenous Immunoglobulin coverage.</li> </ul>										
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Image showing immunohematological work up

### 3. Discussion

Autoimmune haemolytic anemia can be primary (idiopathic) or result from an underlying disease or medication. There are two main types of autoimmune haemolytic anemias warm antibody and cold antibody hemolytic anemia. The disease is characterized by symptoms related to anemia, including fatigue, difficulty in breathing, jaundice, dark urine, chest pain, syncope or heart failure may occur.

### 4. Conclusion

Autoimmune hemolytic anemia caused by warm auto antibodies i.e., antibodies that react with their antigens on the red blood cell optimally at 37<sup>0</sup>C, is the most common type, compromising 70% to 80% adult cases and 50% of pediatric cases. The first line treatment of warm autoimmune haemolytic anemia glucocorticosteroids and likely transfusion.

### References

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