

Introduction

- Cold agglutinins are usually IgM antibodies which are pentameric, allowing them to bridge the distance between red blood cells.
- Pathogenic cold agglutinins often have a thermal amplitude of 82 degrees F or higher.
- Cold agglutinin syndrome (CAS) is an uncommon complication in viral infections like infectious mononucleosis despite the common production of cold agglutinins.

Case

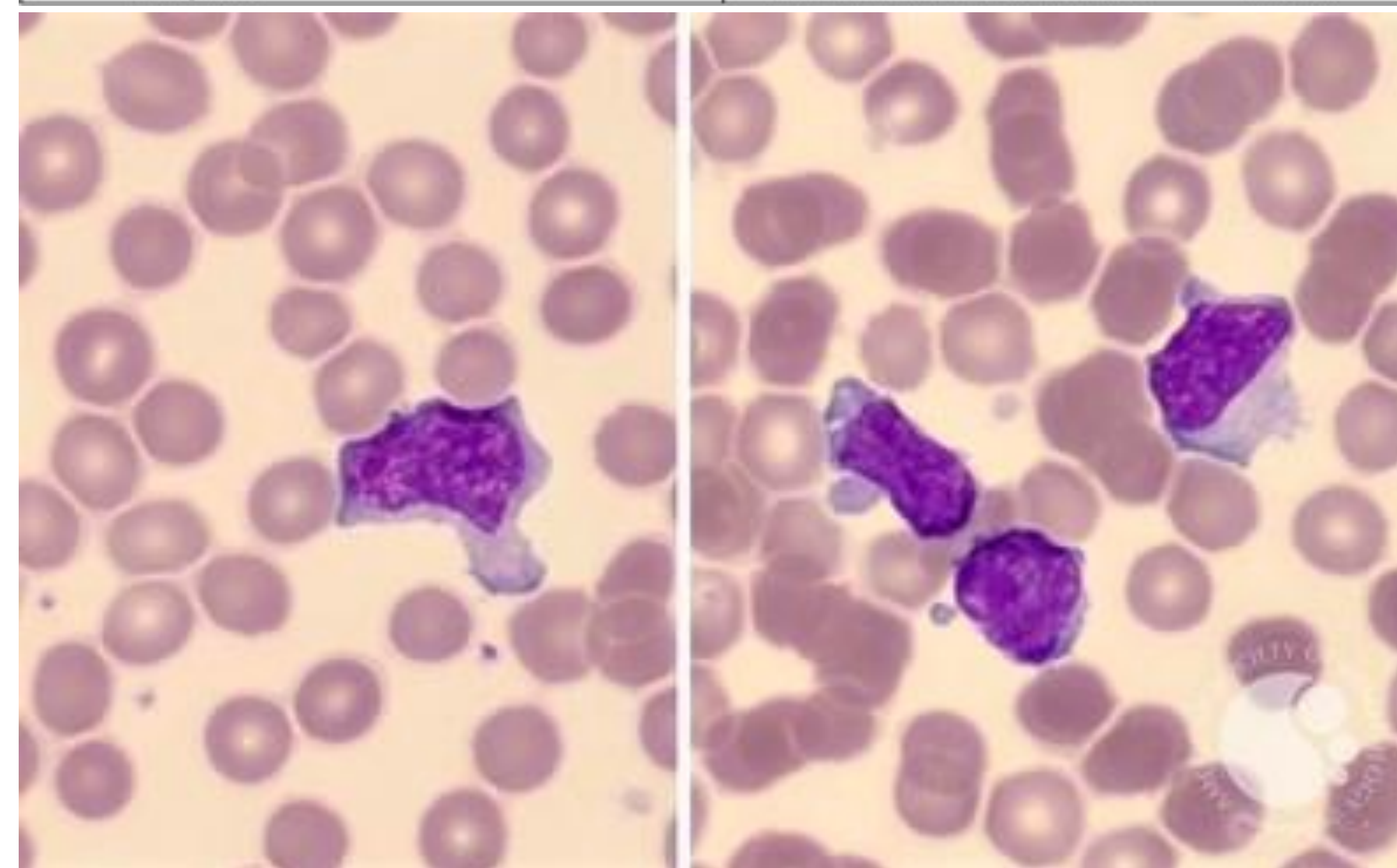
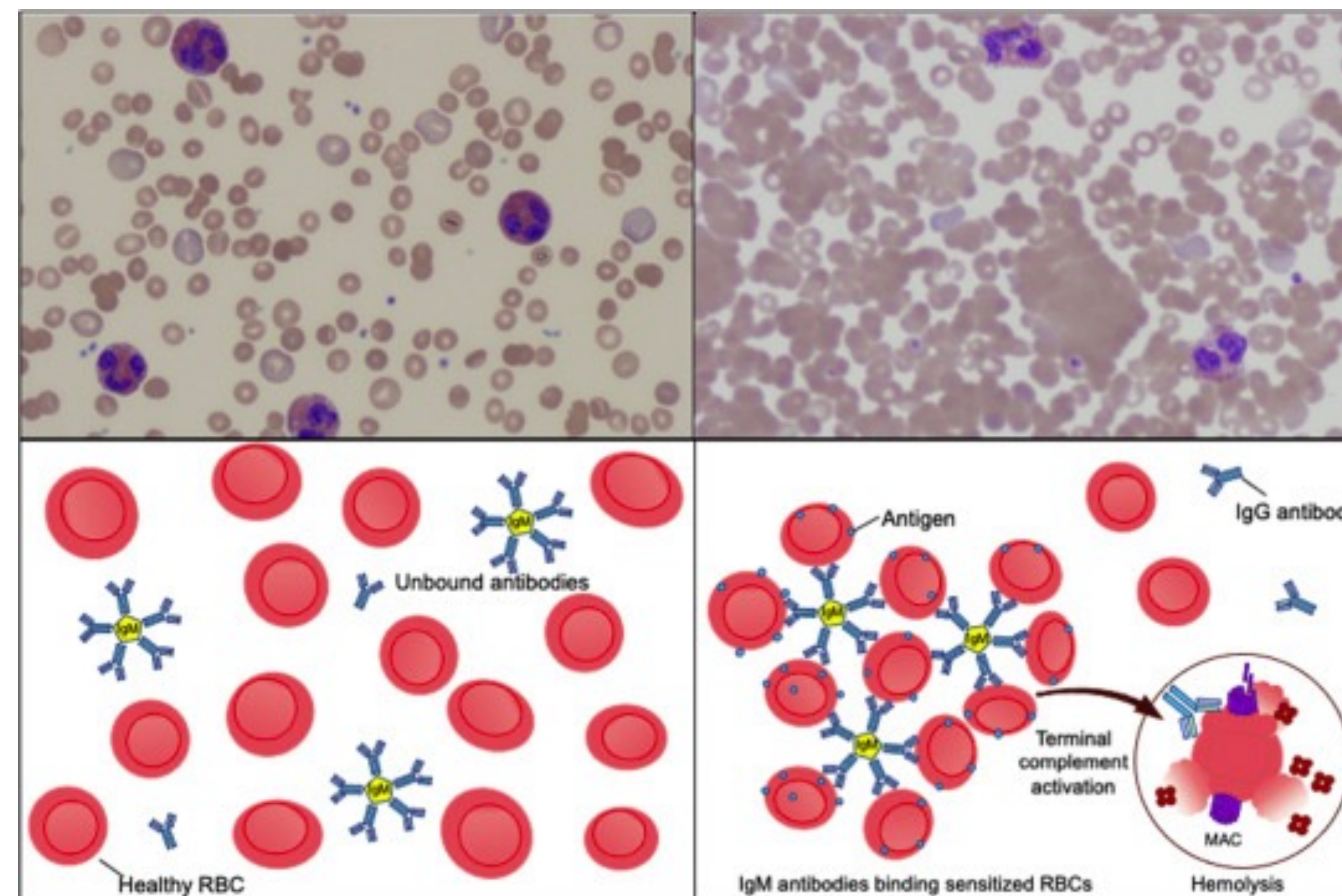
27-year-old male presents with B-symptoms, myalgias, decreased urine output, nausea, vomiting, LUQ abdominal pain, loss of appetite, shortness of breath with exertion that has been going on for the past 4 days. He went to urgent care prior to arrival to the ED. Vital signs show a fever of 103, HR 132, RR 28, BP 120/80.

- **Familial History:** DVT/PE history, remote possible familial history of stroke and breast cancer
- **Social History:** Denies cigarette use. Rare alcohol use. Confirms occasional marijuana use. Enjoys working outdoors. States that he works at a food bank.
- **Physical Exam:** hepatosplenomegaly
- **Labs:** elevated anion gap, mild lactatemia, transaminitis, and low hemoglobin with MCV within normal limits
- **CXR** showed no pulmonary nodules.
- **Urinalysis** was negative for leukocyte esterase and nitrites.
- **Renal ultrasound** confirmed hepatosplenomegaly.
- Given concern for sepsis, blood cultures were ordered and piperacillin-tazobactam was administered.

Imaging

CBC	Results	Range	Lab	Result	Range
WBC	7.5	4-11	Iron	28	59-158
RBC	2.75	4.5-6	TIBC	310	250-400
Hb	13.4	14-17	Iron Saturation	9%	20-55%
Hct	24.1	42-52	Ferritin	4581	30-400
MCV	88	80-99	LDH	874	135-225
MCH	48.7	26-34	Haptoglobin	<10	30-200
MCHC	55.6	32-37.5	Immature Retic Fraction	15.2%	0-12.5%
RDW	14.9	11.5-14.5	Total bilirubin	2.4	0.1-0.9
Platelet	153	140-400	Direct bilirubin	1.4	0-0.3

Cold Agglutinin Titer 1:160
Direct Antiglobulin Coombs Test: negative
Mononucleosis screen positive
EBV Early Antigen: IgM positive



Unique Aspects

- CAS is a rare complication in EBV infection which can ultimately affect the appropriate treatment.
- Additionally, patients with hemolytic anemia seldom have high ferritin levels, raising its validity as a crucial biomarker of severe disease.
- The patient does not fit the typical demographic of patients who develop cold agglutinin hemolytic anemia.

Conclusions

- CAS should be evaluated in patients with infectious mononucleosis that have low hemoglobin.
- Understanding the mechanism of action is important to understand the pathophysiology of CAS in patients with viral infections.
- Elevated ferritin may be a good indicator of prognosis with cold agglutinin disease secondary to infectious mononucleosis.

References

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