

# Autoimmune Disorders Associated with Ovarian Cancer

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## INTRODUCTION

- Ovarian cancer is the second most common gynecologic malignancy and the most common cause of gynecologic cancer death in the United States.
- Autoimmune hemolytic anemia (AIHA) is caused by autoantibodies that react with self red blood cells (RBCs) and cause them to be destroyed.<sup>1</sup>
- Immune thrombocytopenia (ITP) is an acquired thrombocytopenia caused by autoantibodies against platelet antigens.
- Both AIHA and ITP can develop spontaneously or be acquired; They are commonly seen in hematologic malignancies such as chronic lymphocytic leukemia (CLL) or non-Hodgkin lymphoma (NHL), but are rarely associated with solid tumors such as ovarian cancer.<sup>2</sup>
- Direct Antiglobulin Test (Coombs test) – A laboratory test for antibodies directed against RBCs ([figure 1](#)).<sup>1</sup>

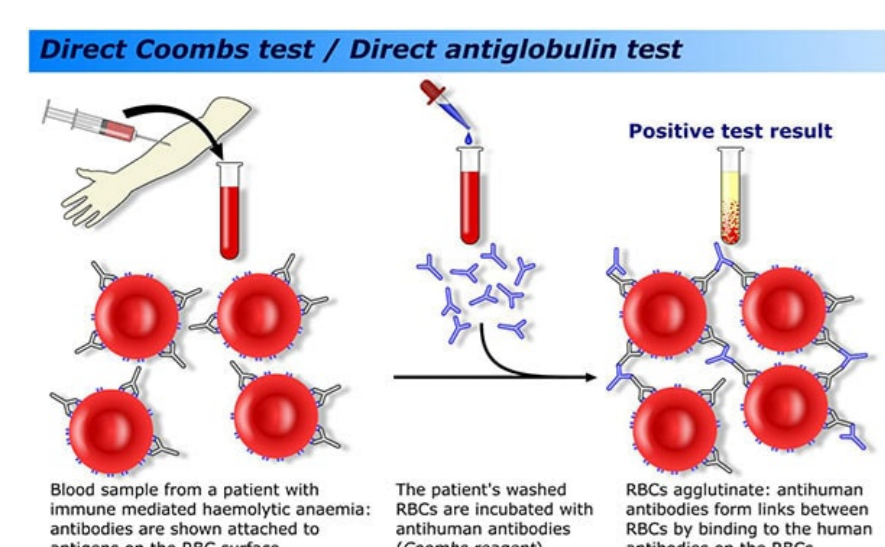


figure 1, Coombs test

## CASE PRESENTATION

71-year-old woman presented to the hospital because of headaches, nausea, and vomiting for 7 days. She was also noted to have petechia in lower extremities for 3 days and mild gum bleeding.

## PAST MEDICAL HISTORY

Traumatic subdural hematoma after a mechanic fall in 2007, seizure disorder, coronary artery disease, hypertension, and hyperlipidemia.

## INITIAL INVESTIGATIONS

- CBC was significant for severe thrombocytopenia with platelet count 6,000, hemoglobin 9.5, WBC 4.3, INR 1.11, PT 14.2, and aPTT 25.7.
- Initial CT Head without contrast showed acute subdural hematoma of left frontalparietal convexity measured up to 0.6 cm. Parenchymal hemorrhage in the posteromedial right temporal lobe measured up to 1.4 x 1.2 x 1.1 cm ([figure 2](#)).

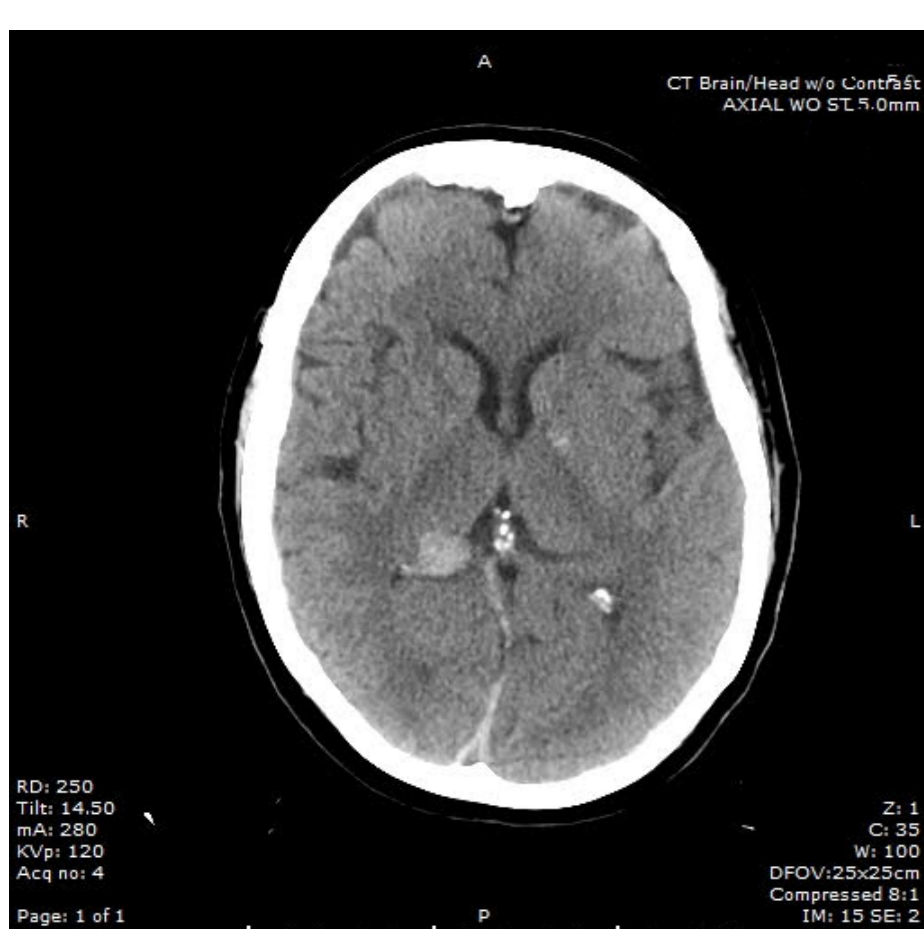


Figure 2 subarachnoid hemorrhage

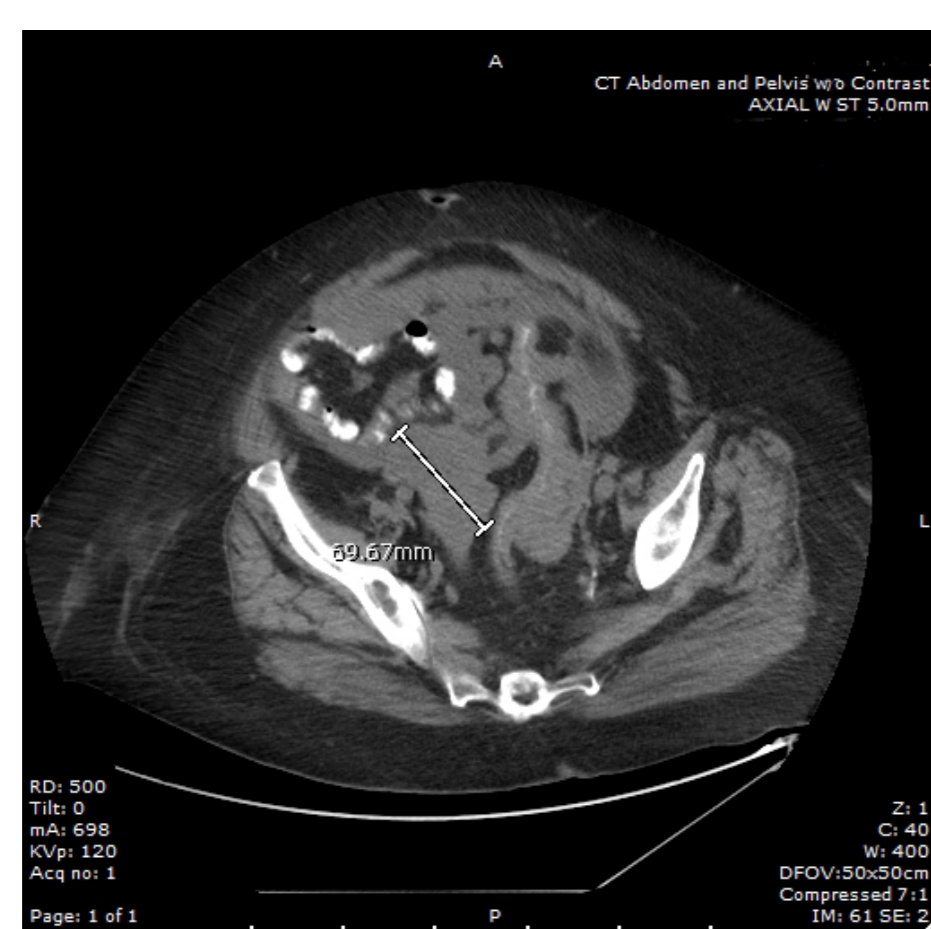


Figure 3 right ovarian mass

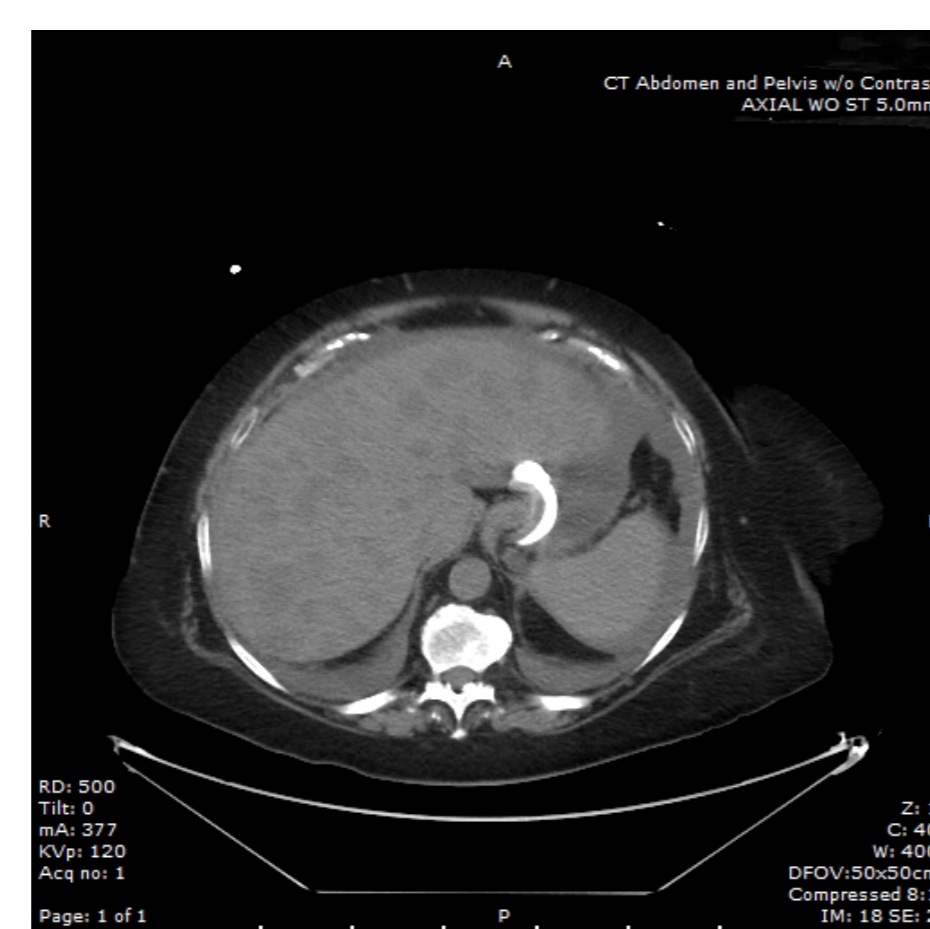
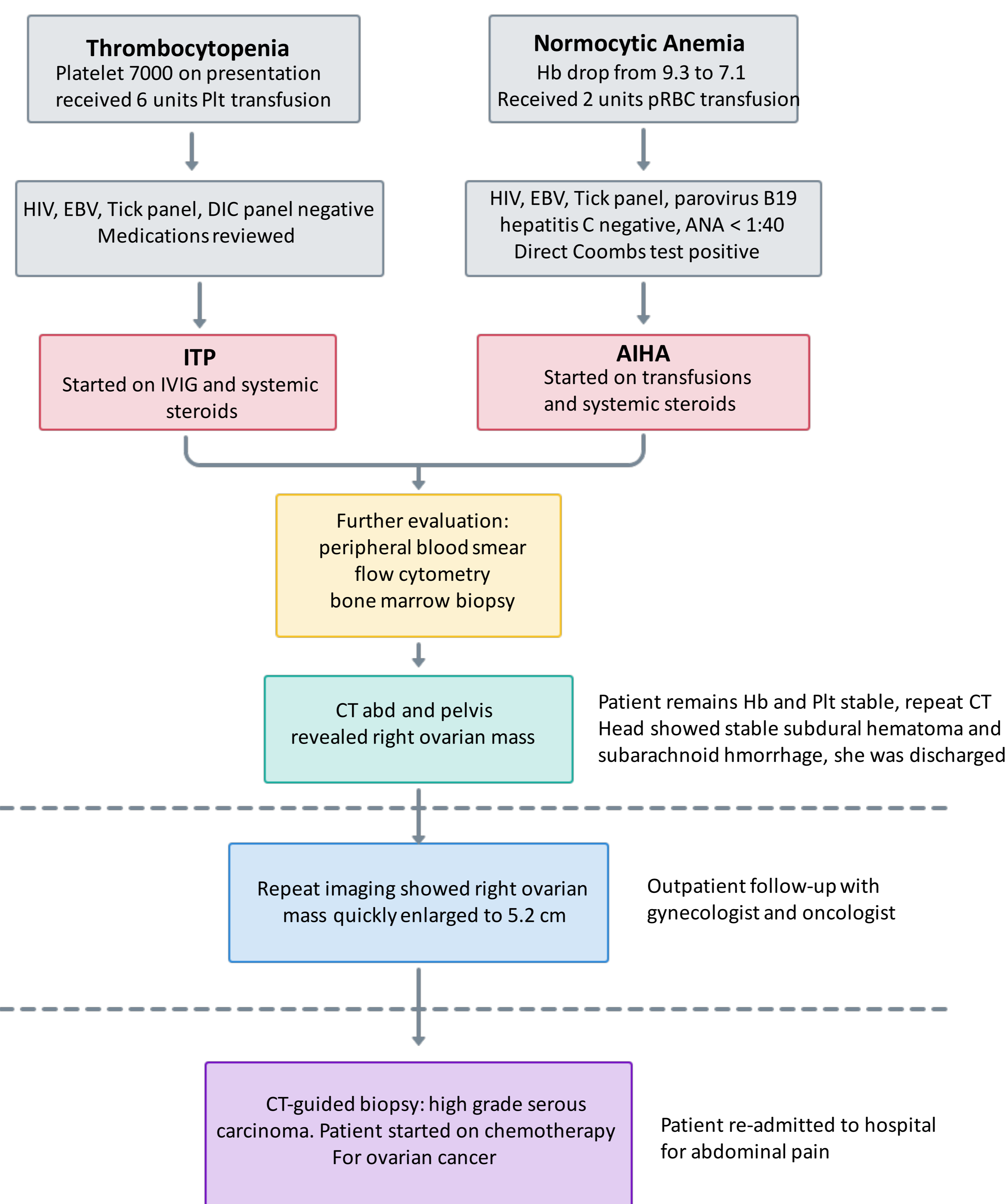


Figure 4 diffuse liver metastasis

## HOSPITAL COURSE

- Patient was admitted to ICU for close neurological check, emergent platelets transfusions, and blood pressure control.
- On 2<sup>nd</sup> day of admission, her Hb dropped from 9.5 to 7.1, and she received 2 units of packed RBC.
- After ruling out other causes, patient was diagnosed with AIHA and ITP. She was started on high-dose systemic steroids and IVIG.



- Extensive workups, including peripheral smear review, bone marrow biopsy, and flow cytometry failed to show any evidence of hematological malignancy. Infectious and rheumatologic work-ups were also negative.
- A 3.5 cm ovarian mass was noted on CT and US, which quickly grew to 5.2 cm within one month. Repeat CT scan after 6 months showed diffuse widespread masses involving the liver, peritoneum, and both ovaries ([figure 3,4](#)), CA-125 was 692.
- Biopsy of an omental mass revealed high-grade serous carcinoma. She was started on chemotherapy with carboplatin and paclitaxel.

## DISCUSSION

- While AIHA is more commonly associated with hematological malignancies, it has rarely been reported in ovarian cancer. The mechanism is poorly understood, but may be related to RBC membranes becoming more prone to hemolysis in the setting of changes in the protein and phospholipid fractions.<sup>3</sup>
- Treatment of AIHA includes systemic glucocorticoids, splenectomy, rituximab, and other immunosuppressive or cytotoxic agents. It is important to diagnose and treat the underlying condition.
- ITP is also rarely associated with ovarian cancer, and the mechanism is unclear<sup>4</sup>. Our patient initially presented with intracranial bleeding, and she was found to have critically low platelets secondary to ITP. Her platelet count improved and intracranial bleeding stabilized after receiving steroids and IVIG. Her AIHA also improved with systemic glucocorticoids.
- First-line treatment of ITP includes glucocorticoids and IVIG. Intravenous anti-D immune globulin could also be used to treat ITP, however it could cause intravascular hemolysis, which would be contraindicated in patients with pre-existing hemolysis, as was the case in our patient.

## CONCLUSION

- We believe when patients presented initially with ITP and/or AIHA, an underlying malignancy should be considered in high-risk groups, after ruling out lymphoproliferative, infectious, rheumatologic and drug-induced causes.
- For post-menopausal women, ovarian cancer should always be considered. However, an extensive search for the presence of a hematological malignancy or solid tumor is not indicated unless there is a laboratory or clinical suspicion of a malignant disease, since about 50% of all AIHA cases are idiopathic.

## REFERENCES

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