

An Unusual Case of Recurrent Subdural Hematoma

Manish Jha, Balakrishnan Narayanan, Ankur Sharma, Pradeep Bhatia

Abstract

Purpose: We here report an uncommon cause of recurrent subdural hematoma in a female with thrombocytopenia.

Case Report: The patients' detailed workup revealed a diagnosis of chronic disseminated intravascular coagulation. Subsequently, her bone marrow biopsy indicated bone marrow suppression and computed tomography of the abdomen showed carcinoma of the gallbladder with vertebral metastasis.

Conclusion: If a patient present with recurrent subdural hematoma, adequate investigations and timely management should be pursued to avoid further complications.

Keywords: Subdural hematoma, DIC, carcinoma.

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INTRODUCTION

Disseminated intravascular coagulation (DIC) is a complex pathological mechanism caused by irregular activation of the coagulation process in conditions such as infection, solid tumors, hematological malignancies, obstetric diseases, trauma, etc., leading to thrombosis of small to medium-sized vessels and also severe bleeding⁽¹⁾. The mechanism of DIC in cancer patients is explained by the release of procoagulants from the cells resulting in derangement of the coagulation system⁽²⁾. Most of the patients with cancer will show features of DIC. However, in some patient's life-threatening DIC develops if there is a sudden increase in amounts of procoagulants, which may result in massive hemorrhage such as intracranial bleed, gastrointestinal bleed, menorrhagia, etc⁽³⁾.

Patients with DIC having a platelet count of $<50 \times 10^9/L$ are at 5-10 folds increased bleeding, which may be life-threatening compared to DIC patients with increased platelet count⁽⁴⁾. Acute and chronic DIC (also called decompensated and compensated DIC, respectively) represent two ends of a pathogenic balance between coagulation and platelet consumption and production.

CASE PRESENTATION

A 50-year-old female known case of hypertension was presented to the emergency department with an alleged history of fall with altered sensorium and severe headache for the last seven days. Her Glasgow Coma Scale (GCS) was 15/15. Non-contrast Computed Tomography (NCCT) head was done, which revealed right-sided subdural

From the Ex-Senior Resident, Department of Anesthesiology and critical care, AIIMS, Jodhpur; Junior Resident, Department of Anesthesiology and critical care, AIIMS, Jodhpur; Associate Professor, Department of Trauma & Emergency (Anesthesiology), AIIMS, Jodhpur; Professor, Department of Anesthesia and Critical Care, AIIMS, Jodhpur.

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Correspondence to: Dr Ankur Sharma. 58, Subhash Nagar -2, Jodhpur, Rajasthan (342008) India
Email: ankuranaesthesia@gmail.com

hematoma (SDH) in the frontoparietal region with a midline shift of 5 mm. Her complete blood count (CBC) was normal, except from platelet count of $100 \times 10^9/L$. Right frontoparietal burr hole and evacuation was done, and the patient was discharged after one week.

After one week, patient presented with altered sensorium (E1V3M5) and headache; NCCT head revealed right sided SDH with midline shift of 4 mm with right frontoparietal burr hole, for which a drain was placed (Figure 1), and she was shifted to intensive care unit (ICU). Her baseline platelet count was $60 \times 10^9/L$, and intraoperative 4 Random Donor Platelet (RDP) and 2 Packed Red Blood Cells (PRBC) were transfused.

Her peripheral blood film showed no abnormality, which ruled out other causes of microangiopathic hemolytic anemia (MAHA) and thrombocytopenia, such as thrombotic thrombocytopenic purpura (TTP). The patient didn't have a history of exposure to heparin. Activated partial thromboplastin time was 30.4 seconds (normal range 29-33 seconds), and the prothrombin time was 15 seconds (normal range 11-13 seconds). Her fibrinogen was 2.7 gm/L. Her D-dimer level was elevated. Her ISTH (International Society of Thrombosis and Haemostasis) ⁽⁵⁾ scoring system score was two at the admission of second time.

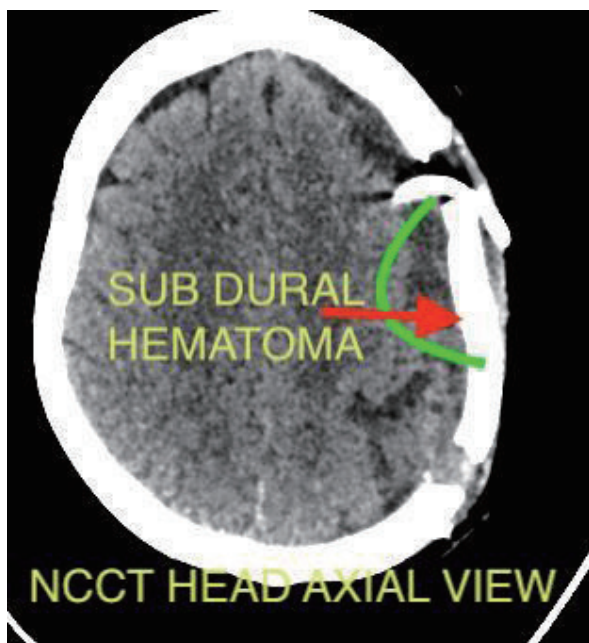


Fig. 1. Axial view of non-contrast computed tomography scan showing subdural hematoma

Being a postoperative patient of frontoparietal burr hole for a subdural hematoma, in a period of 10 days, 4 Single Donor Platelet (SDP) and 8 RDP were transfused. Repeat hemograms were done after transfusion showed no or temporary improvement in platelet counts. She was not a known case of liver disease. Her liver function tests and abdominal ultrasound were normal.

Subsequently, her bone marrow biopsy showed two cores and blood clots with 10-12 partly preserved inter-trabecular spaces, revealing the presence of focal metastatic deposit wherein tumor cells indicated moderate anisonucleosis, irregular nuclear membranes, having coarse chromatin, conspicuous nucleoli, and a moderate amount of cytoplasm. Normal hematopoietic components were suppressed. In order to find the primary malignancy, a contrast-enhanced computed tomography (CECT) abdomen was done, which showed carcinoma of the gallbladder (Figure 2) with vertebral metastasis. Finally, a diagnosis of chronic DIC was made. Chronic DIC

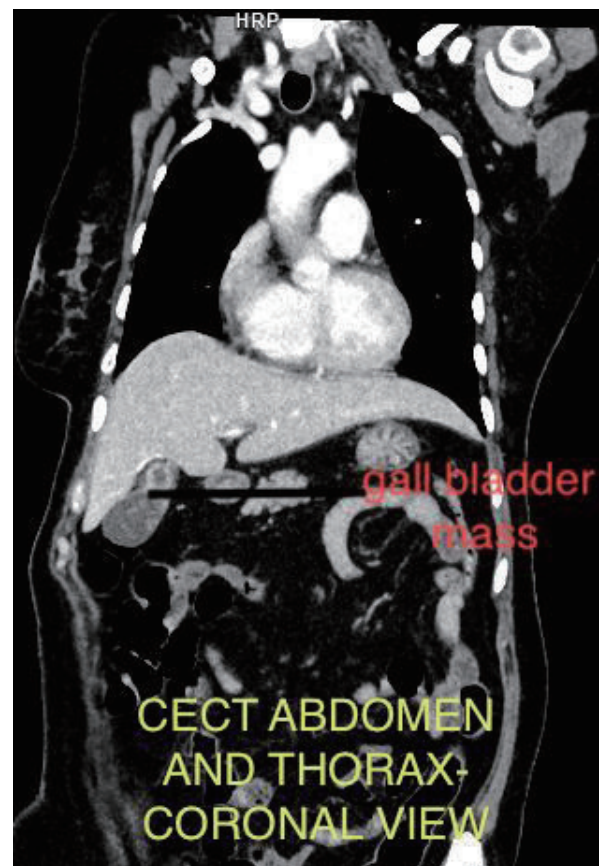


Fig. 2. Coronal view of computed tomography scan showing gall bladder mass

generally is seen in patients with a history of malignancy. This patient had carcinoma of gall bladder with vertebral metastasis. Her clinical findings were also consistent of chronic DIC which are thrombocytopenia; normal or mildly prolonged PT and aPTT; normal or slightly elevated plasma fibrinogen; and elevated plasma D-dimer.

The patient was started on palliative chemotherapy and being followed regularly for any untoward complications. The patient's platelet counts gradually improved after beginning chemotherapy, but the patient lost to follow up after two outpatient department visits.

DISCUSSION

Disseminated intravascular coagulation is a clinical syndrome characterized by bleeding or thrombosis or both, which is due to the activation of both coagulation cascade and fibrinolytic system^(6,7). The conditions triggering acute DIC include bacterial infections, blood malignancies, crush injuries. The acute DIC patients present with signs and symptoms of acute bleeding such as purpura, petechiae, bleeding from injured sites⁽⁸⁾.

Acute and chronic DIC may both be associated with bleeding and thrombosis, along with their sequelae in affected organs (Table 1). However, acute DIC is much more likely to present with bleeding due to consumption of fibrinogen and other procoagulant factors and the disruption of normal fibrin formation and platelet function by a large amount of fibrin degradation products. In contrast, chronic DIC is more likely to present with thromboembolic complications because production of procoagulant factors keeps pace with ongoing generation

of thrombi.

Chronic DIC can be associated with malignancy, especially pancreatic, gastric, ovarian, or brain tumors. The exact mechanism of DIC in solid malignancies is unknown⁽⁹⁾.

The management of disseminated intravascular coagulation includes treating the underlying condition, and supportive management such as platelets and Fresh frozen plasma (FFP) transfusions and anticoagulation if venous or arterial thromboembolism present. Our patient presented with recurrent subdural hematoma, so anticoagulants were not given, and platelets were administered.

In our case, bone marrow biopsy gave a clue of some primary malignancy, which after CECT abdomen came out to be a primary carcinoma gall bladder with vertebral and bone marrow metastasis. Bone marrow and vertebral metastasis from a primary gallbladder carcinoma is rare⁽¹⁰⁾.

CONCLUSION

We are reporting this case, as bony metastasis from a gallbladder carcinoma is a rare entity. In patients having severe thrombocytopenia like this patient, chronic DIC should be a differential diagnosis, and appropriate investigations and prompt management should be done in order to prevent further complications.

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Patient consent: Obtained.

Table 1: Coagulation parameters in acute and chronic disseminated intravascular coagulation

Parameter	Acute (decompensated) DIC	Chronic (compensated) DIC
Platelet count	Reduced	Variable
Prothrombin time (PT)	Prolonged	Normal
Activated partial thromboplastin time (aPTT)	Prolonged	Normal
Thrombin time	Prolonged	Normal to slightly prolonged
Plasma fibrinogen	Reduced	Normal to elevated
Plasma factor V	Reduced	Normal
Plasma factor VIII	Reduced	Normal
Fibrin degradation products	Elevated	Elevated
D-dimer	Elevated	Elevated

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