

Sudden Onset of Loculated Hemothorax: An Uncommon Complication of Anticoagulant Therapy in Stroke

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Abstract

Hemothorax is a collection of blood in the pleural cavity with hematocrit at least half of the peripheral blood hematocrit. Spontaneous or non-traumatic hemothorax is rarely encountered than traumatic hemothorax. We are reporting a case of anticoagulant-induced hemothorax that was a sudden onset and loculated on the left side. Our case was an acute embolic stroke who presented late in our hospital in intubated state, started on clopidogrel and warfarin. Routine daily chest X-ray showed sudden appearance of loculated pleural effusion, which was managed by discontinuation of anticoagulants and intercostals tube drainage. Anticoagulant-induced sudden-onset of loculated hemothorax in a stroke patient is very rarely reported.

Keywords: Anticoagulants, Hemothorax, Intercostal tube drainage, Stroke, Warfarin

INTRODUCTION

Hemothorax in simple word is the presence of blood in the pleural cavity or by definition pleural fluid hematocrit is at least 50% of the peripheral blood hematocrit.¹ Majority of cases of hemothorax is due to open or closed chest trauma or procedure related. Spontaneous hemothorax is much less common.² Hemothorax associated with a coagulopathy is predominantly a result of anticoagulants administered in the setting of thromboembolic disease.^{3,4} Our case was an old-age patient who presented with right middle cerebral artery (MCA) infarct and he was started on anticoagulant therapy and he suddenly developed isolated and loculated left sided pleural effusion which was confirmed as hemothorax on diagnostic aspiration.

CASE REPORT

A 70-year-old male patient was referred from a local hospital with a diagnosis of right MCA embolic infarct. On arrival, patient was intubated, on mechanical ventilator support, and he was on antiplatelet agent and warfarin therapy along with other supportive treatments.

On examination, patient's Glasgow Coma Scale (GCS) was six; bilateral chest was clear with bronchovascular breath sounds and maintained oxygen saturation 100% at FiO₂ of 30%. Patient was continued on antiplatelet and warfarin therapy, prophylactic antibiotic were started, his vitals remained stable though his GCS was still six.

His routine investigations showed hemoglobin - 12.5 gm %, packed cell volume - 38, platelet counts 16,000/mm³, international normalized ratio (INR) - 1.3 and within normal limit of kidney function tests and liver function tests. Patient's chest X-ray (CXR) did not show any abnormality (Figure 1), but his brain imaging confirmed the right MCA infarct and he was continued on the same treatment.

Next day morning patient's routine CXR was performed which revealed left sided loculated collection in pleura

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(Figure 2), ultrasonography guided diagnostic aspiration was done, which showed reddish color fluid with hematocrit 27%, consistent with diagnosis of hemothorax. Patient's repeat platelet counts and INR was done, which were $15,600/\text{mm}^3$ and 1.2 respectively. Patient was evaluated for pulmonary embolism, and it was ruled out. Intercostal tube was inserted in the left side of the pleural cavity, and fluid was drained completely. There was no other site of the body, which showed any evidence of bleeding complications. Patient was tracheostomized and weaned off from ventilator and sent home in stable condition.

DISCUSSION

Hemothorax is the presence of blood in the pleural space, specifically when the hematocrit of the pleural fluid is at least 50% that of the peripheral blood.¹ When bloody pleural fluid is obtained with a diagnostic thoracentesis, the hematocrit should always be measured. Frequently,

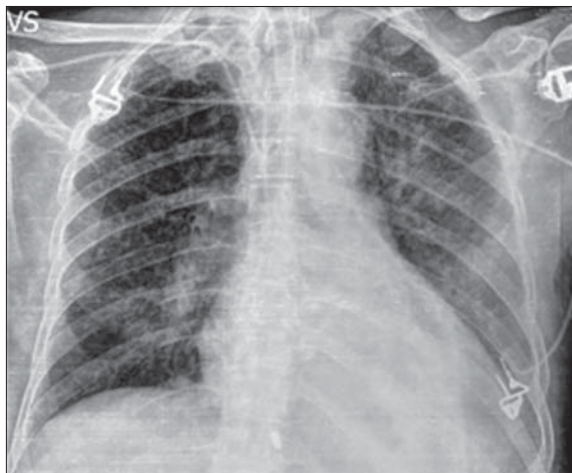


Figure 1: Chest X-ray on June 22, 2014 does not show any effusion

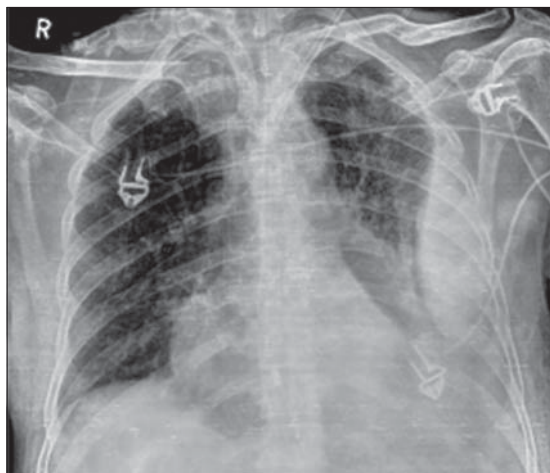


Figure 2: Chest X-ray on June 23, 2014 showing left sided loculated pleural effusion

even though the pleural fluid appears to be pure blood, the hematocrit of the fluid will be $<5\%$.¹ Most common cause of hemothorax is the traumatic hemothorax, which includes penetrating and non-penetrating chest trauma, iatrogenic hemothorax due to central venous catheterization, pleural biopsy, thoracentesis, and the translumbar aortography. The suspicion of hemothorax should be concerned in any individual with thoracic trauma and a pleural effusion on the chest radiograph. The vast majority of hemothoraces are due to bleeding from the low-pressure, pulmonary parenchymal vessels; they stop bleeding spontaneously when the hemothorax is evacuated, and the pleural surfaces are reapposed.⁵ Both penetrating and non-penetrating hemothoraces are managed by immediate intercostals tube drainage, which evacuate the blood from the pleural cavity and provide the quantitative measure of blood loss. Intercostal drainage also stops the further bleeding by apposing the pleural surfaces to create a tamponade.⁵ In the rare case of hemothoraces where continued bleeding, immediate thoracotomy indicated.

Non-traumatic or spontaneous hemothorax is uncommon. Most common cause of spontaneous hemothorax is malignancy, followed by anticoagulant therapy, other causes includes vascular ruptures, endometriosis, pulmonary infarctions, complication of spontaneous pneumothorax, and hematologic abnormalities such as hemophilia and thrombocytopenia.

Anticoagulant therapy associated hemothoraces are very rare and present in setting of treatment of thromboembolic diseases and most cases occur within the 1st week of therapy.⁶ Most of the cases of anticoagulants associated hemothorax in thromboembolic diseases are pulmonary in origin, and they are probably due to rupture of pulmonary infarct. Few cases of hemothorax with anticoagulation in the non-pulmonary embolic setting were reported, one case was after angioplasty,⁷ and the other case was in the setting of anticoagulation for an artificial heart valve.⁸ Hemothorax secondary to anticoagulant therapy in stroke patients thoroughly searched, but no case report was found.

Treatment of anticoagulant-induced hemothorax is the correction of the coagulopathy and drainage. If the rupture of a pulmonary infarct is suspected, a surgical consultation should be obtained for possible thoracotomy and resection.⁹

CONCLUSION

Hemothorax secondary to anticoagulant therapy is very rarely reported, and most of the reported cases are pulmonary thromboembolic diseases. In setting of

thromboembolic diseases, stroke patients are in a rare category that developed spontaneous hemothorax. Interestingly in our case, hemothorax was loculated rather than free flowing as in other cases. Hence, all thromboembolic diseases, including stroke patients who receiving anticoagulant therapy and sudden appearance of pleural effusion in CXR, hemothorax should always be first suspicion.

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