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Torrential Airway Bleed in Acute Liver Failure Patient Posted for Liver Transplant - A Rare Case Report

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Abstract: ***A eleven years old female was scheduled for emergency liver transplant in view of acute liver failure. Patient was intubated three day back prior shifting to operating table in emergency ward in view of hepatic encephalopathy grade 3. Thereafter patient was shifted to liver come intensive care unit for further evaluation and stabilization of the patient, Once the organ donar workup was done, Patient was shifted to operating room for liver transplant. After attaching all ASA standared monitoring, Endotracheal tube was Exchanged with Bougie guided which was smooth but suddenly massive blood started from endotracheal tube of approxiamately 400ml in amount with reduced compliance of the lung but patient was treated accordingly and shifted back to intensive care unit.***

Keywords: Acute Liver Failure, Airway Bleed, Thromboelastography, Coagulation, Adrenaline.

Glossary:
ALF = Acute Liver Failure
TEG = Thromboelastography
ASA= American Society of Anesthesiology
ADR = Adrenaline
LCICU = Liver coma intensive care unit
HE= Hepatic encephalopathy
CRRT = Continuous renal replacement therapy
IJV= Internal jugular vein
ET = Endotracheal Tube

1. Introduction

Liver plays a very crucial role in blood coagulation which is important for both primary and secondary hemostasis. The hemostatic system which is a delicate balance between thrombotic and anti thrombotic events, aiming to prevent blood loss from injured vessels. Liver failure is accompanied by multiple changes in the haemostatic system, because of reduced plasma levels of procoagulants and anti coagulant factors. Although coagulopathy is very commonly seen in patients of ALF the severity of which can be assessed by prothrombin time and International Normalized Ratio (INR). Here we present a rare case report of ALF patient with normal coagulation profile with massive airway bleed and its management after obtaining a written informed consent from patient parents .

2. Case Report

A eleven old female patient present to emergency department with complaints of jaundice since 14 days and altered sensorium since 1 day with jaundice to encephalopathy interval was 13 days. Patient was apparently normal 14 days back then she developed yellowish discolourisation of eyes which is insidious in onset and gradually progressive which is associated with dark coloured urine and pigmented stool. Patient has history of altered sensorium in the form of irritability and marked confusion, sleeping but arousable hence categorized has HE grade 3 and hence trachea of the patient is intubated with 6.5 mm internal diameter endotracheal tube and shiftedto LCICU for further management. Blood investigations are unremarkable except for deranged coagulation profile with INR 6.82 and hyperbilirubunaemia with Total bilirubin levels of 13mg/dl and serum ammonia of 501 mg/dl for which patient underwent two sessions of total plasma exchange . Patient was anuric since the day of admission and was started on CRRT. Meanwhile Donar workup was done. On the day of surgery all the blood investigations are normal with INR of 1.7, Total bilirubin of 4mg/dl, Serum ammonia 301mg/dl, platelet count of 76,000 and Serum fibrinogen l50mg/dl .Chest x –ray and TEG were normal.

Patient was shifted for emergency Liver Transplant in view of Acute Liver Failure with cryptogenic (unknown) etiology. On the operating table after attaching all ASA standard monitoring. Right femoral arterial line was secured for continuous beat to beat invasive central blood pressure measurement. Right IJV is already secured with 8.5 French Four lumen cental line for ionotropic support. Left IJV is already secured for CRRT. Endotracheal tube was exchanged in view of suspected tube obstruction with Bougie guided

which was smooth in single attempt without any trauma and ET tube is fixed and connected to mechanical ventilator. Suddenly Bellows of the mechanical ventilator start to fall down with loss of trace of End tidal-carbondioxide monitoring and blood was noticed in the ET tube. Reduced Compliance was noted on Bag and Mask ventilation, Repeated suctioning of ET tube was done to clear the blood. Endotracheal installation of diluted Adrenaline (10mcg in 10ml of normal saline) repeated for 8-10 times for vasoconstriction effect. Endotracheal installation of 500mg tranexamic acid was also done along with adrenaline for its combined effect. Injection Tranexamic acid 1gram intravenous route for its anti fibrinolytic activity. Injection Propofol 30 mg/hrinfusion was started to maintain blood pressure on lower side from the baseline. Four units of Fresh frozen plasma, Six units of Cryoprecipitate, One unit of Single donar platelets was transfused for coagulopathy. After meticulous struggle for 4 hours bleeding has stopped from endotracheal tube and compliance of the lung was improved. A total of approximately 400 -500 ml of the blood was noted

Bedside chest x-ray was done operating table which showed Bilateral confluent in homogenous radio opacities predominantly on lower lobes and perihilar region. Bronchoscopy was done for localization of bleeding but inconclusive. LT was cancelled and shifted back to LCICU for Stabilisation of the patient. Four days after the event patient was expired in LCICU.

3. Discussion

In patients with acute liver failure (ALF), elevated prothrombin time and thrombocytopenia can fuel a perception of a bleeding tendency. However, the incidence, site, risk factors, and clinical significance of bleeding complications have not been previously quantified in a large cohort of patients with ALF[1]

Different procedures are associated with a varied risk of bleeding in patients with liver disease.[2] This risk is further complicated by factors related to the individual patient. For example, one study evaluated the incidence of bleeding following invasive procedures in 121 patients with advanced liver disease who had thrombocytopenia.[3] In this study, thrombocytopenia (present in 84% of patients) was defined as a platelet count of less than 150,000/µL, and severe thrombocytopenia (present in 51% of patients) was defined as a platelet count of less than 75,000/µL. Among the 102 patients with thrombocytopenia, 49% underwent an invasive procedure (64% with severe thrombocytopenia). Bleeding occurred in 31% of patients with severe thrombocytopenia who underwent an invasive procedure, and in none of those with moderate thrombocytopenia.

Our case is a patient of mild thrombocytopenia with platelet count of 75,000/uL. But we had to proceed for surgery as our case is a ALF for emergency surgery and the Bougie guided ET tube change was considered to be an minimally invasive procedure.

Mitra Samareh Fekri et. al [4] compared Adrenaline with Tranexamic Acid to Control Acute Endobronchial Bleeding and concluded that the time of bleeding control had no significant difference between tranexamic acid and adrenaline (P=0.908). Their results suggested that tranexamic acid by endobronchial instillation was as efficient as adrenaline in controlling hemoptysis and required less frequent use of a second medicine.

In our case we considered both endotracheal installation of adrenaline and tranexamic acid for its combined effect to control bleed and found to be efficient .

We also considered inj .propofol infusion at 30 mg/hr for its hypotensive effect to deliberately reduce the blood pressure from the baseline and found to be successful, were no previous studies are present till date on its effect on control of endotracheal bleed.

Till date no studies were available on combined use of endotracheal adrenaline and tranexamic acid along with intravenous tranexamic acid and propofol infusion to control endotracheal bleed of unknown reason.

4. Conclusion

Acute liver failure patients can bleed at any point of the procedure irrespective of their coagulation profile and severity of the procedure. Always combined approach as with our case like endotracheal Adrenaline and trenaxamic acid with intravenous trenaxamic acid and propofol infusion with expert team efforts should be considered for successful results.

5. Acknowledgement

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References

[1] Stravitz RT, Ellerbe C, Durkalski V, et al. Bleeding complications in acute liver failure. *Hepatology*. 2018;67(5):1931-1942.
[2] Intagliata NM, Argo CK, Stine JG, Lisman T, Caldwell SH, Violi F. faculty of the 7th International Coagulation in Liver Disease. Concepts and controversies in haemostasis and thrombosis associated with liver disease: proceedings of the 7th International Coagulation in Liver Disease Conference. *Thromb Haemost.* 2018;118(8):1491–1506.
[3] Giannini EG, Greco A, Marenco S, Andorno E, Valente U, Savarino V. Incidence of bleeding following invasive procedures in patients with thrombocytopenia and

advanced liver disease. *Clin Gastroenterol Hepatol.* 2010; 8(10):899–902

[4] Fekri MS, Hashemi-Bajgani SM, Shafahi A, Zarshenas R. Comparing Adrenaline with Tranexamic Acid to Control Acute Endobronchial Bleeding: A Randomized Controlled Trial. *Iran J Med Sci*. 2017;42(2):129-135.