



Research Article

# Anesthetic Management of Hepatitis C Positive Patient with Portal Hypertension for Cesarean Section - A Case Report

Rachna Wadhwa, Geetanjali Chilkoti, Sunny Kumar and Ashok Kumar Saxena

Department of Anesthesiology and Critical care, University College of Medical Sciences and Guru Teg Bahadur Hospital, Shahdara, Delhi, India

Correspondence should be addressed to: Rachna Wadhwa; [drachnawadhwa@gmail.com](mailto:drachnawadhwa@gmail.com)

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## Abstract

Viral hepatitis during pregnancy is associated with increased maternal and fetal mortality. Hepatitis C associated portal hypertension induced bleeding esophageal varices in pregnancy is a rare presentation. We report a case of successful perioperative management of a patient with history of hepatitis C, mild portal hypertension and bleeding esophageal varices planned for cesarean section in view of breech presentation. The presence of coagulopathy, possibility of variceal rupture and need of transfusion of blood and blood products calls for comprehensive care and optimal management throughout the antenatal period. For such patients, regional anesthesia, if possible, is preferred over general anesthesia for emergency LSCS.

**Keywords:** Portal hypertension, Hepatitis C, Bleeding esophageal varices, Caesarean Section.

## Introduction

Viral hepatitis during pregnancy predisposes to various maternal and fetal complications like jaundice, coagulopathy, hepatic failure, bleeding from esophageal varices, hepatorenal syndrome, spontaneous abortions and premature labour. In the review by Tan et al (2008), maternal mortality is generally attributed to massive bleeding from esophageal varices with incidence varying from 18-50 %. In the present case, we discuss the anesthetic management in patient with viral hepatitis

and bleeding esophageal varices for lower segment caesarean section (LSCS).

## Case Report

A 26 yr old primigravida, weighing 58kgs, with hepatitis C and portal hypertension was scheduled for elective LSCS in view of breech presentation of fetus. Past history revealed few bouts of hematemesis at 20 weeks of gestation with no prior history of fever, malena or altered mental status. Patient was hospitalized and investigated. The liver function tests (LFT) reported total

bilirubin.- 2.56mg/dl, SGOT- 70IU/ml, SGPT- 75IU/ml, alkaline phosphatase 320 IU/l and INR 1.6. Anti HCV antibody titre was positive. Abdominal ultrasonography and esophagogastrosocopy revealed moderate hepatosplenomegaly with grade II esophageal varices (EV) with mild portal hypertension. Patient received 3 units of FFP and then was planned to be managed conservatively as advised by gastroenterologist. At 32 weeks, patient presented in emergency with two bouts of hematemesis with minimal bleeding (approximately 10-20 ml). Though, prophylactic endoscopic band ligation (EBL) was considered but could not be done as our institution lacks the facility. Patient was observed for 24 hrs and then discharged with the advice to report in case of further hematemesis. Following this, the patient remained stable with no episodes of hematemesis till 38 weeks when the patient presented for delivery.

On preanaesthetic evaluation, systemic examination was unremarkable and all blood investigations including haemogram, LFT, kidney function test and coagulation profile were within normal limits. Patient, at that time, did not have bleeding EV. Patient received routine aspiration prophylaxis and adequate blood was arranged preoperatively. On OT table, all routine non invasive monitors were attached and two large bore intravenous cannulae were secured. The entire staff working in operation theatre took standard barrier precautions. Regional anesthesia was planned considering normal coagulation profile, mild portal hypertension and no actively bleeding esophageal varices. Under all aseptic precautions, subarachnoid block was instituted at L3-4 level using 26gauge, Whitacre needle and 2ml of 0.5% hyperbaric bupivacaine was administered in left-lateral position. After the baby was delivered, injection oxytocin 20 units were administered in slow intravenous infusion. The patient received 1.5litres of Lactated Ringer's solution and urine output was 100ml at the end of the surgery. Baby cried immediately after delivery and Apgar score

at 1 and 5minutes was 9/10 and 10/10 respectively. Intraoperatively, patient remained hemodynamically stable. The patient was observed in high dependency unit for 24 hours in the postoperative period and was then transferred to ward. Patient was discharged on fifth post-operative day with the advice to have regular follow-ups in gastroenterology out patient clinic.

### Discussion

In the present case report, the patient had hepatitis C induced portal hypertension and presented in antenatal period twice with the complaints of bleeding EV. Patient was managed conservatively and anaesthetic management for LSCS was uneventful with good maternal and fetal outcome.

According to Zeeman et al. (1999), hepatitis C affects 0.5-1.4% of obstetric population. Baig et al (2009) mentioned that the incidence of hepatitis C and D doubles with hepatitis B co-infection and combined incidence was reported to be as high as 3.1%. Viral hepatitis during pregnancy is associated with various maternal and fetal complications like jaundice, coagulopathy, hepatic failure, bleeding from esophageal varices, hepatorenal syndrome, spontaneous abortions, premature labour and increased risk of vertical transmission. On literature search, there has been no case report of bleeding EV in hepatitis C induced portal hypertension in pregnant patient.

Pregnancy associated with viral hepatitis induced portal hypertension and esophageal varices is rare. In the book by Chestnut (2009), massive bleeding from esophageal varices has been mentioned as one of the most common causes of maternal mortality. According to Aggarwal et al, the overall risk of variceal bleeding in pregnant women with portal hypertension is almost 400 times greater than in pregnant women without portal hypertension. It may be further aggravated by deranged coagulation and thrombocytopenia. Zeeman et al have reported that the incidence of variceal

bleeding during pregnancy reaches up to 45% with a mortality rate of 18-50%. The increased incidence of variceal bleeding during pregnancy is attributed to physiological increase in circulating blood volume and elevation in portal pressure due to the compression of inferior vena cava by gravid uterus. There is no definite factor to predict variceal bleeding, but degree of portal hypertension (>12mmHg) and size of varices may be the potential predictors. Additionally, hormonal and hemodynamic changes during pregnancy may be responsible for increasing capillary fragility and venous system engorgement.

Various treatment modalities, either prophylactic or urgent endoscopic injective sclerotherapy (EIS), endoscopic band ligation (EBL) as well as transjugular intrahepatic portosystemic shunt (TIPS) (Savage (2007)) as possible management procedures during pregnancy. EBL when done in pregnancy has the advantage of being free of the potential adverse effects related to EIS (Kochhar et al, 1990) with conventional sclerosants or pharmacological treatment. Prophylactic EBL is not an established treatment modality to prevent variceal bleeding in pregnancy. Starkel et al, Dhiman et al and Zeeman et al had successfully used prophylactic EBL in various cases to reduce the risk of bleeding EV in pregnancy. McKay and Webster in a review had mentioned that as banding acts superficially, recurrence rate with EBL is more than 30-40%, more so in pregnancy, thus justifying the use of multiple attempts of EBL in various aforementioned case reports. Our patient presented twice with the complaints of bleeding EV in the antenatal period. Though, therapeutic EBL was definitely considered, we managed our patient conservatively considering the various factors such as grade II EV, mild portal hypertension, minimal associated bleeding, institutional limitation and evidence in favour of high recurrence rate even after EBL.

Early detection of esophageal varices during antenatal period, leads to better optimization

as prophylactic/therapeutic EBL can be planned. In the textbook by Miller R D, the anaesthetic goals in bleeding EV patients include correction of coagulation, thrombocytopenia, optimization following variceal band ligation, management of ascites, maintaining adequate intravascular volume and correction of any electrolyte abnormality. In our patient, regional anaesthesia was administered as it is the preferred technique for LSCS. Owing to high risk of aspiration in view of full stomach and increased intra-abdominal pressure, regional anaesthesia is definitely safer. Additionally, haemodynamic response during laryngoscopy and intubation also predisposes the parturient with esophageal varices to variceal rupture and bleeding. So, one must try to avoid any blind instrumentation of esophagus in these patients. Administration of general anaesthesia, further increase the risk of maternal hypoxia, uteroplacental transfer of drugs to fetus, uterine relaxation and post-partum hemorrhage. However, if contraindications have been ruled out, regional anaesthesia is the preferred technique in parturients with portal hypertension. In addition, it is also devoid of complications due to portal hypertension induced alterations in drug pharmacokinetic and pharmacodynamics i.e., altered volume of distribution due to decreased serum albumin, increased globulins, unpredictable intravascular volume and increased sensitivity to anesthetic agents.

According to Spach et al, the risk of vertical transmission ranges from 4 to 10%. Ohto et al (1994), reported the risk of vertical transmission of hepatitis C to be 6-10%. The risk of HCV transmission to infants increases with detectable hepatitis C viremia during pregnancy. Presently, there is no safe and effective intervention which is known to prevent perinatal transmission of HCV. Elective Cesarean section is not recommended for prevention of vertical HCV transmission. So, postoperative clinical and biochemical surveillance of neonates constitutes an important aspect of

management. According to the Centres for Disease Control and Prevention (CDC), children should not be tested for HCV until 18 months of age, as antibodies from the mother remain in the infant's circulation till that time.

In conclusion, Hepatitis C associated portal hypertension induced bleeding esophageal varices in pregnancy is a rare presentation. Since there have been very few published case reports, the management of EV during pregnancy is still under evaluation. We would reinforce, firstly, upon the early detection of EV in the antenatal period so that the prophylactic/therapeutic EBL can be planned. Secondly, we must remember that the recurrence following EBL is high in pregnant patients due to the pregnancy induced physiological changes. Finally, regional anesthesia must be considered where deemed possible.

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