

# Esophageal varices during pregnancy in the course of cirrhosis

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**Abstract.** – Esophageal variceal bleeding is one of the most severe complications that may occur during pregnancy in patients with liver cirrhosis. It may result in death of the mother and the fetus. Therefore, screening endoscopy should be performed both before the conception and in the second trimester. Endoscopic band ligation is a method of choice in case of variceal bleeding. Close cooperation of hepatologist, obstetrician-gynecologist and endoscopist is recommended in order to provide maximum care and increase the chances of successful delivery. We present a case of 28-years-old primigravida, at 27 weeks pregnant with esophageal varices and liver cirrhosis.

*Key Words:*

Cirrhosis, Pregnancy, Esophageal varices.

## Introduction

Cirrhosis occurs in about 45 in 100,000 women of childbearing age<sup>1</sup>. These women have difficulties to get pregnant due to endocrinological reasons. A disorder in the hypothalamic-pituitary-ovarian axis results in menstrual disorders, amenorrhea and infertility<sup>1-4</sup>. A pregnant woman with cirrhosis is at increased risk of hypotrophy, miscarriage, threatening premature birth which often leads to urgent termination of pregnancy by Caesarean section<sup>1,3,4</sup>. Cirrhosis-related complications include encephalopathy, ascites, spontaneous bacterial peritonitis, bleeding from esophageal varices. Bleeding from esophageal varices occurs in 20-25% of pregnant women with cirrhosis<sup>5</sup>. Maternal and fetal mortality and incidence rate are higher than in the general population. This is mainly associated with increased intra-abdominal pressure and renal sodium retention<sup>2</sup>. In about 50% of patients with cirrhosis during screening gastroscopy

in the 2<sup>nd</sup> trimester of pregnancy, esophageal varices have been revealed. It seems that the platelet count <110 k/ $\mu$ L may correlate with the presence of esophageal varicose veins<sup>6</sup>. The result <110 thousand / $\mu$ L of platelets before conception has 78% sensitivity and 89% specificity in the prediction of esophageal varices in the 2<sup>nd</sup> trimester<sup>2,3,7</sup>. In order to minimize the risk of complications, cirrhosis should be balanced, liver parameters and portal pressure stable and controlled before pregnancy. A low-sodium diet is recommended to reduce fluid retention and portal pressure. Abdominal ultrasound scan should be performed to exclude splenic artery aneurysm<sup>2</sup>. The esophageal endoscopy should be performed in pregnant women with diagnosed cirrhosis at the beginning of the second trimester<sup>1,2,6,8,9</sup>. Medium-size varices, which did not bleed in the past, may be treated with non-selective  $\beta$ -blockers or endoscopically by means of a band ligation, whereas large varices with visible features threatening bleeding should be banded. Pharmacological management carries the risk of fetal bradycardia, hypoglycemia and intrauterine growth disorders. Endoscopic treatment of varices seems to be a better option given the high probability of varices enlargement in the further course of pregnancy and relatively high safety of this procedure, both for the mother and the fetus<sup>2,3,6</sup>. It is also the procedure of choice in case of bleeding<sup>2,3,6,8,9</sup>. The greatest concern for this procedure is the occurrence of fetus hypoxia and subsequent neurological deficits associated with it, due to the use of anesthetics in the mother<sup>3,6,10</sup>. There are no clear guidelines concerning the route of delivery; however, to minimize the risk of esophageal varices bleeding, caesarean section is indicated as spontaneous vaginal delivery and is associated with increased blood pressure in esophageal varices<sup>2,3,8</sup>.

### **Case Report**

The 28-year-old primigravida was admitted to the Department of Gynaecology and Obstetrics in the 27<sup>th</sup> week of pregnancy as a matter of urgency due to hemoptysis and coffee ground vomitus. For two days the patient has also been reporting tarry stools and diarrhea. Her medical history stated that she was after variceal band ligation in November 2018 and thyroidectomy, chronic infection with HBV, HCV viruses (confirmed serologically during hospitalization in the local Clinic) and cirrhosis.

On admission, the patient was conscious, confused, in difficult contact, life parameters were normal. The uterus was relaxed, there were no hysterospasm, normal cervix, cervical canal closed, amniotic fluids preserved, and there was no spotting or bleeding reported. Rectal examination showed that the mucous membrane on the length of the examined finger is smooth and the stool is tarred on the glove. Cardiotocographic examination was performed – reactive recording with fetal tachycardia was reported. In laboratory tests the results were of particular interest: RBC 2.1 million/ $\mu$ L, HGB 6.6 mg/dl, HCT 19.3% which indicates normocytic anemia; platelets 108 k/ $\mu$ L, a slight increase in ASPAT, ALAT, LDH, D-dimer 1758 ng/ml and prothrombin time extended to 15.2 s. Urgent gastroenterological and surgical consultation were ordered. Due to significant deviations in blood morphology, it was decided to transfuse 5 units of platelet concentrate, 2 units of erythrocytes concentrate and 2 units of freshly frozen plasma and esophageal variceal band ligation was scheduled for the next day in the Endoscopy Lab.

On the next day, there was reported an increase in erythrocytes to 2.55 million/ $\mu$ L, an increase in hemoglobin concentration to 7.8 mg/dl, while platelets decreased to 85 k/ $\mu$ L and D-dimers reached 1,921 ng/ml. Additionally, 2 units of PR-BC and 1 unit of FFP were transfused.

Variceal band ligation was performed in intravenous analgesedation conducted by an anesthesiologist. The esophagus up to 20 cm from the tooth line was without changes, from 20 cm on there were visible esophageal varices reaching the cardia and reaching the 3<sup>rd</sup> grade according to OMED classification (large winding esophageal varices occupying >50% of the distal esophageal radius). The esophageal varices showed numerous and large signs of threatening bleeding in the form of cherry blotches and streaks, one of the nevi located about 32 cm from the tooth line was

a probable source of bleeding. The mucous membrane of the fornix and body of stomach were with features of portal hypertensive gastropathy. Six rubber bands were put on the esophageal varices and full hemostasis was achieved after the procedure.

The fetal ultrasound scan was performed, which showed the fetal heart rate of 130/min and normal flow in the umbilical artery.

On the second day after the procedure, the patient reported significant improvement of mood, no vomiting and hemoptysis. The control morphology showed hemoglobin concentration of 8.8 mg/dl, 70 k/ $\mu$ L of platelets. On gynecological examination the uterus was relaxed, without labor pains; the normal cervix, the ostium was closed, amniotic fluids preserved, mucous excrements.

On the fifth day of hospital stay, the patient, in a good general condition, was discharged home with a live, maintained pregnancy, with the recommendation of permanent check-up by the attending physician.

She was referred back to the Clinic due to massive ascites, abnormal flow and hypotrophy in 33.2 week. According to laboratory tests there were some deviations from the standards: albumin 2.9 g/dl, ALT 35 U/l, AST 52 U/l, CRP 22.6 mg/l, LDH 432 U/l, Cl- 110.3 mmol/l and procalcitonin 0.91 ng/ml. In 33.5 week, under subarachnoid space anesthesia, caesarean section was performed as follows: after preparation of the operating field, integuments were opened with Pfannenstiel incision. After opening the peritoneal cavity, 7-8 l of straw-colored fluid was sucked out. Numerous abdominal vessels were revealed. The venous placenta of the entire abdominal cavity and pelvis minor were significantly dilated. The anterior peritoneal fold was incised, and the bladder was pushed down. The uterus was incised in its lower part. A premature male live baby was born of 1660 g, 42 cm long and Apgar score 6/6 points. Oxytocin was administered to the uterine muscle. Pabal was administered by intravenous injection. The placenta was extracted manually, it showed green coloration. The uterine cavity was controlled instrumentally. Multiple single stitches were administered to the uterine muscle, peritoneum, subcutaneous tissue and all oozing places. The incision was technically very difficult, the blood was oozing from every puncture. The homeostasis was controlled. A drain was placed to the smaller pelvis on the left side. The surgical count was correct. The closure was layered. Urine catheterization was clear. The sterile

dressing was applied. The loss of blood was 1200 ml. 2 PRBC units and 2 FFP units were transfused to stabilize vital signs.

The patient was discharged home on the seventh day after caesarean section with the recommendation to control in good general condition.

### Conclusions

Bleeding from esophageal varices is one of the most serious complications that can occur during pregnancy in a patient with cirrhosis. It may result in the death of both mother and fetus. It is necessary to perform screening endoscopy in the second trimester, and preferably also before pregnancy. Endoscopic variceal band ligation is the method of choice in case of esophageal varices bleeding. Close cooperation between a hepatologist, gynecologist and endoscopist is the best way to give the patient the best chance for a happy ending of pregnancy.

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### Conflict of Interest

The Authors declare that they have no conflict of interests.

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