

CIRCUMVALLATE PLACENTA – A CASE REPORT

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ABSTRACT

The aim of the work was to present a case of placental circumvallation in a parturient woman, the existence of symptoms that pointed to an unrecognized anatomical variety, and to emphasize the significant possibility of in utero diagnosis, as well as the timely expectation and possibility of preventing complications. A reminder of the anatomical rarity and clinical significance of placenta circumvallate.

Keywords: *Circumvallata placenta, bleeding in the second trimester of pregnancy, placental abruption/*

INTRODUCTION

Circumvallate placenta is a placenta with a changed shape, represented by a central depression on the fetal side, surrounded by a greenish (fibrinous) wall on the periphery. The chorion and amnion are folded towards the placental edge, resulting in a smaller fetal side and an exposed, uncovered periphery. According to data from literature, the prevalence of circumvallate placenta is 1-7% (Dukatz.) (1.) This morphology of the placenta leads to placental insufficiency and therefore has an unfavorable effect on the development of the fetus. Placenta of this shape has clinical significance because of the possible emergence of perinatal complications. The earliest works associate it with bleeding during pregnancy, primarily in the second trimester of pregnancy.

Circumvallate placenta is difficult to diagnose during pregnancy, but it can be done by inspecting the placenta after birth. Antenatal diagnosis of circumvallate placenta is unreliable due to the high percentage of false positive and false negative findings. Ultrasound can diagnose it based on appearance, raised placental edge, suprachoroidal hematomas are also common. Based on data from literature, the existence of a circumvallate placenta during pregnancy is associated with: vaginal bleeding in the first, and primarily the second trimester of pregnancy, premature rupture of the fetal membranes, the existence of a suprachoroidal hematoma, premature birth, placental abruption, the need for an emergency caesarean section, as well as the occurrence of neonatal complications such as: intrauterine growth restriction, neonatal death or admission of newborns to intensive care units (Dukatz, 8., 9., 10.) (1). Taniguchi et al. state that, in a study with 92 pregnant women diagnosed with circumvallate placenta, only 4.3% were diagnosed antenatally (2). Suzuki et al., by measuring the thickness of the placenta in 722 unselected pregnant women, gestational age from 18 to 21 weeks of gestation, proved a significant difference in the thickness of healthy placentas and pl. circumvallate, and the final conclusion is that prenatal recognition prevents possible complications (3). In Williams (the earliest editions) it is stated that the circumvallate placenta is "an anatomical rarity of no clinical importance" (4).

The existence of circumvallate placenta should be suspected if there is bleeding in the second trimester, and all other possible reasons are excluded, and ultrasound diagnostics would confirm the suspicion (4).

The latest studies correlate circumvallate placenta in pregnancy with an increased risk of: emergency termination of labor by operation, neonatal monitoring in intensive care units, chronic neonatal lung disease and neonatal death (14).

CASE REPORT

The presented patient is 32 years old, third child, with two previous cesarean deliveries and no comorbidities. The third pregnancy started with vaginal bleeding at 6 WG and at 10 WG and she was monitored as an outpatient. An expert ultrasound examination was performed at 14 weeks of gestation (Image 1).

Image 1. 4d ultrasound image of the fetus and placenta at 14 weeks of gestation



The first hospitalization due to uterine bleeding at the Department of Pregnancy Pathology at the General Hospital in Užice was at 13 WG. A 29x11mm subamniotic hematoma was detected by ultrasound. Laboratory analyses were carried out, namely blood count, glycemia, urea, creatinine, CRP, and urine results, which were within the reference values. Progesterone in the form of tablets was prescribed as therapy, as well as depot progesterone ampoules, one injection every three days, with suggested rest. Due to the isolated *Enterococcus* in the cervical sample, antibiotic therapy was prescribed, namely Ampicillin Ampoules (ampicillin sodium) in a dose of 1 g every 12 hours, for five days. A repeated bacteriological smear was normal.

The second hospitalization was at 16 WG, due to sudden uterine bleeding, without pain. Ultrasound-verified posterior placenta, neat insertion, with marginal hematoma 35x35mm. In lab tests, erythrocytes $3.79 \times 10^{12}/l$, hemoglobin 112 g/l, and hematocrit 0.32 l/l. Coagulation status was normal. Continued oral progesterone therapy, with rest.

The last two times before giving birth, the patient was admitted to the Department of Pregnancy Pathology at the hospital in Užice due to uterine bleeding on two occasions (third and fourth hospitalization), at 26 and 29 weeks of gestation. During the third hospitalization, the patient was bleeding moderately profusely with dark blood. No retroplacental

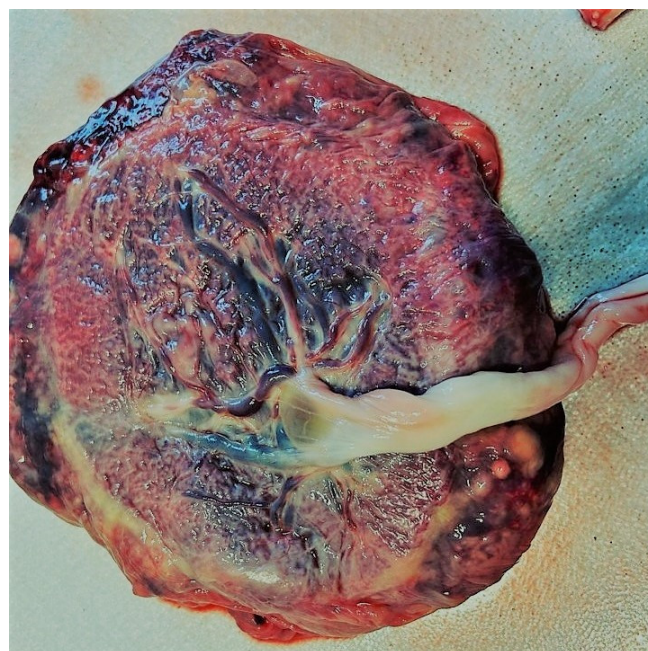
hematoma was observed during the ultrasound examination. Control laboratory tests were taken, namely a complete blood count, glycemia and urine analysis. In the blood count, the value of erythrocytes was $3.45 \times 10^{12}/l$, hemoglobin 111 gr/l, and hematocrit 0.29 l/l. She was discharged home after three days with a suggestion to continue oral progesterone therapy, with iron supplements, and further rest was suggested. Three weeks after discharge, she called in for bleeding and was readmitted to the pregnancy pathology department. An ultrasound examination during the fourth hospitalization verified a fetus at 29 weeks of gestation on the basis of amenorrhea with an ultrasound-verified delay in the growth of the fetus of eight days, the placenta properly inserted on the back wall, without a degree of maturity. The patient received corticosteroid prophylaxis with dexamethasone in a dose of 12 mg every 12 hours.

At 35 WG, due to pain, bleeding, and the diagnosis of placental abruption, an emergency caesarean section was performed (Image 2). A live female child was born with a body weight of 2260g and a body length of 46cm, circumference 32.31, Apgar score 7,7,8. Examination of the placenta revealed a circumvallate placenta, with areas of hemosiderosis, abruption and proper attachment of the umbilical cord (Image 3). In postoperative laboratory tests, fibrinogen 3.2 g/l, erythrocytes $3.01 \times 10^{12}/l$, hemoglobin 97 g/l, hematocrit 0.29l/l, with normal coagulation status. Due to elevated d-dimer values with normal smear and urine culture findings, and with excluded other inflammatory parameters, the woman in labor received ampoule therapy of low-molecular-weight heparins, nadroparin – calcium (Amp. Fraxiparin 0.3 IU every 24 hours) for three consecutive weeks after delivery.

Image 2. Ultrasound finding of placental abruption before delivery by caesarean section



Image 3. Circumvallate placenta after emergency caesarean section due to placental abruption



By inspecting the newborn's medical records, the first visit to a pediatric surgeon can be observed, due to changes in the neonate's skin, two weeks after birth, when he diagnosed infantile hemangioma, up to 4 centimeters in diameter in the epigastrium, and prescribed Timolol – maleate 0.5%, topical therapy. After three weeks, due to the failure of the hemangioma to recede, the child was referred to the University Children's Clinic in Tiršova. The existence of an infantile hemangioma at birth is associated in pathogenesis with a wrong response of pluripotent stem cells to stimulation by hypoxia (15).

DISCUSSION

In conclusion, circumvallate placenta is an unusual pathological entity and a silent cause of uterine periodic bleeding in the second trimester of pregnancy, so it should be considered and an attempt should be made to confirm the existence of circumvallate placenta prenatally by ultrasound, until the final pathological confirmation by examination of the placenta. Although protocols for the management of pregnancy that include this pathological entity are lacking, pregnancies with circumvallate placenta should be considered high-risk pregnancies and adequate monitoring should be carried out in order to prevent potential complications. The latest studies provide us with data on the increased incidence of pregnancy complications associated with the presence of a circumvallate placenta. The reported complications are: placental abruption, premature birth, intrauterine growth restriction, oligoamnion, intrauterine fetal death, compared to the control group. Hanako Taniquchi et al., in a study, associate circumvallate placenta with an increased risk of: caesarean section, neonatal intensive care in intensive care units, neonatal death and chronic lung disease (2).

A completely opposite study from the ones mentioned is the study by the author Lorena from 2018, a retrospective cohort study with 67 women with a diagnosis of circumvallate placenta. The conclusion is that low birth weight is not associated with circumvallate placenta, and that these patients can be under routine obstetric care. (7).

If this form of "defective" placenta was diagnosed earlier and if patients were identified in time as high-risk and monitored in more detail, a bad outcome of the pregnancy for both the patient and the fetus, as well as complications, would be prevented (1).

One should not forget the possibilities of advanced ultrasound diagnostics, 4d HD live (16) silhouettes (8) as well as the measurement of the uterine artery pulsatility index with the determination of the level of alpha-fetoprotein in the blood sample of pregnant women. (9).

In our case, the existence of a circumvallate placenta is associated with bleeding in the first and second trimester of pregnancy, the existence of a suprachoroidal hematoma, placental abruption, premature birth, low birth weight of the neonate, and it is an indirect sign of chronic hypoxia in terms of diagnosed infantile hemangioma. (13).

In conclusion, circumvallate placenta is an unusual pathological finding and a silent cause of uterine periodic bleeding, primarily in the second trimester, in the exclusion of other causes of bleeding, and the existence of circumvallate placenta should be considered, and confirmed by diagnostic prenatal ultrasound, until the final pathological confirmation by examination of the placenta.

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