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"CLINICAL AND MORPHOLOGICAL PARALLELS IN AMNIOTIC FLUID VOLUME ANOMALIES"

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ABSTRACT

Amniotic fluid volume abnormalities are an important diagnostic and prognostic indicator of abnormal pregnancy. Oligohydramnios and polyhydramnios are often accompanied by fetal developmental abnormalities and structural changes in the placenta. This article examines the clinical and morphological parallels between various forms of amniotic fluid volume abnormalities, analyzing their causes, clinical manifestations, and morphological features of the placental -fetal complex. The importance of a comprehensive clinical and morphological approach for assessing fetal condition and prognosticating pregnancy is emphasized.

Key words: amniotic fluid, oligohydramnios, polyhydramnios, placenta, fetus, clinical and morphological parallels.

INTRODUCTION

Amniotic fluid is an essential component of the intrauterine environment and plays a key role in ensuring normal fetal growth and development throughout all stages of gestation . It creates optimal conditions for fetal motor activity, protects it from mechanical stress, prevents umbilical cord compression, facilitates maternal-fetal metabolism, and promotes the development of the respiratory, digestive, and musculoskeletal systems. The quantitative and qualitative characteristics of amniotic fluid are closely linked to the functional state of the placenta and the fetoplacental complex as a whole.

Amniotic fluid volume abnormalities play a significant role in obstetric pathology and are considered an important marker for an unfavorable pregnancy course. The most common forms of these abnormalities are oligohydramnios and polyhydramnios, which can develop due to extragenital maternal pathology, placental insufficiency, intrauterine infections, and congenital fetal malformations. The incidence of these conditions remains high, making them relevant in modern clinical practice.

Oligohydramnios is associated with an increased risk of intrauterine growth retardation, chronic hypoxia, musculoskeletal deformities, and complicated labor. Polyhydramnios, in turn, can lead to uterine overdistension , premature labor, and is often accompanied by severe congenital fetal abnormalities. However, the clinical manifestations of these conditions do not always fully reflect the severity of the morphological changes in the placenta and fetal membranes.

Of particular interest is the study of clinical and morphological parallels in amniotic fluid volume anomalies, allowing for the comparison of clinical data with the results of placental morphological examination. This approach facilitates a more accurate assessment of the severity of pathological processes, clarification of their mechanisms, and prediction of perinatal outcomes. A comprehensive analysis of clinical and morphological parameters is essential for improving the diagnosis, prevention, and management of pregnancy in these complications.

The purpose of the work. To study clinical and morphological parallels in amniotic fluid volume anomalies and determine their significance for diagnosis and prognosis of pregnancy.

Materials and methods. The study was conducted using clinical observation data from pregnant women diagnosed with oligohydramnios and polyhydramnios, as well as the results of a morphological examination of the placenta. Clinical, ultrasound, and morphological examination

methods were used. The volume of amniotic fluid, fetal condition, the course of pregnancy and labor, and macro- and microscopic changes in the placenta and membranes were assessed.

RESULTS

The analysis revealed that abnormalities in the volume of amniotic fluid are accompanied by significant clinical and morphological changes, the degree of which varies depending on the form of the pathology and the severity of the pregnancy.

In pregnant women with **oligohydramnios** , the most common clinical signs were intrauterine growth retardation, decreased fetal motor activity, uterine size disproportionate to gestational age , and signs of chronic fetoplacental insufficiency. Ultrasound examination revealed a decreased amniotic fluid index and decreased blood flow in the uteroplacental and fetoplacental circulations, indicating impaired fetal nutrition.

Morphological examination of the placentas during oligohydramnios revealed pronounced degenerative and ischemic changes in the placenta. Macroscopically, a decrease in placental mass, uneven thickness, and the presence of infarcts and fibrinoid deposits were noted. Microscopically, sclerotic changes in the chorionic villi, reduced vascularity, and thickening of the basement membrane were detected, indicating chronic uteroplacental circulatory dysfunction. Fetal signs of organ hypoplasia, including lung hypoplasia, as well as limb deformities due to prolonged intrauterine space restriction, were observed.

In patients with **polyhydramnios,** the clinical picture was characterized by an enlarged uterus, a feeling of heaviness and abdominal pain, shortness of breath, increased uterine tone, and the risk of preterm labor. Ultrasound revealed a significant increase in amniotic fluid volume, as well as signs of fetal macrosomia or congenital malformations.

Morphological analysis of the placenta in polyhydramnios revealed an increase in size and weight, marked edema of the villous stroma, dilation of the intervillous spaces, and signs of venous congestion. In some cases, inflammatory changes in the amnion and chorion were detected, potentially indicating intrauterine infection. Fetal malformations of the gastrointestinal tract and central nervous system, impairing the ingestion and resorption of amniotic fluid, were most frequently observed.

A comparison of clinical data with the results of morphological examination revealed clear clinical and morphological parallels: the severity of clinical manifestations directly correlated with the severity of structural changes in the placenta and fetal organs. The most severe clinical forms of oligohydramnios and polyhydramnios were accompanied by severe morphological abnormalities, significantly worsening the perinatal prognosis.

CONCLUSIONS

1) Anomalies in the volume of amniotic fluid are accompanied by characteristic clinical and morphological changes in the placenta and fetus.
2) Oligohydramnios is most often associated with chronic placental insufficiency and fetal growth retardation.
3) Polyhydramnios is often associated with congenital malformations and inflammatory changes in the membranes.
4) Analysis of clinical and morphological parallels is important for prognosticating pregnancy and choosing patient management tactics.

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