

Poster number 4229750

Placental dysfunction that predicts increased endothelin-producing vascular activity in fetal ovaries from pre-eclamptic pregnancies

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Introduction

The complex of vascular and hormonal changes that develop in the feto-placental complex in women whose pregnancy is complicated by pre-eclampsia (PE) stimulates a systemic response from the internal organs of the fetus. First of all, it is applied to organs the structure of which changes depending on the gestation period and directly depends on the state of the mother's body. These organs include the ovaries. The purpose of the study is to postulate the level of endotheline-producing activity of the vascular component of the ovaries of fetuses from mothers suffering from PE.

Methods

Anthropometric, organometric, histological, histochemical, immunohistochemical, morphometric and statistical.

Results

Fetal weight and ovarian weight of fetuses of the comparison group were significantly reduced compared to those in the control group. The immunohistochemical method with an application of MCAT for endotheline-1 has revealed an increase of the luminescence of vascular endotheliocytes in the ovaries of fetuses born to mothers suffering from PE. In all cases, the intensity of the glow was significantly higher in vessels of the venous type that in the vessels of the arterial type. During the analysis of the level of intensity of endotheline-1 in relation to the period of the fetal gestation, we have found out that the intensity of glow of the aforementioned specimens changed as follows: the minimum values correspond to fetuses with a gestation period of 21-28 weeks; maximum ones - 37-40 weeks.

Conclusions

Therefore, we can postulate that the increase in the glow of the endotheliocytes in the ovaries of fetuses who were born to mothers suffering from PE which was emphasized above is one of the links of the systemic response of the fetal organs to the complex of changes in the placenta which develop during PE. The aforementioned features may contribute to the development of ovarian hyperstimulation syndrome in fetuses with exhaustion and the formation of insufficiency in the further ontogenesis.

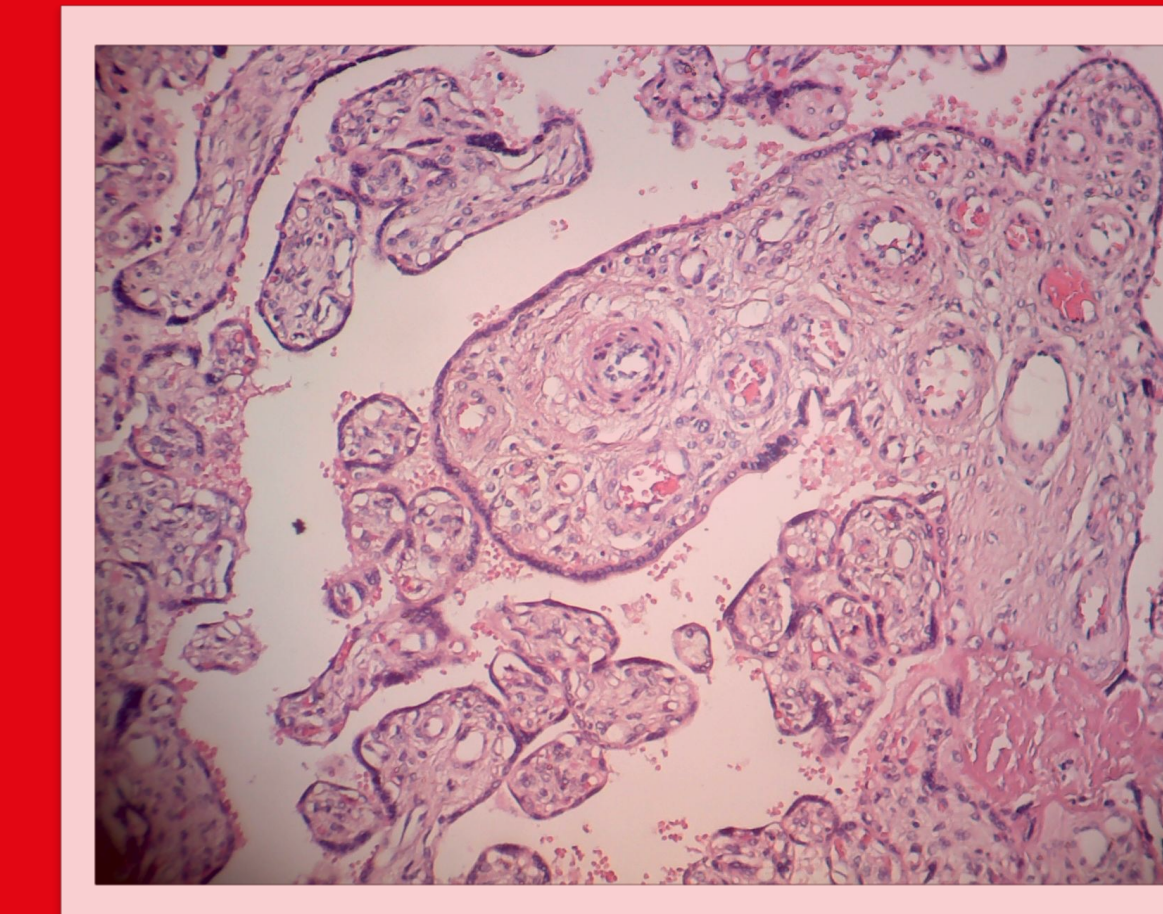


Figure 1. "Pregnancy, 38-40 weeks.

Placenta with fields of fibrosis. Stained with hematoxylin and eosin, x100.

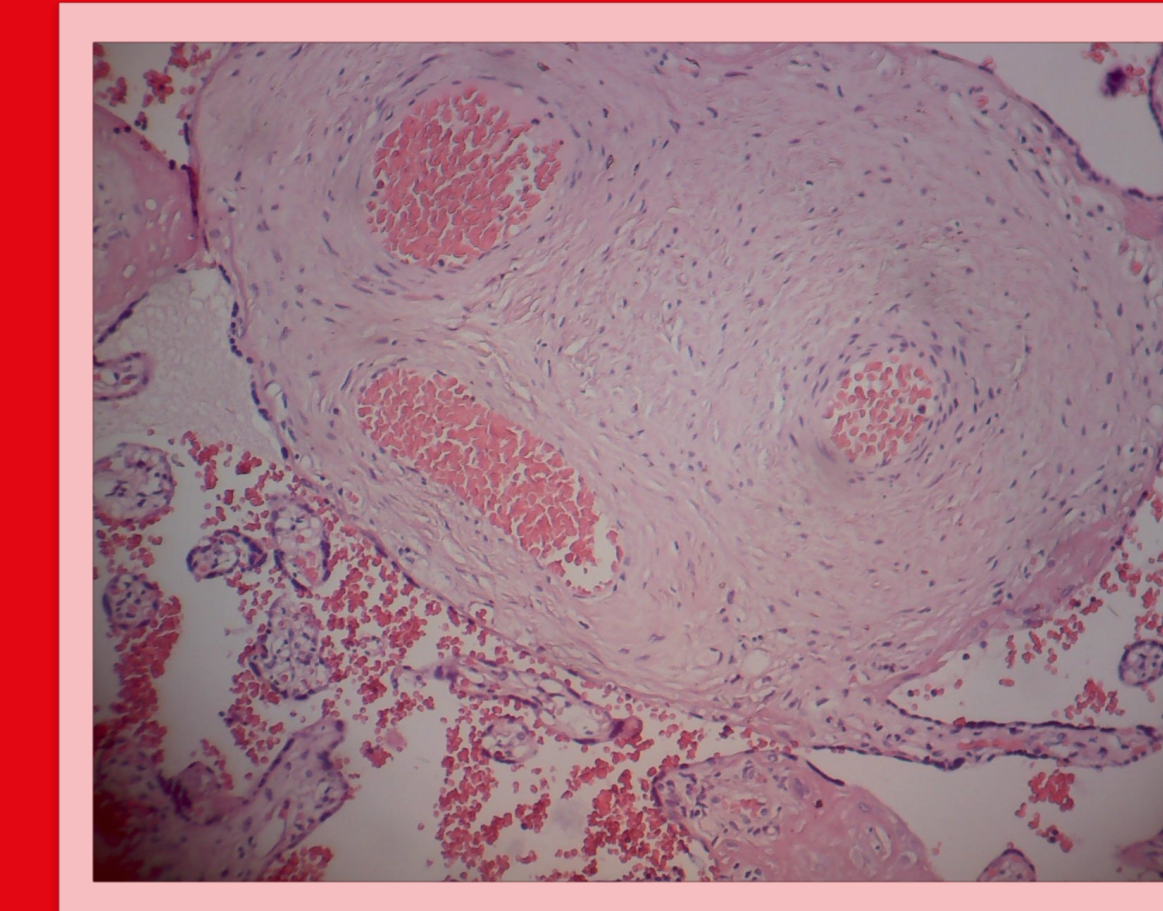


Figure 2. Pregnancy, 38-40 weeks.

Placenta with full blood vessels and fields of fibrinoid. Stained with hematoxylin and eosin, x100.

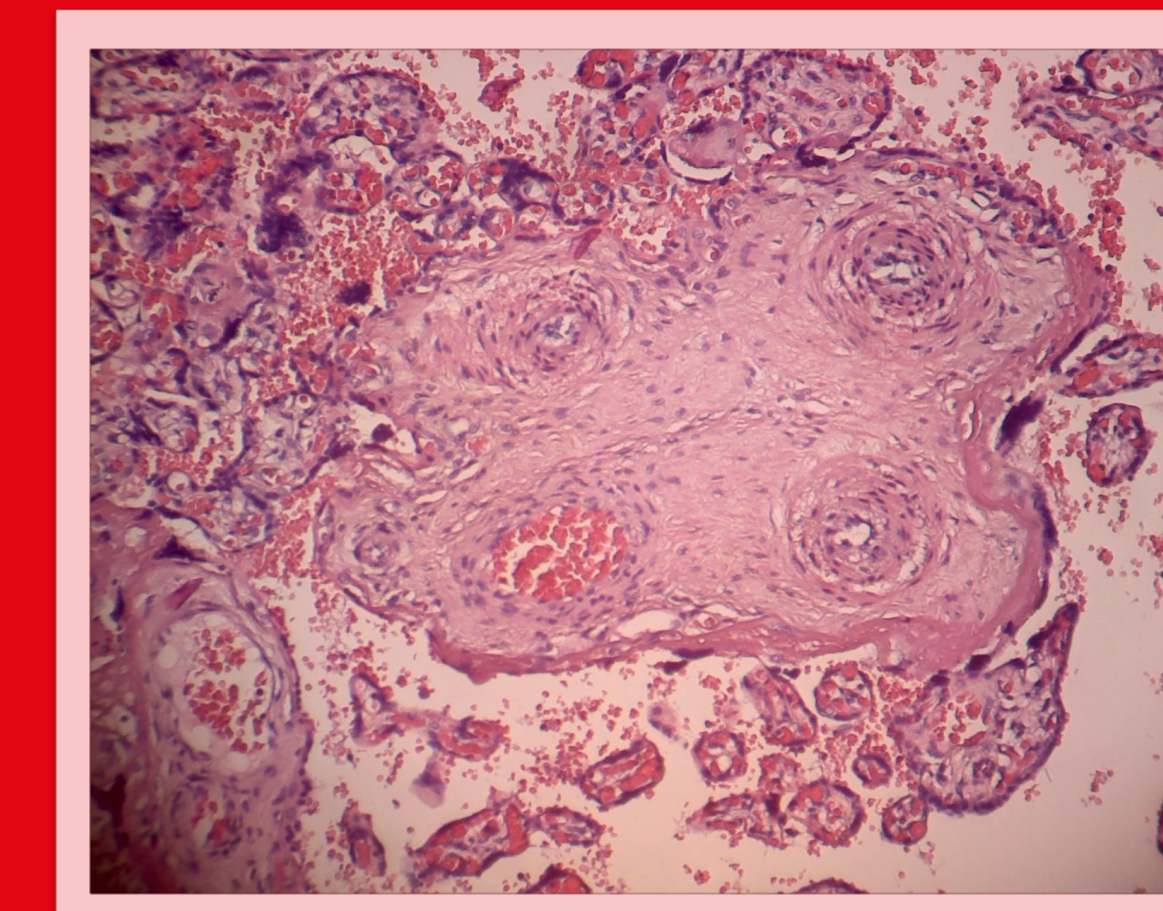


Figure 3.

Pregnancy, 38-40 weeks. Placenta with distinct sclerotic changes. Stained with hematoxylin and eosin, x100.

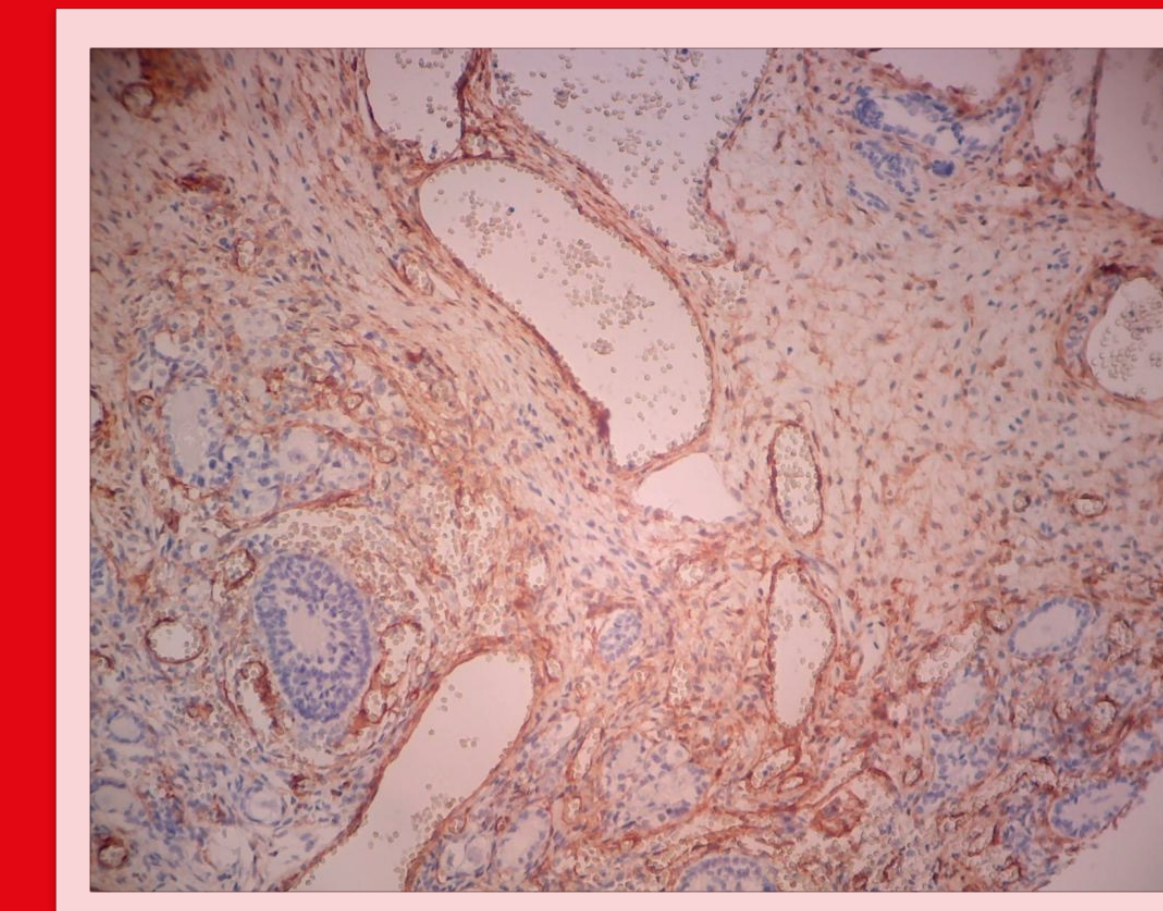


Figure 4.

Fetal ovary of the main group I with a gestational term of 29-36 weeks. Mild preeclampsia. Enhanced endotheline-producing activity of cells of the ovary. Immunohistochemical method with MCAT to CD34, x200.

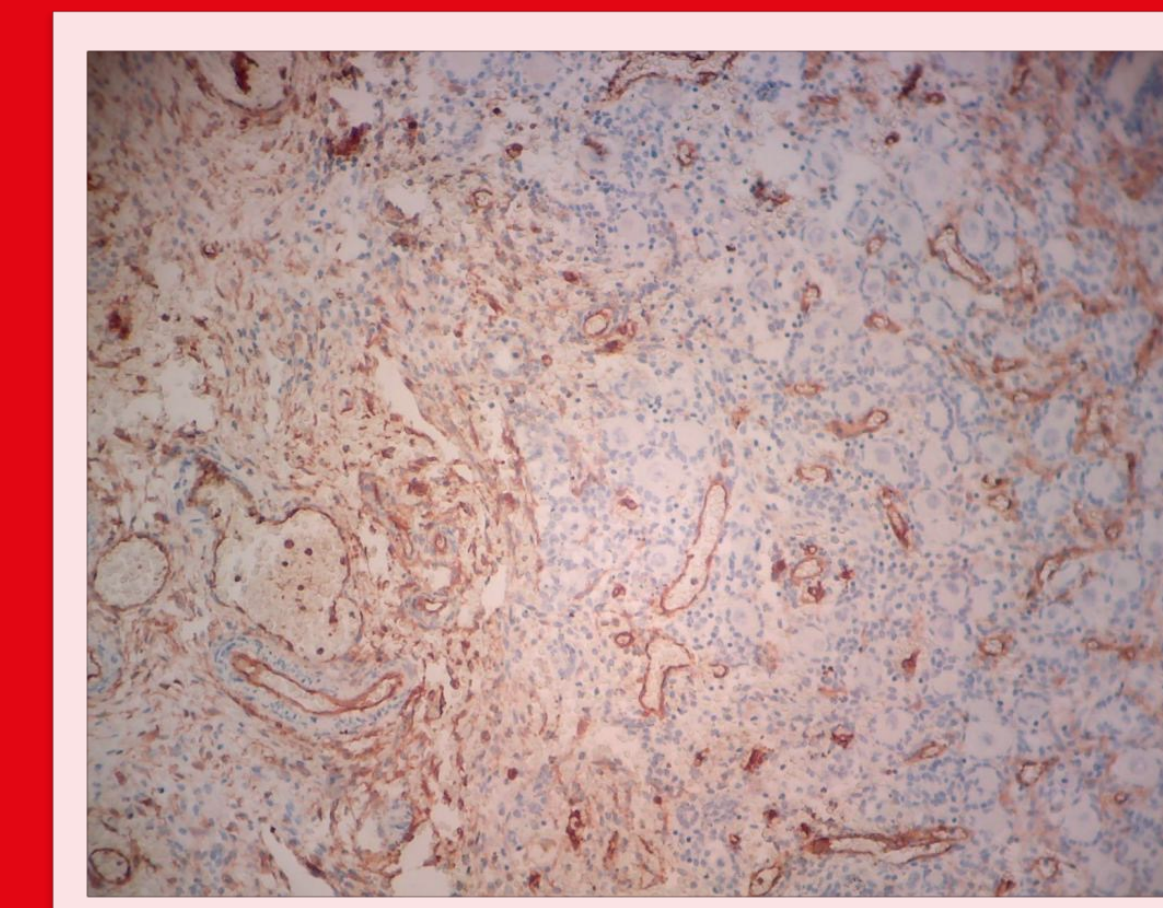


Figure 5.

Fetal ovary of the main group I with a gestational term 37-42 weeks. Severe PE of the mother. Immunohistochemical method with MCAT to CD34, x200.