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VASCULAR-TISSUE INTERRELATIONS IN THE WALL OF THE LEFT ATRIUM OF HUMAN FETUS

The study was performed as a part of research work “Development and formation of organs and tissues of experimental animals and human during ontogenesis in norm and under the influence of external factors” (state registration number 0112U002124).

ABSTRACT. Background. Heart diseases are characterized by increased incidence and insufficient knowledge of the mechanism of their development. **Objective.** The aim of the work was to study the morphological features of the interrelations of arterial, venous and lymphatic coronal vessels with tissue and cellular elements in the wall of the left atrium of human fetuses. **Methods.** Hearts of human fetuses from 20th to 32th week of prenatal development in the number 20 were investigated. The sections were processed with primary monoclonal antibodies Ki-67, Prox-1. For the identification of the immunocytochemical reaction chromogen diaminobenzidine tetrachloride 3 solution was applied; positive reaction was detected by the rich brown coloring of specific cells. **Results and conclusion.** The wall of the atria in human fetuses has all the hallmarks of the definitive structure with areas with different degrees of proliferative activity of cellular elements, relative determinism of intramural vascular bed. The proliferative activity of the cellular elements of the atria in fetuses has topological features with excessive level of proliferative activity in subendocardial and middle layers of the myocardium and a low degree in the subepicardial layer of the myocardium. In the fetal period all the elements of the morphological differentiation of vascular elements are present in the wall of the atria, it is confirmed by histological and molecular markers.

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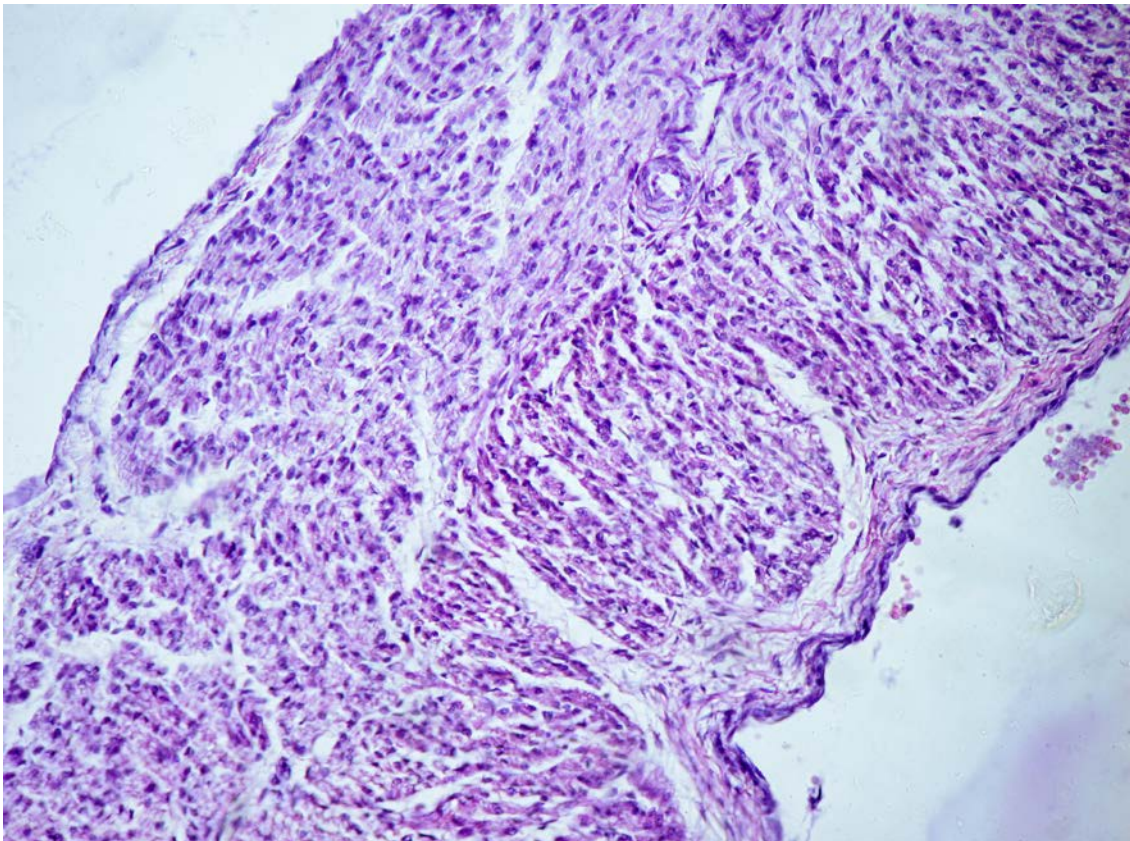


Fig. 1. Left atrium wall of human fetus aged 20 weeks. Hematoxylin&Eosin staining. x200.

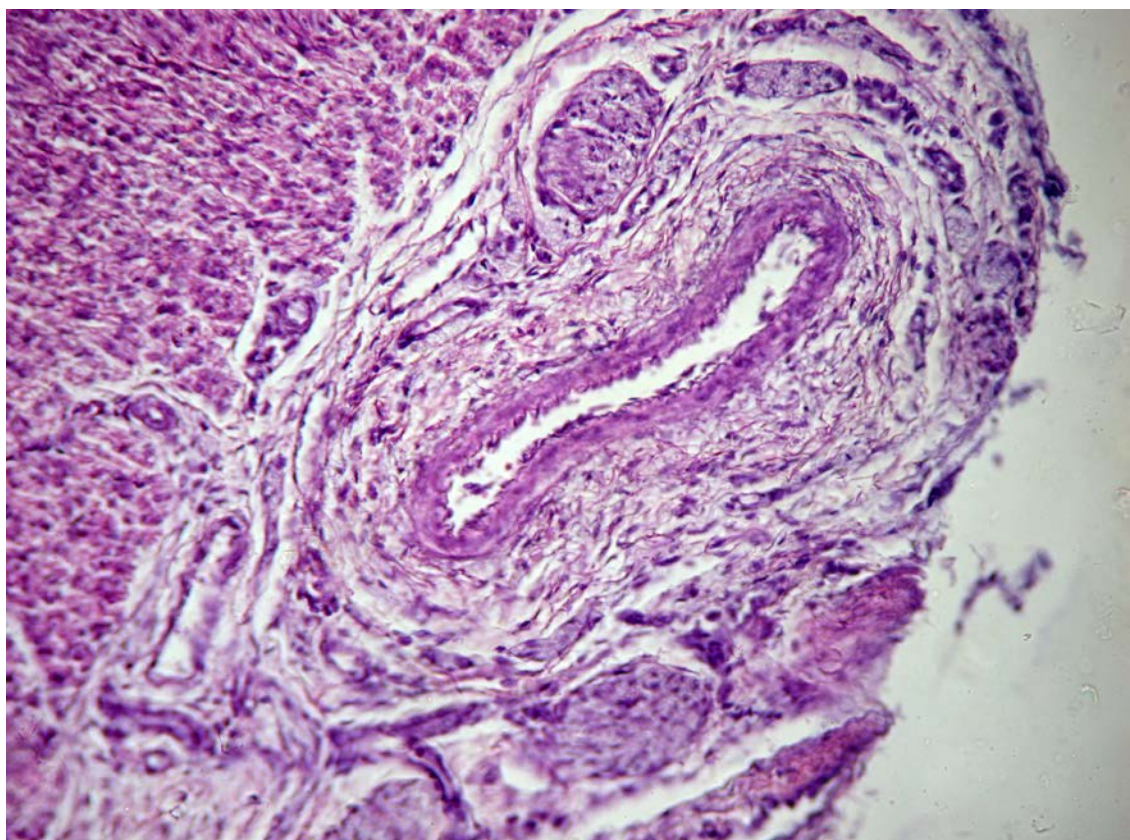


Fig. 2. Left atrium wall of human fetus aged 22 weeks. Hematoxylin&Eosin staining. x200.

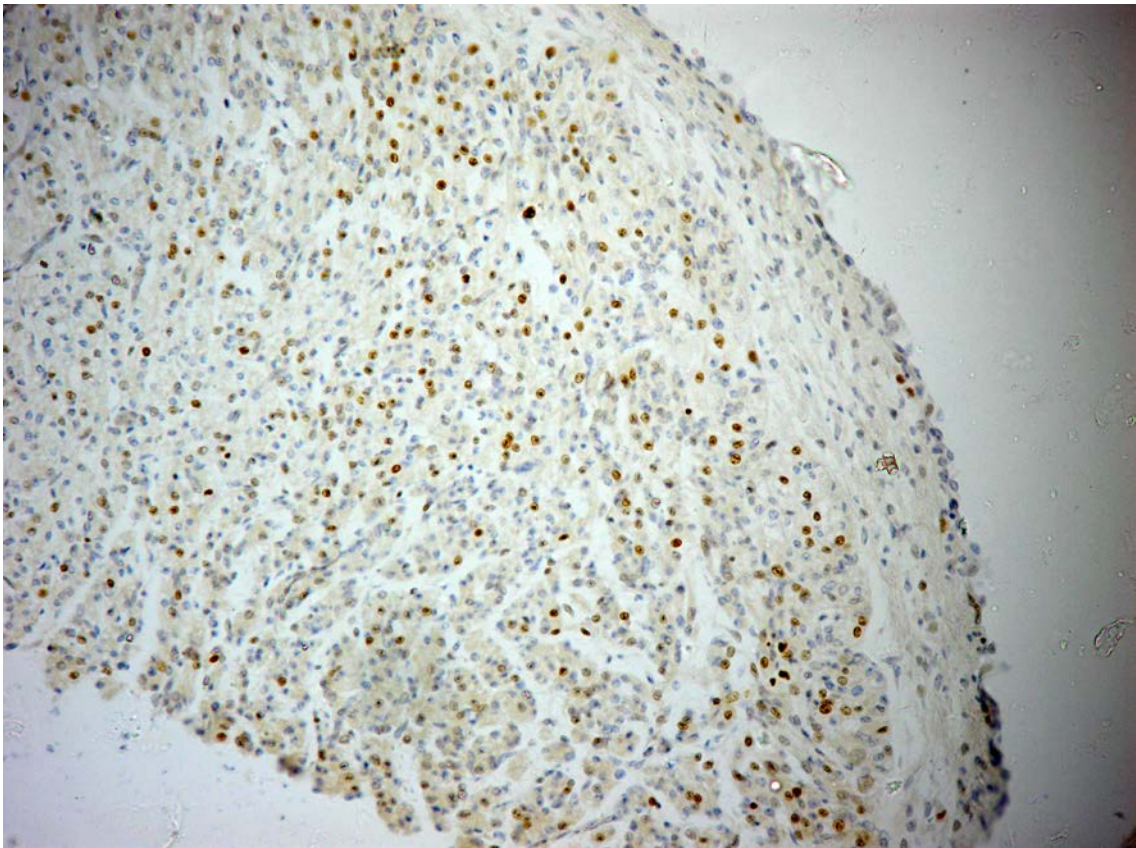


Fig. 3. Left atrium wall of human fetus aged 22 weeks. Immunohistochemical reaction with Ki-67 marker. x200.

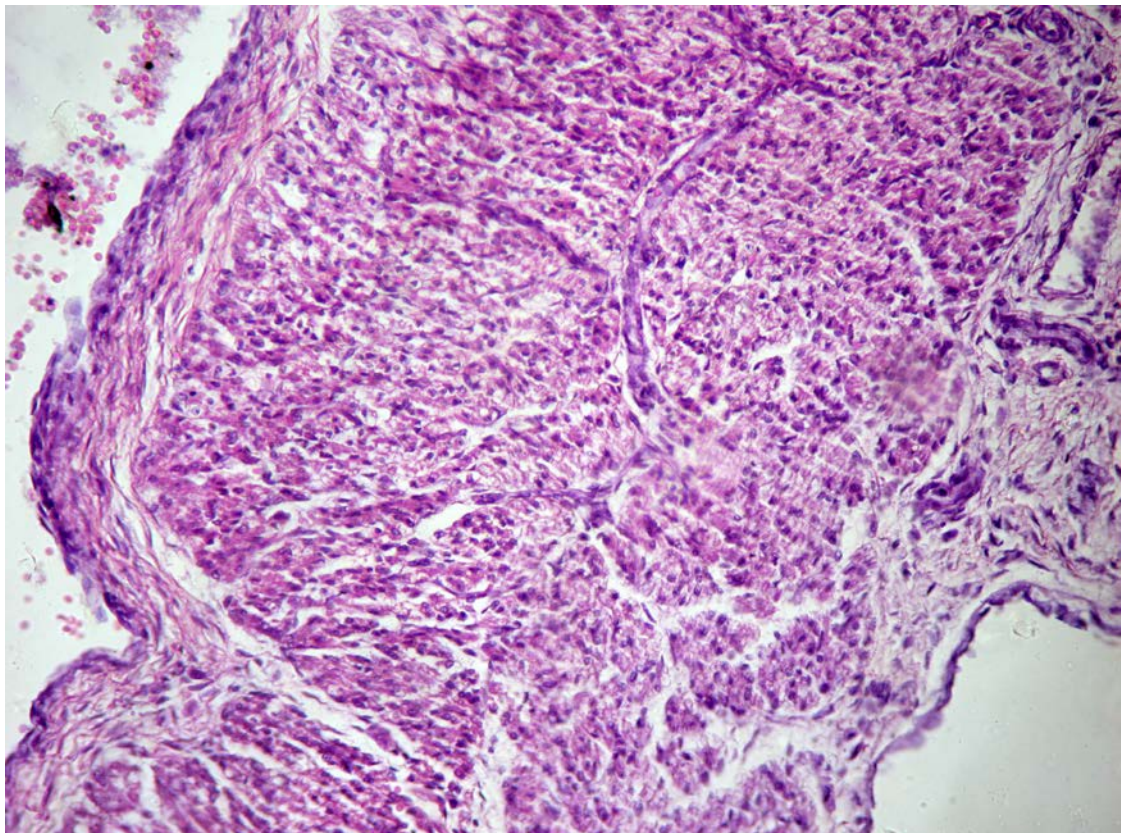


Fig. 4. Left atrium wall of human fetus aged 28 weeks. Hematoxylin&Eosin staining. x200.

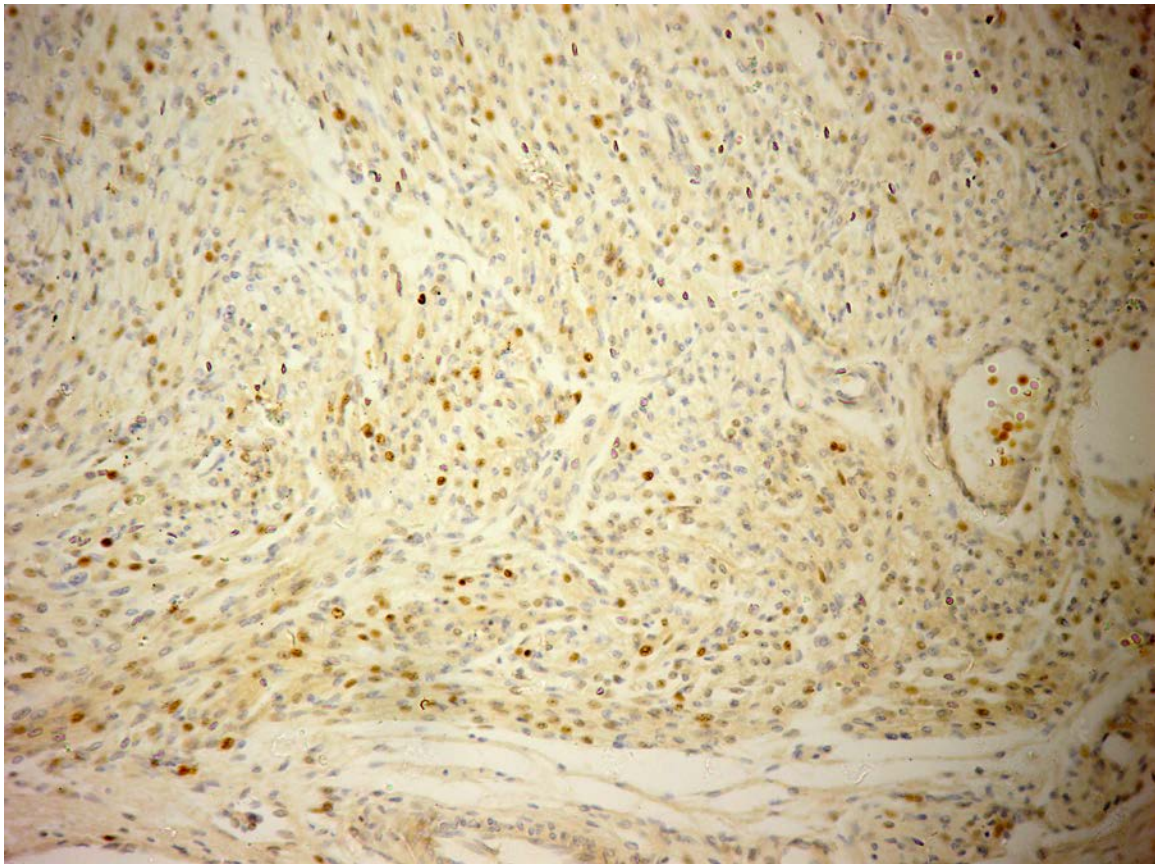


Fig. 5. Left atrium wall of human fetus aged 32 weeks. Immunohistochemical reaction with Ki-67 marker. x200.

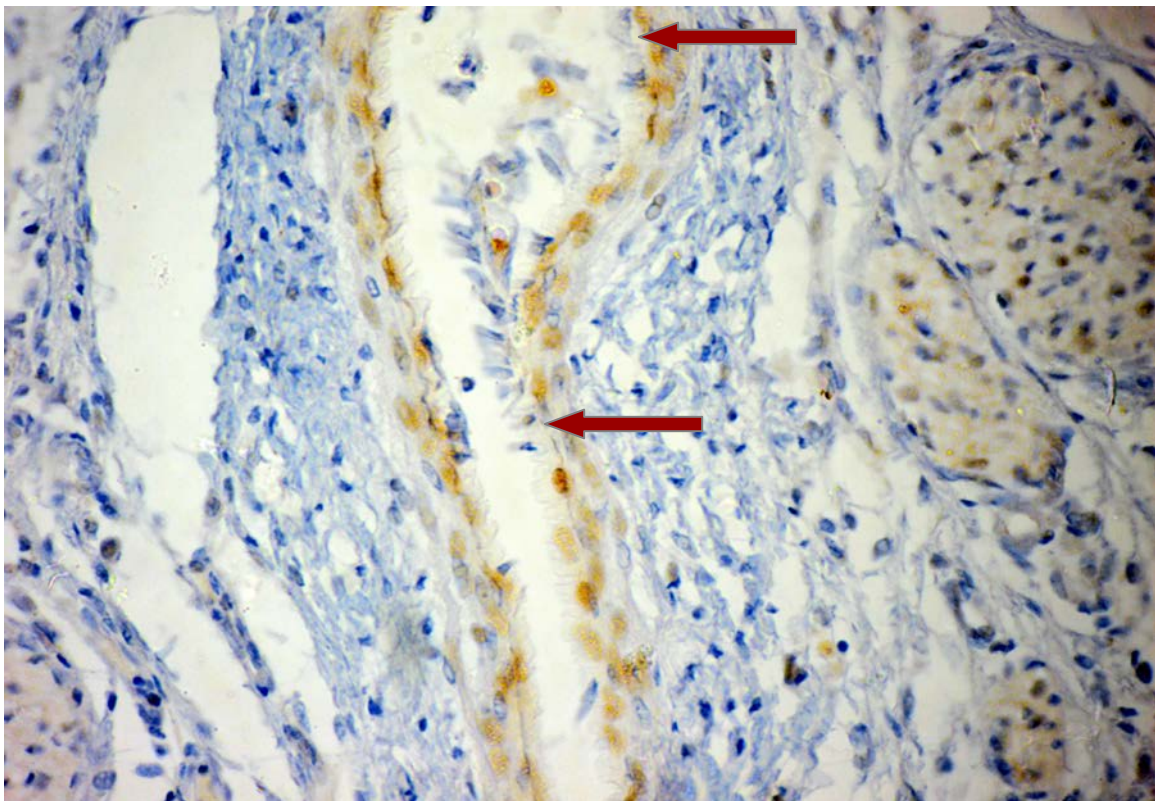


Fig. 6. Left atrium wall of human fetus aged 20 weeks. Immunohistochemical reaction with Prox-1 marker. x400. Arrows indicate Prox-1-positive endothelial cells.

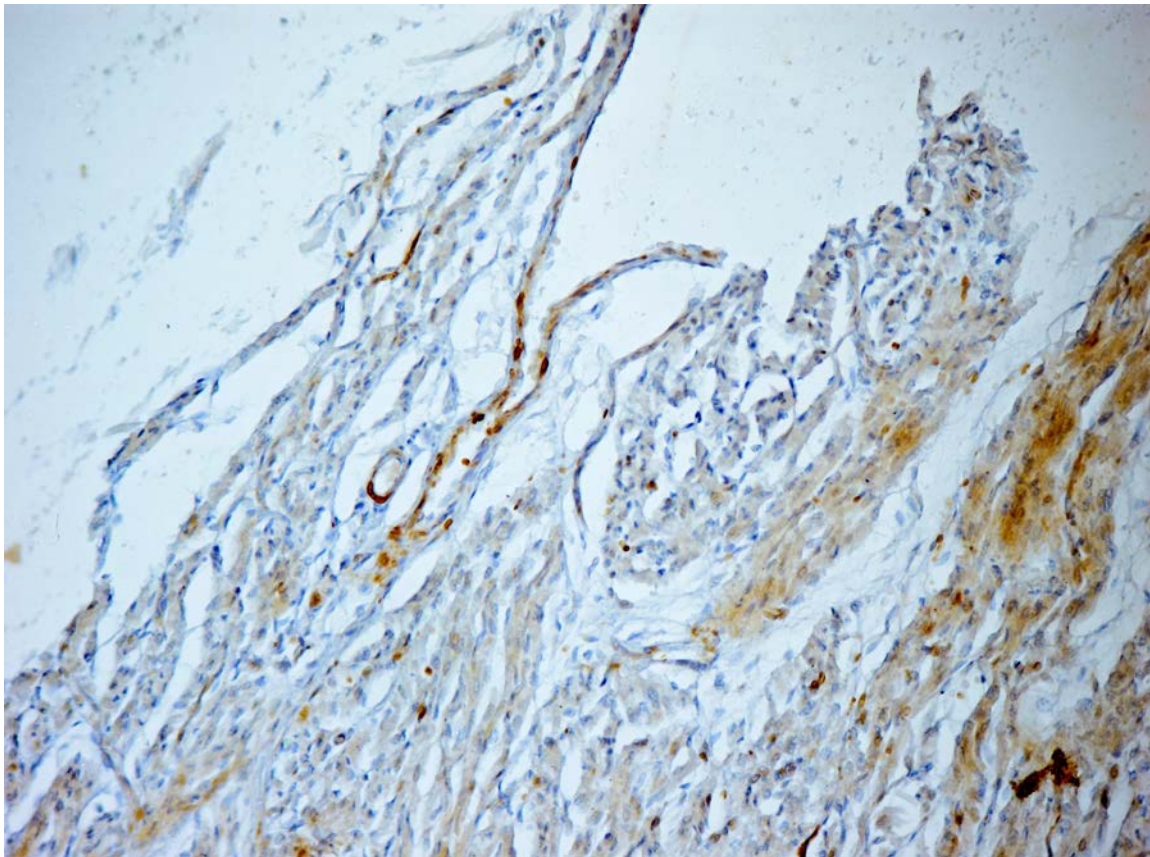


Fig. 7. Left atrium wall of human fetus aged 20 weeks. Immunohistochemical reaction with Prox-1 marker. $\times 400$.

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