The role of perinatal autopsy in prenatal interventions patients.

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Introduction:
Knowledge about results of prenatal interventions and causes of perinatal mortality related to them remains insufficient. There are no collected autopsy data regarding patients who died in utero or in the early neonatal period published so far. We report autopsy results of foetuses and newborns who died after prenatal interventions. Methods:
Between 2011-2012 19 fetal procedures were performed: balloon aortic valvuloplasty (BAV) -13, pulmonary balloon valvuloplasty (PBV) -2, balloon atrial septoplasty (BAS) - 2. In one fetus with hydrops due to severe heart failure and polyhydramnios, BAV, BAS and implantation of stent to the interatrial septum (SIAS) were done. Interventions were performed between 20 and 31 week. 3 fetuses and 1 neonate died: 2 foetuses after BAV died in utero (late placental insufficiency unrelated to BAV - 1, placental abruption after transplacental BAV - 1), 1 foetus after BAS died in utero due to cardiac tamponade, 1 neonate born in 30 weeks after BAV, BAS and SIAS in 8th day of life due to multi-organ failure. Autopsy was performed in all 4 cases.

Results:
In foetuses and the newborn after BAV the autopsy revealed dysplastic, bifoliate aortic valves and confirmed the technical success of BAV. The left ventricle of one foetus was severely dilated and thin-walled. In the other foetus after BAV and in the newborn after BAV, BAS and SIAS extensive endocardial fibroelastosis and diffuse myocardial fibrosis were observed. In foetus after BAS the perforation in the interatrial septum was almost entirely obstructed. Thickened left atrial and pulmonary venous walls were found. The stent in the interatrial septum in newborn after BAV, BAS and SIAS was in good position. The thrombus attached to its wall appeared to be responsible for postnatal stent obstruction and unfavourable outcome.

Conclusions:
In all foetuses and newborns who died after prenatal interventions the autopsy should be obligatory. It allows to check results of procedure and explain causes of perinatal mortality. Autopsy data from all prenatal intervention centres should be collected and correlated with clinical and embryological studies.