Prenatal cardiac tumors: spectrum and outcome

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Introduction: all foetuses in the Czech Republic with suspected heart lesions are referred to a specialised centre for final diagnosis. The aim of the study was to establish aetiology, course and outcome of foetuses and children with prenatally diagnosed cardiac tumors.

Patients and methods: retrospective study of all prenatally diagnosed tumors in the Czech Republic between 1994 and 2011.

Results: 53 foetuses were identified to have single or multiple cardiac tumors: 45 (85%) rhabdomyomas, 3 (5.5%) teratomas, 3 (5.5%) fibromas, 1 (2%) hemangioma and 1 (2%) hamartoma. In 8 cases, parents elected to terminate the pregnancy: 4 rhabdomyomas due to MRI diagnosed tuberous sclerosis, 2 tumors almost completely obturating the cavity of left (fibroma) or right (rhabdomyoma) ventricle leading to univentricular haemodynamics, another 2 (fibroma, hamartoma) associated with severe extracardiac lesions. From 40 continuing rhabdomyomas, 32 (80%) were multiple, 6 (15%) had inflow/outflow obstruction, arrhythmias in 4 (10%), 1 died in utero (hydrops). Five out of 39 born alive were operated at the age of 10±4 weeks, 2 of them died. Tuberous sclerosis was detected in 19/20 (95%). From 2 continuing pregnancies with teratomas, 1 died in utero, 1 with massive pericardial effusion and progressive tumorous enlargement was successfully drained prenatally and operated in early neonatal period. 1 hemangioma was successfully extirpated in the neonatal period.

Large variability in size of tumors was found ranging from 3 to 55mm (median 6). Rhabdomyomas (median 14mm) were smaller than teratomas (42mm, p 0.03) and fibromas (53mm, p 0.002). Teratomas rapidly enlarged, 9/15 rhabdomyomas grew since the detection (27±6.5 week of gestation) to birth, size of rhabdomyomas in all survived children postnatally regressed. 3 women had again foetuses with rhabdomyomas in their subsequent pregnancies.

Conclusion: Rhabdomyomas are most commonly prenatally detected cardiac tumors. They show prenatal growth in 56% but are usually not significant haemodynamically and do not require immediate postnatal surgery. For the remaining rare tumors both prenatal and postnatal treatment may be life-saving in case of hemodynamic derangement.

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