

Use of Micro Vascular Plug System Covidien in children : indications and results

Malekzadeh-Milani S., Sitefane F. , Boudjemline Y.

Centre de Référence Malformations Cardiaques Congénitales Complexes – M3C, Necker Hospital for Sick Children, George Pompidou European Hospital, Assistance Publique des Hopitaux de Paris, Paris, France

Introduction

In various conditions, devices are needed to occlude abnormal vascular connections. In children with congenital heart disease, access to vascular abnormalities might be hazardous : need of rigid delivery system to deploy the device, small or tortuous vessel. The micro vascular plug MVP[®] Covidien is an alternative to existing device specially in small children or in complex anatomy. The MPV is available in 2 size currently : MPV-3 for occlusion of vessel size from 1,5 to 3.0mm and MPV-5 for vessel from 3.0 to 5.0 mm. We report our initial experience with MPV-3 and MPV-5 in children.

Methods

We reviewed all children who received Micro Vascular Plug Covidien from April 2015 until October 2016. Demographics, indication for plug implantation, number of plugs, size of plugs (3Q and 5Q) and immediate outcome are reported.

Results

42 patients received 60 microplug (27 MPV-3 and 33 MPV-5). Plugs were inserted through 4 Fr catheter or through Microcatheter (Progreat, Terumo). Mean age was 4,7 y (14 d-18,46 y). Mean weight was 17,4 kg (2,2kg-66 kg). Mean BSA was 0,75 (0,18-1,8). Indications were PDA closure in 9 patients (4 new borns or premature patients), closure of veno-venous collaterals in 8 patients and left SVC in 3 patients. In 15 cases occlusion of aorto-pulmonary collaterals were achieved. 4 patients had pulmonary sequestration occlusion and one pulmonary arterio venous malformation was occluded. Plugs were used to close 3 Blalock Taussig and 2 coronary artery fistula. Plug embolisation occurred in 2 patients with successful lasso retrieval (1 PDA and 1 coronary artery fistula) and further occlusion with larger plugs was performed. In 3 patients, residual shunt was closed with additional vascular plugs or coils. In the remaining 37 patients, immediate complete occlusion of the shunt was obtained.

Conclusion :

The Micro Vascular Plug Covidien is a good device to close various abnormal vascular communications in children. Rate of closure is high with no serious adverse event.