10082

Development of a Fenestrated Aortic Arch Stent Graft with Preloading Catheter to Protecting Branch Arteries

[Purpose] We developed fenestrated aortic arch stent graft (FASG) with preloading catheter to save branch arteries and performed preclinical study with swine.[Methods] Six FASGs with 1 preloaded catheter and 1 side branch stent graft(1-branch FASG) and 5 FASGs with 2 preloaded catheters and 2 side branch stent grafts(2-branch FASG) were advanced through the iliac artery in 11 swines. The presence of endoleak and the patency and deformity of the grafts were examined with computed tomography (CT) at 4 weeks postoperatively. A postmortem examination was performed at 8 weeks to evaluate the gross morphology, and deformity of stent graft. [Results] The mean procedure time for the 1-branch and 2-branch FASG groups was 31.0±5.0 and 45.8±9.6 minutes, respectively. Meanwhile, the mean time for the selection of the carotid artery was 4.8±0.7 minutes and 6.8±2.5 minutes, respectively. One pig died at 4 weeks after the CT examination, while the remaining 10 pigs survived the 8-week observational period. For both the 1-branch and 2-branch FASG groups, no endoleak, no disconnection of the stent grafts, and no occlusion of the stent grafts for the carotid arteries were observed in the CT findings at 4 weeks. No disconnection or tearing of the stent grafts, fractures in the stent grafts, and occlusion of the stent graft for carotid arteries were found in the postmortem findings.[Conclusion] Fenestrated aortic arch stent graft with preloading catheter to save branch arteries was safe and convenient in the preclinical study with swine.