P066 Comparative animal study of the ureteropelvic junction healing after laparoscopic pyeloplasty: Standard ureteral stent versus biodegradable anti-reflux intra-ureteral stent

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Soria F.[1], Delacruz J.E.[1], Sousa-Cervera C.[1], Caballero-Romeu J.P.[2], Perez-Fentes D.[3], Cepeda Delgado M.[4], Sanchez-Margallo F.M.[1]

[1]Minimally Invasive Surgery Centre Jesus Uson Foundation, Dept. of Endoscopy-Endourology, Caceres, Spain, [2]Hospital Vinalopo, Dept. of Urology, Elche, Spain, [3]Hospital Universitario de Santiago, Dept. of Urology, Santiago de Compostela, Spain, [4]Hospital del Rio Hortega, Dept. of Urology, Valladolid, Spain

Introduction & Objectives: Comparison and pathological assessment of the ureteropelvic junction after laparoscopic pyeloplasty and ureteral stenting with standard double pigtail stent and antireflux biodegradable ureteral stent (BraidStent©) in porcine animal model.

Materials & Methods: We used 24 healthy swine animal models. Phase-I, after baseline evaluation of the urinary tract by contrast fluoroscopy, ultrasonography, blood and urinalysis, study was started with the measurement of the UPJ diameter. Subsequently, an experimental model of obstruction of the pyeloureteral junction (UPJO) in the right ureter was performed. Phase-II, after 6 weeks the obstruction was diagnosed by means of retrograde ureteropyelography (RUPG), excretory urography (UE) and percutaneous ultrasonography. Animals were randomly distribute in two homogeneous groups. Group-I. Anderson-Hynes Laparoscopic pyeloplasty , 7Fr ureteral stent (6 weeks). Group-II. Anderson-Hynes Laparoscopic pyeloplasty, Biodegradable anti-reflux intraureteral stent (BraidStent©), degradation time 4-6 weeks. Phase-III: After 5 months all the animals were assessed by the above mentioned diagnostic techniques and the UPJ pathological study was carried out. A subjective pathological assessment was performed blindly. Evaluating the following parameters: Urothelial resurfacing, Mural inflammation , Lamina propia fibrosis, fibrosis in the muscular layer, muscular integrity and alterations of the serosa, assigning values between 0 (no changes) and 3 (severe changes).

Results: The success rate in each group is consecutively: 87.5% and 90.2%, respectively. There are statistically differences between both groups, with a greater degree of histological injury in Group-I. By layers, statistical significance was found between Groups in the parameters "Urothelial resurfacing" and "fibrosis in the muscular layer". Sixty-six percent of ureteral wall lesions in Group I are moderate compared to 16% in Group II. Fragments of BraidStent© embedded in the ureteral wall are not found after pathological study.

Conclusions: The use of biodegradable antireflux ureteral stent, BraidStent©, after laparoscopic pyeloplasty demonstrates less histological damage in the ureteral healing wall. Without worsening the success rate of the surgery and avoiding the need for its withdrawal. Consequently, morbidity secondary to ureteral stents might be reduced using BraidStent©.