AISP - 36th National Congress. **Bologna, Italy. October 4-6, 2012**

Is Enucleation Safe When the Distance Between the Tumor and the Main Pancreatic Duct Is Less Than 3 mm? Results from a Multi-Institutional Retrospective Study

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Background Enucleation of small tumors can prevent pancreatic function impairment although the incidence of postoperative pancreatic fistula is relatively high. It has been suggested that this procedure should be avoided when the distance between the tumor and the main pancreatic duct is less than 3 mm. **Objective** To evaluate the safety of pancreatic enucleation for tumors distant less than 3 mm from the main pancreatic duct. **Methods** We reviewed the databases of the Department of Surgery of Marburg University (MU) and "Sacro Cuore" (SCH) Hospital of Negrar (1990-2012). All patients underwent intra-operative ultrasound (US) to measure the distance between the main pancreatic duct and the tumor. Binary logistic regression analysis of predictors of pancreatic fistula was performed. **Results** Sixty patients underwent enucleation in the two institutions. There were 21 males (35%) and 39 females (65%) with a median age of 50 years. The main reason for surgery was insulinomas (60%) followed by nonfunctioning neuroendocrine tumors (22%), gastrinomas (8%) and other tumors (6%). The median operative time was 137 minutes (IQR: 120-160). The overall rate of pancreatic fistula was 48% whereas the mortality was nil. The rate of pancreatic fistula was similar among the two institutions (55% in the SCH *versus* 42% in the MU; P=0.305). Overall, 31 patients (52%) had a distance between the tumor and the main pancreatic duct less than 3 mm. Re-exploration was necessary in 5 patients (8%) who had a tumor distant less than 3 mm from main pancreatic duct whereas the rate of grade C pancreatic fistula was similar among the two groups (25% *vs*. 29%; P=0.257). The only variable associated with a higher risk of pancreatic fistula was the distance between the tumor and main pancreatic duct less than 3 mm (odds ratio: 5.51; P=0.003). **Conclusions** Although the distance between the main pancreatic duct and tumor less than 3 mm is associated with a higher risk of pancreatic fistula, enucleation remains acceptably safe also in this group of patients. An intra-operative US is always mandatory to improve the post-operative management other than preventing main pancreatic duct injuries.