Introduction

Laparoscopic Pancreaticoduodenectomy (LPD) has recently been shown to be a technically safe procedure. Oncological safety of LPD is still a matter for debate. Currently, there is limited evidence for cancer outcomes following LPD, especially in comparison to Open Pancreaticoduodenectomy (OPD). The aim of this study is to compare the adequacy of cancer resection and outcome following LPD and OPD.

Methods

Between November 2005 and April 2009, 12 LPD’s (nine ampullary and three distal Common Bile Duct tumours) were carried out in a tertiary referral centre. A cohort of 12 patients who underwent OPD from November 2005 to February 2007 were matched for age, sex, site of tumour origin and tumour size. Histology was assessed using previously validated Leeds Pathology Protocol (LEEP) (Ref). The primary aim was to evaluate margin involvement and mean number of lymph nodes excised. The secondary endpoints were complications, high-dependency unit (HDU) stay, length of hospital stay (LOS), recurrence and mortality rate. The median follow-up was 46.8 months for LPD and 56.0 months for OPD.

Results

R0 resection was achieved in 9 LPD vs 8 OPD (p=1.000). The T staging T2, T3, T4 were 6, 4, 2 for LPD vs 6, 5, 1 for OPD respectively (p=1.000). The mean tumour size was 19.8 for LPD Vs 19.2 for OPD (p=0.870). The mean number of lymph node excised for LPD vs OPD (20.7 vs 18.5, p=0.554). Clavien grade I/II complications (5 vs 8), Clavien grade III/IV complications (2 vs 6) and pancreatic leak (2 vs 1) were statistically not significant (LPD vs OPD). The mean HDU stay was longer in OPD group (3.7 vs 1.4 days, p<0.000), but LOS was no different (14.9 vs 14.9 days, p=1.000). There were two recurrences in each in LPD and OPD group (p=1.000). Overall mortality for LPD vs OPD (2 vs 6, p=0.193) and recurrence-related mortality (2 vs 2, p=1.000).

Conclusion

Compared to open procedure, in patients with tumour size <2 cm, laparoscopic pancreaticoduodenectomy achieves similar rate of R0 resection, lymph node harvest and long-term recurrence. LPD patients have significantly shorter high-dependency stay and lesser post-operative complications. Though technically challenging, laparoscopic pancreaticoduodenectomy is safe and does not compromise oncological outcome for tumours <2 cm.