



A CASE SERIES OF WHIPPLES PROCEDURE IN PERIPHERAL RURAL MEDICAL COLLEGE

Dr. K. Ashok Kumar*	M.S., Assistant Professor, Department of General surgery, Govt. Theni Medical College. *Corresponding Author
Dr. S. Muthuraj	M.S., Associate professor, Department of general surgery, Govt Dindigul Medical College.
Dr. P. Sangaiyaraja	M.S., Associate professor Department of general surgery, Govt Karur Medical College.
Dr. R. Nandhini	M.S., Junior Resident, Department of General surgery Govt Theni Medical College.

(ABSTRACT) **AIMS:** This article is a case series of Whipples procedure at Govt Theni Medical College and Hospital. The study was conducted for a period of one year from May 2019- May 2020. In this study we intended the outcome of Whipples procedure and its morbidity and mortality.

METHODS: This study was performed by collecting data of patients who underwent Whipples procedure. Those who had unresectable tumors and who underwent palliative surgery were excluded from the study.

RESULTS: In this case series of 10 patients, 8 had carcinoma head of pancreas, 1 had periampullary carcinoma and 1 had adenocarcinoma of duodenum. Adenocarcinoma of pancreas was the most common indication of this procedure. Major post-operative morbidity of these patients was due to anastomotic leak and pulmonary complications.

CONCLUSION: We concluded that though Whipples procedure is an extensive surgical procedure with high mortality and morbidity, with proper preoperative workup and preparation, proper surgical technique and intensive post-operative this can be performed with reasonably good outcome. Pulmonary complication and septicemia secondary to anastomotic leakage are the most common cause of morbidity and mortality

KEYWORDS : Pancreatic cancer, Periampullary carcinoma, Whipples procedure

INTRODUCTION

Pancreatic malignancy is a major health concern throughout the world and is fourth leading cause of cancer deaths in US. Worldwide, over 200,000 people die annually of cancer of pancreas. The incidence of cancer increases with age, majority beyond sixth decade of life with slight male preponderance. The 5-year survival rate of patients who undergo whipples procedure is 10 to 25%. Surgery is the corner stone of treatment of these patients with biliary stenting and chemotherapy playing a supportive role

PREDISPOSING FACTORS

The established risk factors are smoking and inherited susceptibility. Hereditary risk factors include HNPCC, BRCA2 mutation, Peutz jehgers syndrome accounts for 10% of all cases. The associated risk includes chronic pancreatitis, type 2 diabetes mellitus, obesity.

HISTORY

The first successful resection of periampullary tumor was done by Halsted in 1898. He described a local resection with reanastomosis of pancreatic and bile ducts to the duodenum. In 20th century, Codivilla performed the first en block resection of head of pancreas and duodenum, but patient did not survive after early postoperative period. Kausch performed the first successful 2 staged procedure of pancreaticoduodenectomy in Germany in 1909. Hirschel, in 1914 done one staged procedure successfully. In 1935 whipple and his colleagues reported 3 successful two staged en block resection. Currently the whipples procedure is performed at many centers which carries a mortality of approximately of 2%.

MATERIALS AND METHODOLOGY

The data related to the 'pancreaticoduodenectomy' were collected as per the proforma designed for this study in Govt. Theni Medical college. The parameters and variables were patient demographic data, details of postoperative course, comorbidities, pathology, cause of postoperative complications, death. According to NCCN consensus guidelines, 2016, those tumors with solid tumor in contact with SMA/cealic axis more than 180 degree, solid tumor in contact with first jejuna SMA branch, SMV- PV occlusion without option for reconstruction were considered unresectable and those received neoadjuvant chemotherapy were excluded from the study. All the case were opened by bilateral subcostal incision and resection of specimen with triple anastomosis done. Duration of surgery was 5-6 hours.

RESULTS

Ten cases were included in this study for a period of one year from May

2019 to May 2020. In this study the most common indication for whipples procedure was adenocarcinoma pancreas. Majority of the patients were in the age group of 61-70 years (30%). Out of 10 patients 7 were male and 3 were female. Table 1 gives the age distribution.

The most common presenting symptom was abdominal pain followed by jaundice, anorexia, weight loss. Computed tomography with pancreatic protocol was done in all patients before surgery. Preoperative diagnosis was periampullary carcinoma in 60% patients and intraoperative diagnosis was carcinoma head of pancreas in 80% cases. Table 2 and Table 3 gives the preoperative and intraoperative diagnosis. The mean operating time was 300 minutes.

POSTOPERATIVE COURSE

Post operatively the mean duration of hospital stay was 43.1 days. The incidence of major complications were 40% and minor complications were 45%. Table 4 and Table 5 gives the postoperative events and postoperative complication.

MORTALITY

Out of 10 patients, 1 succumbed due to septicemic shock and ARDS.

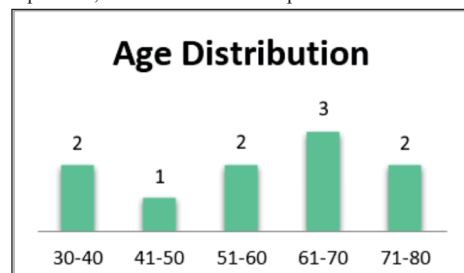


Table 1: Age distribution

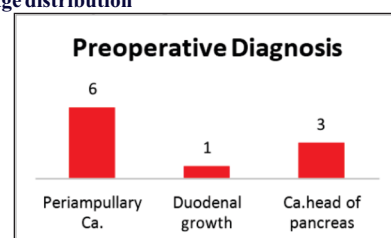


Table 2: Preoperative Diagnosis

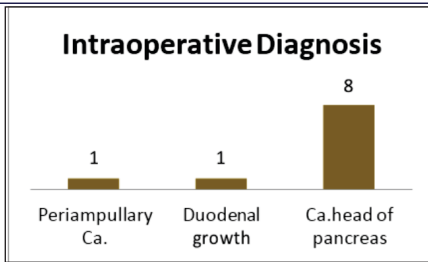


Table 3: Intraoperative Diagnosis

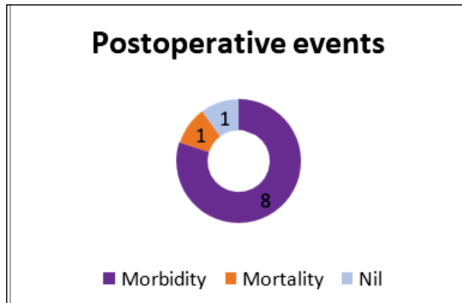


Table 4: Postoperative Events

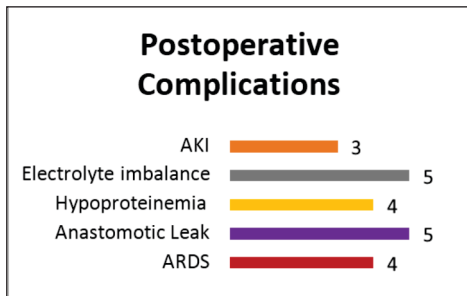


Table 5: Postoperative Complications

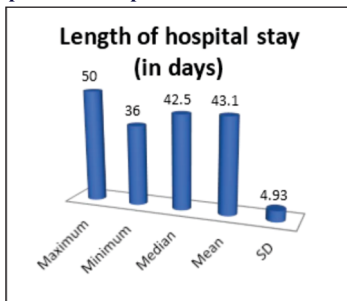


Table 6: Length of hospital stay (in days)

Table 7: Postoperative Complications

Complications	No. of patients	Percent
ARDS	4	40%
Anastomotic Leak	5	50%
Hypoproteinemia	4	40%
Electrolyte imbalance	5	50%
AKI	3	30%

DISCUSSION

Pancreatic malignancy accounts for more than 200,000 deaths every year, 13th most common cause of death, worldwide. These tumors arise insidiously, invades locally and spread distantly before any clinical science and symptom, of which only 20% are eligible for resection Pancreaticoduodenectomy is the surgical modality of treatment for these tumors and chemotherapy and biliary stenting being adjuncts. The most important factor for survival after resection is to achieve R0 resection. 5- year survival rate after cure is 17%. MDCT with pancreatic protocol is done in all patients preoperatively. Endoscopic Ultrasound is the newer imaging technique that is more superior to CT in detection of pancreatic lesion smaller than 2 cm. Diagnostic ERCP is strictly not recommended due to good improvement of cross-sectional imaging, therapeutic ERCP with stenting of biliary stricture can be of benefit in same patient population with metastasis and unresectable

tumors. Routine endoscopic biliary drainage is not necessary for all the patients. Patients with resectable lesions suspicious of periampullary carcinoma, a tissue diagnosis is not required before surgical resection. The 5-year survival rate after R0 resection is 17 %. In this study, we observed that most common age group undergoing this surgery is 61-70 years. The most common presenting complaints are abdominal pain followed by jaundice. All patients were operated by bilateral subcostal incision. The mean operating time was 300 minutes. Postoperatively most common major complication was anastomotic leak which was seen in 50% of the patients.

CONCLUSION

In this study the most common indication for whipples procedure is pancreatic adenocarcinoma. The most common major complication was anastomotic leak and ARDS. Through this study we have concluded that though whipples procedure is an extensive surgical procedure with proper preoperative workup, preparation, proper surgical technique, intensive postoperative care and good antibiotic coverage, this procedure can be performed in patients with pancreatic and duodenal adenocarcinoma and other distal lesions which cause obstructive jaundice with reasonable good outcomes.

REFERENCES

1. Winter JM, Cameron JL, Campbell KA, et al. 1423 pancreaticoduodenectomies for pancreatic cancer: A single- institution experience. *J Gastrointest Surg* 2006 Nov;10(9):1199–210; discussion 1210–1.
2. Hruban RH, Petersen GM, Ha PK, Kern SE. Genetics of pancreatic cancer. From genes to families. *Surg Oncol Clin N Am* 1998 Jan;7(1):1–23.
3. Are C, Dhir M, Ravipati L. History of pancreaticoduodenectomy: early misconceptions, initial milestones and the pioneers. *HPB (Oxford)* 2011 Jun;13(6):377–84.
4. Lu DS, Reber HA, Krasny RM, Kadell BM, Sayre J. Local staging of pancreatic cancer: criteria for unresectability of major vessels as revealed by pancreatic-phase, thin-section helical CT. *AJR Am J Roentgenol* 1997 Jun;168(6):1439–43.
5. Altekruse SF, Kosary CL, Krapcho M, et al. eds. SEER Cancer Statistics Review, 1975–2007. Bethesda, MD: National Cancer Institute. [Available at: [http:// seer.cancer.gov/archive/csr/1975_2007/](http://seer.cancer.gov/archive/csr/1975_2007/)]
6. Michaud DS. Epidemiology of pancreatic cancer. *Minerva Chir* 2004 Apr;59(2):99–111.
7. Kloock JJ, Heger M, van der Gaag NA, et al. Effect of preoperative biliary drainage on coagulation and fibrinolysis in severe obstructive cholestasis. *J Clin Gastroenterol* 2010 Oct;44(9):646–52.
8. Wente MN, Veit JA, Bassi C, et al. Postpancreatectomy hemorrhage (PPH): an International Study Group of Pancreatic Surgery (ISGPS) definition. *Surgery* 2007 Jul;142(1):20–5.
9. Bassi C, Dervenis C, Butturini G, et al. Postoperative pancreatic fistula: an international study group (ISGPF) definition. *Surgery* 2005 Jul;138(1):8–13.
10. Wente MN, Bassi C, Dervenis C, et al. Delayed gastric emptying (DGE) after pancreatic surgery: a suggested definition by the International Study Group of Pancreatic Surgery (ISGPS). *Surgery* 2007 Nov;142(5):761–8.