

## A CASE SERIES OF PERIAMPULLARY AND HEAD OF PANCREAS CANCER IN PERIPHERAL RURAL MEDICAL COLLEGE

S.Muthuraj<sup>1</sup>, K.Ashok Kumar<sup>2</sup>, P.Sangaia Raja<sup>3</sup>, P.Karthikeyan<sup>4</sup>

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Corresponding Author:

**Dr. P.Karthikeyan,**

Email: drkarthims1012@gmail.com

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<sup>1</sup>Associate Professor, Department of General Surgery, Government Medical College, Dindigul, Tamilnadu, India

<sup>2</sup>Assistant Professor, Department of General Surgery, Government Theni Medical College, Tamilnadu, India

<sup>3</sup>Associate Professor, Department of General Surgery, Government Karur Medical College, Tamilnadu, India

<sup>4</sup>Associate Professor, Department of General Surgery, Government Medical College, Pudukottai, Tamilnadu, India

### Abstract

**Background:** Pancreatic cancer is a major global health concern, with surgery being the cornerstone, with chemotherapy supporting treatment. In this study, we intended the surgical outcome of periampullary and head of pancreas cancer and its morbidity and mortality. **Materials and Methods:** This periampullary and head of pancreas carcinoma case series was conducted at Govt Theni Medical College and Hospital for seven months. The data relating to the 'periampullary and head of the pancreas carcinoma were collected as per the proforma designed for this study. **Result:** Among ten patients, 8 had carcinoma head of the pancreas, 1 had periampullary carcinoma, and 1 had adenocarcinoma of duodenum. Adenocarcinoma of the pancreas was the most common indication of this procedure. The major postoperative morbidity of these patients was due to anastomotic leak and pulmonary complications. **Conclusion:** We concluded that though the Whipples procedure is an extensive surgical procedure with high mortality and morbidity, proper preoperative workup and preparation, proper surgical technique, and intensive postoperative, this can be performed with a reasonably good outcome.

## INTRODUCTION

Pancreatic malignancy is a major health concern worldwide and is the fourth leading cause of cancer deaths in the US. Worldwide, over 200,000 people die annually of cancer of the pancreas.<sup>[1]</sup> Cancer incidence increases with age, the majority beyond the sixth decade of life with slight male preponderance. The 5-year survival rate of patients undergoing Whipple's procedure is 10 to 25%. Surgery is the cornerstone of treating these patients, with biliary stenting and chemotherapy playing a supportive role.<sup>[2]</sup>

The established risk factors are smoking and inherited susceptibility. Hereditary risk factors include HNPCC, BRCA2 mutation, and Peutzjehgers syndrome accounts for 10% of all cases. The associated risk includes chronic pancreatitis, type 2 diabetes mellitus, and obesity.<sup>[3]</sup>

The first successful resection of a periampullary tumour was done by Halsted in 1898. He described a local resection with anastomosis of pancreatic and bile ducts to the duodenum.<sup>[4]</sup> In the 20th century, Codivilla performed the first en-block resection of

the head of the pancreas and duodenum, but the patient did not survive after an early postoperative period.<sup>[5]</sup> Kausch performed the first successful two-stage pancreaticoduodenectomy procedure in Germany in 1909. Hirschel, in 1914 did one staged procedure successfully. In 1935 Whipple and his colleagues reported three successful two-staged en block resections. Currently, the Whipple procedure is performed at many centres, which carries a mortality of approximately 2%.<sup>[6]</sup>

## MATERIALS AND METHODS

This periampullary and head of pancreas carcinoma case series was conducted at Govt Theni Medical College and Hospital for seven months from January 2022- July 2022.

**Inclusion criteria:** Patients diagnosed with periampullary and head of the pancreas carcinoma. Patients who underwent the Whipple procedure (pancreaticoduodenectomy) as a surgical treatment. Patients for whom data regarding periampullary and head of the pancreas carcinoma were collected using a specific proforma.

The data relating to the 'periampullary and head of the pancreas carcinoma were collected as per the proforma designed for this study. The parameters and variables were patient demographic data, details of postoperative course, comorbidities, pathology, cause of postoperative complications, and death. All the cases were opened by bilateral subcostal incision and resection of the specimen with triple anastomosis, and the duration of surgery was 5-6 hours.

## RESULTS

Ten cases were included, and the most common indication for the Whipple procedure was the adenocarcinoma pancreas. Most of the patients were in the age group of 51-60 years (50%), and out of 10 patients, nine were male, and one was female. Figure 1 shows the distribution of the age.

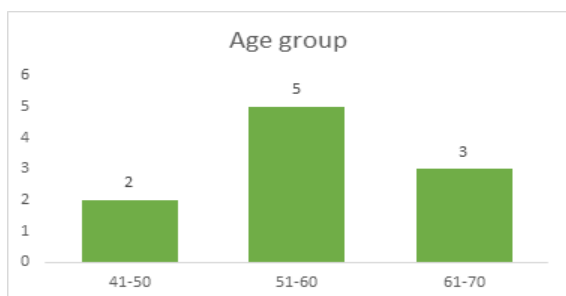


Figure 1: Distribution of age group

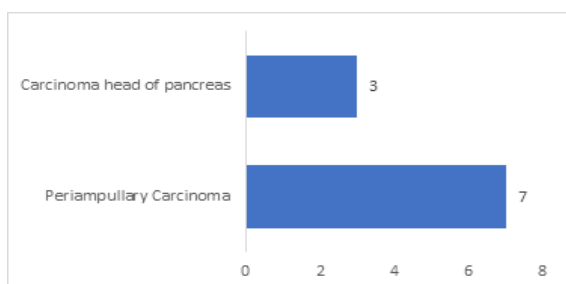


Figure 2: Preoperative Diagnosis

The most common presenting symptom was abdominal pain followed by jaundice, anorexia, and weight loss. Computed tomography with the pancreatic protocol was done in all patients before surgery. Preoperative diagnosis was periampullary carcinoma in 80% of patients, and the interoperative diagnosis was carcinoma head of the pancreas in 20% of cases. [Figure 2 and 3] represent the preoperative

and interoperative diagnoses. The mean operating time was 300 minutes.

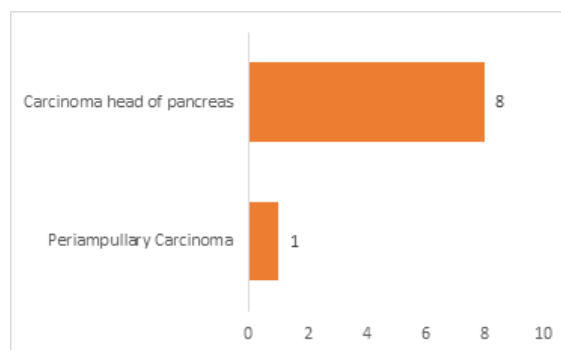


Figure 3: Interoperative Diagnosis

### Postoperative course

Postoperatively, the mean hospital stay was 18.5 days, the incidence of major complications was 20%, and minor complications were 80%. Mortality was reported in one patient, and morbidity was seen in 8 patients [Figure 4].

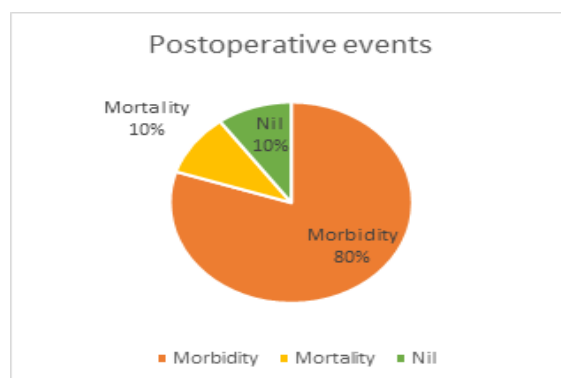


Figure 4: Postoperative Events

The complications assessed included acute respiratory distress syndrome (ARDS), Anastomotic Leak, Hypoproteinemia, Electrolyte Imbalance, and Acute Kidney Injury (AKI). Among the patients, ARDS and Hypoproteinemia were observed in 40% of cases, while anastomotic leak and electrolyte imbalance affected 50%. AKI was present in 30% of the cases. These findings suggest a relatively high incidence of anastomotic leak and electrolyte imbalance compared to the other complications [Table 1]. The mean length of hospital stay was 43.1 ± 4.93 days [Table 2].

Table 1: Postoperative Complications

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

Table 2: Length of hospital stay

|                                | Mean ± SD   | Median | Max-Min |
|--------------------------------|-------------|--------|---------|
| Length of hospital stay (Days) | 43.1 ± 4.93 | 42.5   | 50-36   |

## DISCUSSION

Pancreatic malignancy accounts for more than 200,000 deaths yearly, the 13<sup>th</sup> most common cause of death worldwide. These tumours arise insidiously, invade 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 tumours, and chemotherapy and biliary stenting are adjuncts.<sup>[7]</sup> The most important factor for survival after resection is to achieve R0 resection. The 5-year survival rate after cure is 17%. MDCT with pancreatic protocol is done in all patients preoperatively.<sup>[8]</sup> Endoscopic Ultrasound is the newer imaging technique superior to CT in detecting pancreatic lesions smaller than 2 cm. Diagnostic ERCP is strictly not recommended due to the improvement of cross-sectional imaging. Therapeutic ERCP with stenting of biliary stricture can benefit the same patient population with metastasis and unresectable tumours.<sup>[9]</sup> Routine endoscopic biliary drainage is not necessary for all patients. A tissue diagnosis is not required before surgical resection for patients with resectable lesions suspicious of periampullary carcinoma. The 5-year survival rate after R0 resection is 17 %.<sup>[10]</sup> In this study, we observed that the most common age group undergoing this surgery is 61-70. 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 an anastomotic leak seen in 50% of the patients.

## CONCLUSION

In this study, pancreatic adenocarcinoma is the most common indication for the Whipple procedure. The most common major complication was anastomotic

leak and ARDS. Through this study, we have concluded that though the Whipple 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.

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