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A retrospective study of indications and outcomes of Whipple's procedure in our hospital

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Abstract

Aim and objectives: To Study the indications and clinical outcomes of patients who underwent Whipple's procedure in our institute.

Materials and methods

Design: Retrospective study.

Study period: 2012 – 2022, in which 15 patients included

Data collected from surgical database from Jan 2012 to march 2022.

Follow up with telephonic conversation.

Operative mortality - death within 30 days of surgery.

Staging and follow up

Total no of patients – 15

Average size of tumour – 2 cms

Average TN stage – T2N0

Nodes positive patients – 2 (N1)

Patients received chemotherapy – 2

5 years follow up

Total no of patients- 15

Perioperative mortality – 3

Patients completed 5 years follow up - 8 out of 12 patients

All 8 patients are disease free.

Overall,5-year survival of patients in our study – 72.7 %

Conclusion: Inspite of being a low volume center, our study results are comparable to literature with very good 5-year survival rate.

Keywords: Whipple's, procedure

Introduction

Pancreatic cancer is one of the leading causes of oncologic morbidity and mortality worldwide.

In western countries pancreatic cancer is the fourth most common cause of cancer related deaths.Only a few percent of patients can survive from this condition for more than 5 years.Most patients present with an advanced stage of the disease, and only in 10% to 20% of them the mass is resectable.Most common indication for pancreatico duodenectomy is carcinoma of the head pancreas.

Whipple's pancreaticoduodenectomy (PD) remains a complex surgery with an attendant high morbidity rate.

Riall TS et al., showed that the 5-year survival following pancreaticoduodenectomy is approximately 15- 20%. In this study we report our experience in the treatment of resectable pancreatic cancer and periampullary neoplasms with particular attention to evaluate the indications, outcomes and survival of patients.

Aims and objectives

To Study the indications and clinical outcomes of patients who underwent Whipple's procedure in our institute.

Materials and methods

- Design: Retrospective study.
- Study period: 2012 - 2022 in which 15 patients included.
- Data collected from surgical database from Jan 2012 to march 2022.
- Follow up with telephonic conversation.
- Operative mortality - death within 30 days of surgery.

Inclusion criteria

- All patients who had undergone Whipple's procedure from 2012 - 2022 in our institute.

Exclusion criteria

- Data missing.
- Patient not willing to be part of study or could not be traced.

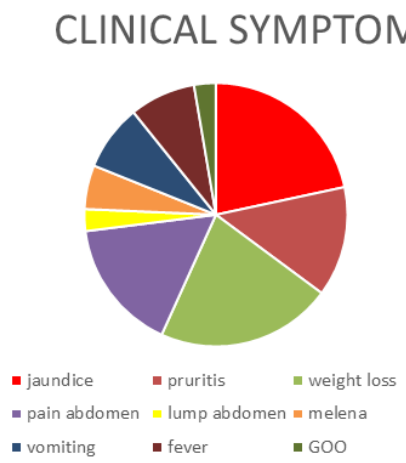
Analysis

- No of patients – 16
- 15 pts included for analysis; 1 pt lost to follow up
- Age of the patients 25-70 years
- Sex incidenc

Table 1:

Sex	No of cases (n = 15)	Percentage
Female	5	33.33%
Male	10	66.67%
Total	15	100%

Graph 1:



- Surgery
- Anaesthesia
- General anesthesia – 6
- General anesthesia + Epidural - 9
- Incision – midline laparotomy (15)
- Operative procedure
- Classical Whipple– 15
- FJ – 11

Table 2: Blood transfusion

Yes	7
No	8

Blood transfusion: 2-6 (mean - 3 units) 7 out of 15 pts

Table 3: Post operative period

Jejunostomy feeds	1- 4 days (3)
Oral feeds	2-5 days (3.5)
Suture removal	10-16 days (12.5)

Table 4: post op diagnosis (finidings)

Findings	No of cases (n= 15)	%
Ampullary growth	5	33.3%
Duodenal adenocarcinoma	4	26.6%
Neuro endocrine tumor	3	20%
Ca head of pancreas	1	6.6%
Carcinoma Distal CBD	1	6.6%
Chronic pancreatitis	1	6.6%
Benign/ Cystic neoplasm of pancreas	0	0

Table 5: Postoperative HPE

HPE	No of cases (n=15)	%
Moderately differentiated	7	46.6%
Well differentiated adenocarcinoma	4	26.6%
Poorly differentiated	0	0
Neuro endocrine tumour	3	20%
Inflammatory	1	6.6%
Positive Lymph node cases	2	13.3%

Table 6:Complications

Intraoperative	Postoperative	Long term
	Death	
	Biliary leak	Chronic pain
Haemorrrhage	Pancreaticojejunostomy leak	Diarrhoea
	Intraabdominal collection	Malabsorption syndrome
	Enteric fistula	
	Respiratory failure	
	Delayed gastric emptying	

Table7: postop complications.

Complications	No of cases (n=15)	%
Mortality	3	20%
Surgical site infection	3	20%
Biliary leak	2	13.3%
Pancreaticojejunostomy leak	0	0
Intraabdominal collection	1	6.6%
Enteric fistula	0	0

Mortality 1

- 56 / male, pain abdomen and weight loss
- k/c/o/ Diabetes mellitus and hypothyroidism
- Diagnosis: carcinoid tumour of duodenum (D1)
- Findings: Hard nodule 2X2 cm, D1. No metastasis

Post operative course

- POD 1 – low output bile leak from drain, fever spike, tachycardia, tachypnoea
- Managed conservatively, shifted to ward on POD 5 from PSICU
- POD 6 – pt tachypnoea, spo2 - 87% with high flow oxygen – Intubated in ICU
- CT abdomen – 75 x 24 mm sized collection in left subphrenic space
- POD 12 – sepsis - MODS.

Mortality 2

- 60 / male jaundice, pain abdomen
- k/c/o diabetes mellitus, HTN, CKD, Hepatitis B positive, ERCP status post stenting
- Diagnosis: Adenocarcinoma of Ampulla
- Findings: 2 x2 proliferative growth – ampulla

Post op course

- Pt was on inotropes. POD 2 – pt was reintubated.Fever spikes, thrombocytopenia and raised ammonia levels
- USG abdomen – no signs of collection / leak
- Cause of death – sepsis, multiorgan dysfunction syndrome MODS – POD 5.

Mortality 3

- 64/ male, jaundice, loss of weight and loss of appetite
- k/c/o – diabetes mellitus
- Diagnosis: Mid common bile duct tumour
- Findings: mass of size 5 x 4 cm in mid – distal CBD

Post op course

- Persistent hypotension – on inotropes.
- POD 2 – Intubated
- Bedside USG showed significant peritoneal collection. Hence decided to re explore
- POD 3 pt died of disseminated intravascular coagulation DIC.

Post op Complications	Shukla et al, surgical oncology, tata memorial Mumbai, 2009 n= 718	Amir et al, world jour of surg oncology-2015n = 70	Romano et al , Int journal of surg– 2015 n=97	Chintamani et al, Indian journal of research – 2011n = 22	Our study n =15
Delayed gastric emptying	10 (0-32 %)	23 (32%)	12(12.3%)	4 (18 %)	1 (6%)
Bile leak	1 (0-17 %)	5 (7%)	-	1 (4 %)	2 (13%)
Intra-abdominal collection	-	-	2 (2.06%)	1 (4 %)	1 (6%)
Respiratory failure	-	15 (21%)	-	1 (4 %)	0
Pancreatic fistula	1 (0- 17%)	2 (3%)	4 (4.1 %)	0	0
Wound infection	18 (9-32 %)	12 (17%)	-	-	3 (20%)
Mortality	3.57 (2-5 %)	13 (18.5 %)	4(4.1 %)	2 (9.09 %)	3 (20 %)

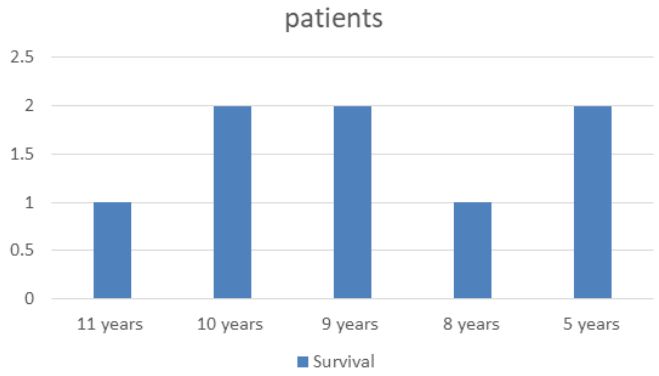
Analysis

- Re exploration – 6.6% (1)
- Recurrence – 6.6% (1)

- Patient developed recurrence after one year. On palliative chemotherapy.

- Mortality - 20% (3)

Graph 2: Long term follow up



Staging and follow up

- Total no of patients – 15
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5 years follow up

- Total no of patients- 15
- Perioperative mortality – 3
- Patients completed 5 years follow up - 8 out of 12 patients
- All 8 patients are disease free.
- Overall 5 year survival of patients in our study – 72.7 %

Review of literature

Colussi et al, Prognostic score for recurrence after Whipple's pancreaticoduodenectomy for ampullary carcinomas; results of an AGEO retrospective multicenter cohort

- 5-year overall survival was 67.9%

Locoregional or distant metastasis was found in 44.1 % (almost half)

Table 9:

Factors	Shukla et al, surgical oncology, tata memorial Mumbai, 2009 n= 718	Amir et al, world jour of surg oncology- 2015 n = 70	Romano et al , Int journal of sURG– 2015 n=97	Chintamani et al, Indian journal of research - 2011 n = 22	Our study n =15
Age	53	58.4	64.5	45	56.4
Male : Female	2:1	2:1	1:1	2:3	2:1
Most common symptom (%)	Jaundice	Jaundice	Jaundice	Weight loss	Jaundice
Mean Blood transfusion	2	1.84	1	4	3

Histopathology (MC)	Ductal adenoCA	Ductal adenoCA	Ductal adenoCA	Ampullary growth-ductal adenoCA	Ampullary growth – ductal adenoCA
Reoperation (%)	3.4	5.4	6.1	0	6.6
Perioperative mortality	3.57%	13 (18.5 %)	5 (4.1 %)	2 (9.09 %)	3 (20 %)

Conclusion

Inspite of being a low volume center, our study results are comparable to literature with very good 5-year survival rate.

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