



Periampullary Cancer – Our Institutional Experience with Review of Literature

Authors

Dr Buddha Kanaka Mahalakshmi¹, Dr Jaya Kavya Nadiminti², Dr Anantha Ramani Pratha³, Dr Sekuboyina Kiran Datta⁴, Dr Lakshmi Prasanna Garapati⁵

¹Assistant Professor of Surgery, Andhra Medical College, Visakhapatnam, India

^{2, 4, 5}Junior Resident of Surgery, Andhra Medical College, Visakhapatnam, India

³Associate Professor of Surgery, Andhra Medical College, Visakhapatnam, India

*Corresponding Author

Dr Anantha Ramani Pratha

Associate Professor of Surgery, Andhra Medical College, Visakhapatnam, India

Abstract

Introduction: *Pancreatic and periampullary carcinomas include a group of malignant neoplasms arising in or near the ampulla of Vater or in the pancreas. Diagnosis, management and prognosis have improved considerably in the last few decades. The present study looks into the modes of presentation in patients with periampullary carcinoma, the different modalities of investigations, treatment along with the postoperative complications.*

Materials and Methods: *It is a retrospective, descriptive study including 25 patients of periampullary carcinoma studied over a period of one and half year from January 2017 to June 2018 in a tertiary care centre in Visakhapatnam. In the present study, age and sex distribution, site of tumour origin, histopathological variant, postoperative complications and other factors were evaluated. We have adopted the classical Whipple's Pancreaticoduodenectomy as the procedure for the treatment of operable periampullary cancers.*

Results: *The mean age of presentation was 52.6 years. The male to female ratio was 2.5:1. The most common site of tumour origin was the head of pancreas. Majority were well differentiated adenocarcinomas. The most common postoperative complications were pancreatic leak and wound infection (14.2%).*

Conclusion: *Patients with pancreatic and periampullary cancer represent a difficult and challenging group to treat. Pancreaticoduodenectomy is a standard procedure that has been adopted for the treatment of this group of cancers. Resection should be performed by experienced surgeons to minimize morbidity and mortality. Though these patients have a poor prognosis, with proper staging, good patient selection and appropriate management, there is improved survival and wellbeing of these patients.*

Introduction

Periampullary tumours can arise from pancreatic, biliary, ampullary and duodenal tissues. The incidence of periampullary cancer is relatively low

in comparison to breast, lung and colorectal cancers. However, as a result of their lethal nature, they are a major cause of mortality. Diagnostic modalities, management options and prognosis for

perampullary carcinoma have improved considerably in the last few decades.^{1,2} Surgical resection offers the only chance of cure to these patients.³

Aims

- To study the clinical profile of patients with perampullary malignancies.
- To determine the most common histopathological type.
- To review the postoperative complications after Classical Whipple’s Pancreaticoduodenectomy.

Materials and Methods

The study is retrospective conducted at King George Hospital, Visakhapatnam in the period of January 2017 to June 2018. A total of 25 cases with perampullary cancers at different stages

were studied. Variables studied were age, sex, preoperative total serum bilirubin, CA 19-9 and ALP, preoperative biliary stenting, stage of disease, operative procedure, site of tumour origin and postoperative complications.

Inclusion Criteria

Patients diagnosed with perampullary carcinoma by CECT, ERCP or endoscopy.

Exclusion Criteria

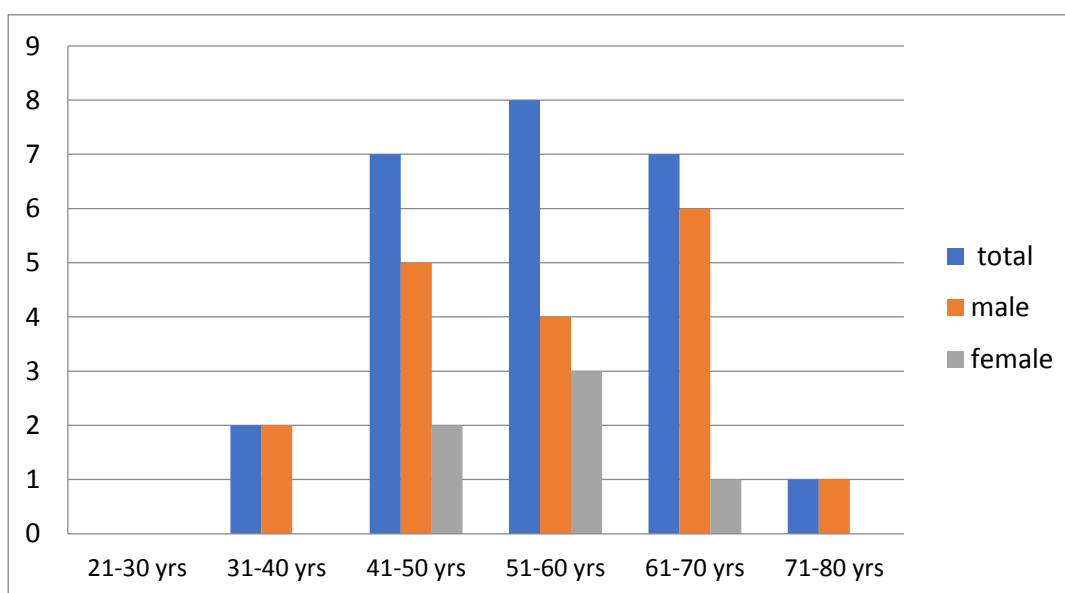
Patients with pancreatitis, carcinoma exocrine and endocrine pancreatic tissue were excluded.

Patients with major comorbidities, such as cardiac or renal diseases were excluded.

Results

Total number of patients was 25, out of which 18 cases were male and female cases were 7. Ratio was 2.5:1.

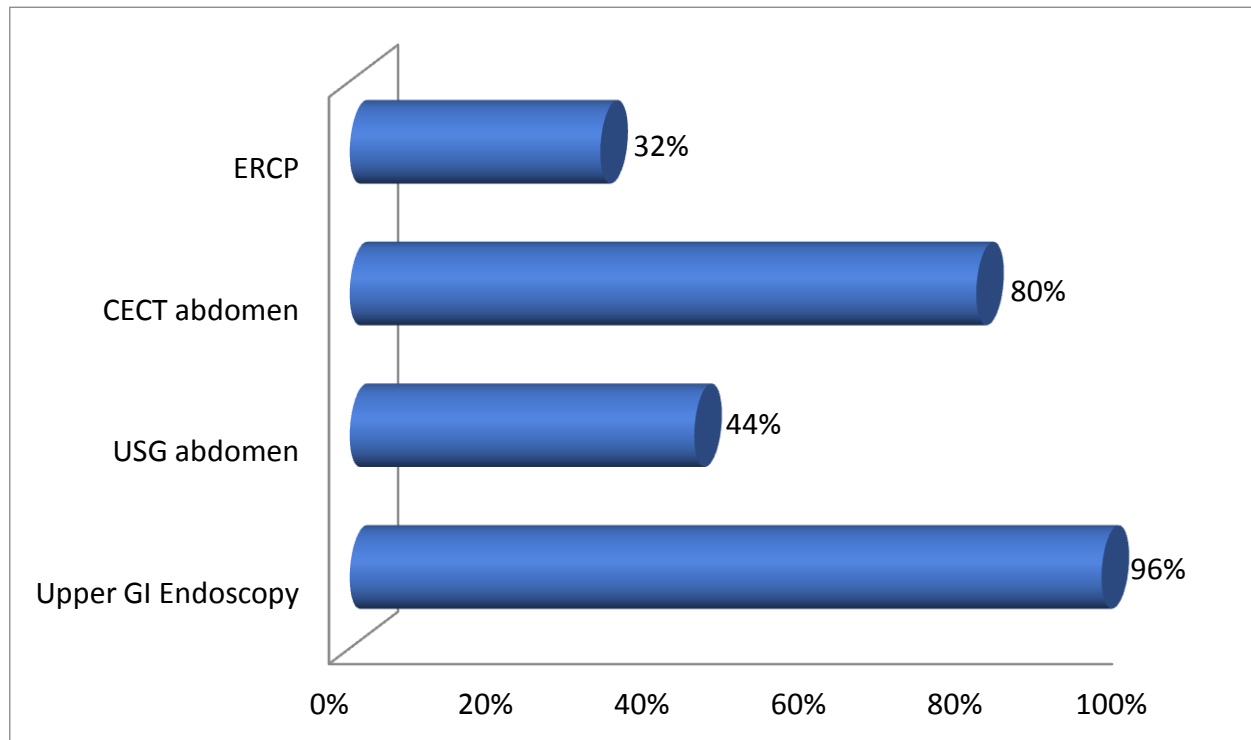
Mean age group was 52.6±3.4yrs.



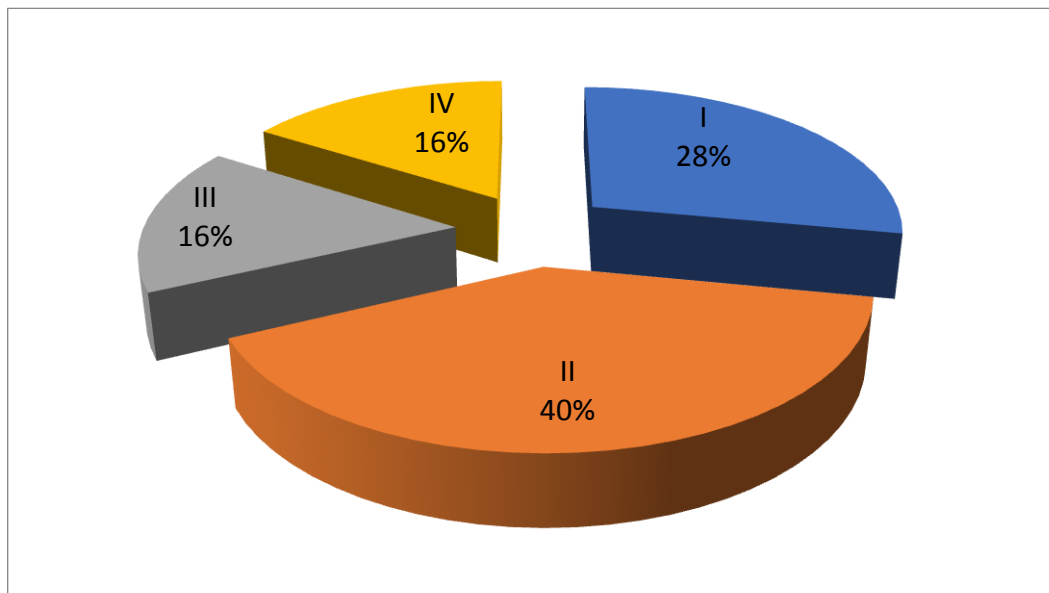
Chief complaints were jaundice, pain abdomen, vomiting and fever.

Symptoms	Percentage
Jaundice	92%
Vomiting	40%
Pain abdomen	32%
Anorexia	32%
Weight loss	28%
Fever	20%

11 patients presented with preoperative total bilirubin greater than 10mg/dl.
 14 members of the patients had preoperative ALP levels greater than 140U/L.
 10 people presented with preoperative serum CA19-9 level more than 100U/L.
 Preoperative stenting was done in 8 patients.
 Other investigations were performed as shown in the table below.

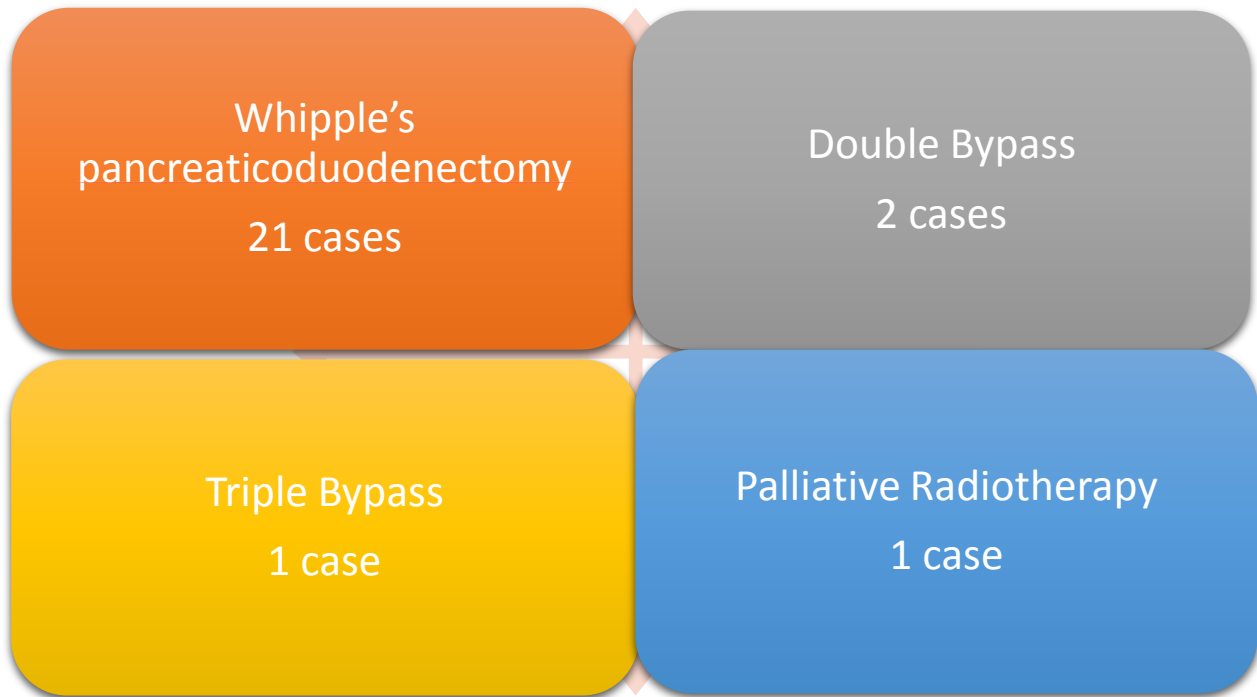


Majority of the patients were diagnosed with stage II disease.



Out of the 25 patients, 21 patients underwent Whipple’s pancreaticoduodenectomy. Three patients underwent palliative bypass procedures such as gastrojejunostomy,

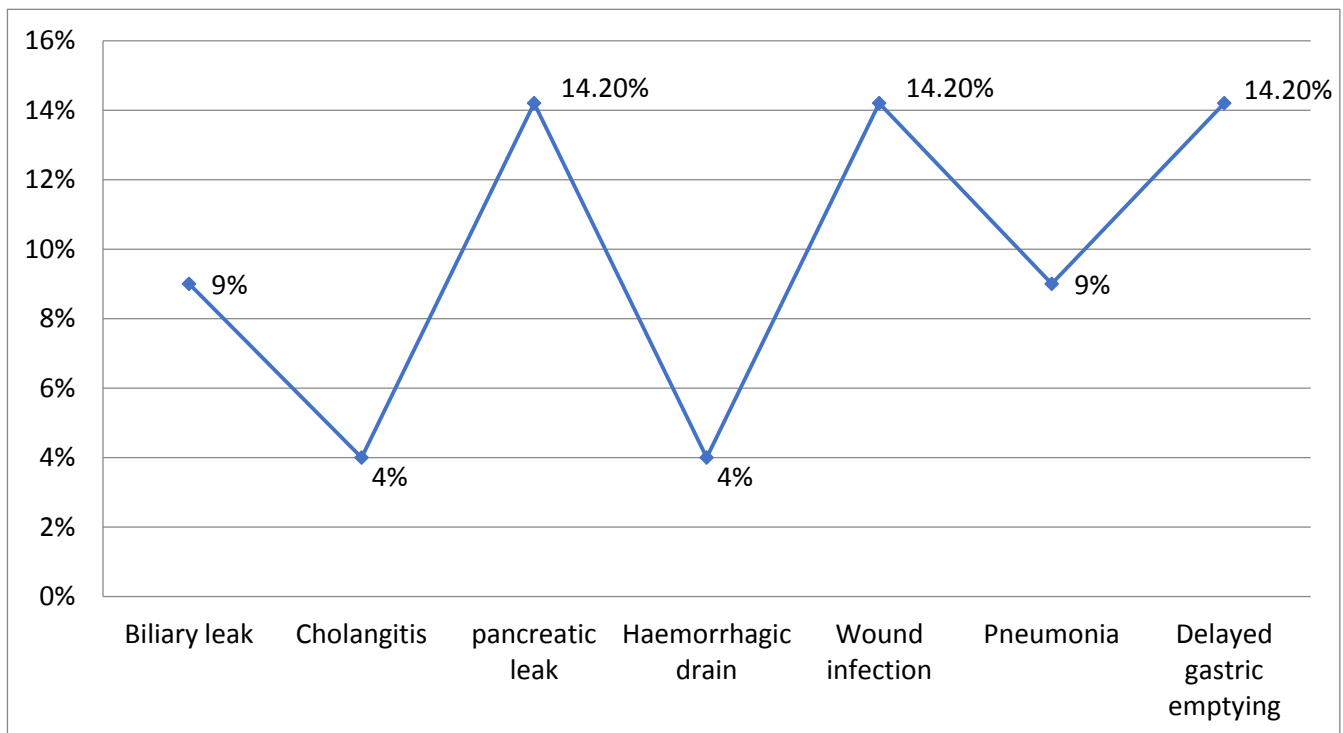
choledochojejunostomy due to non resectability of the tumour. One patient was sent for palliative radiotherapy.

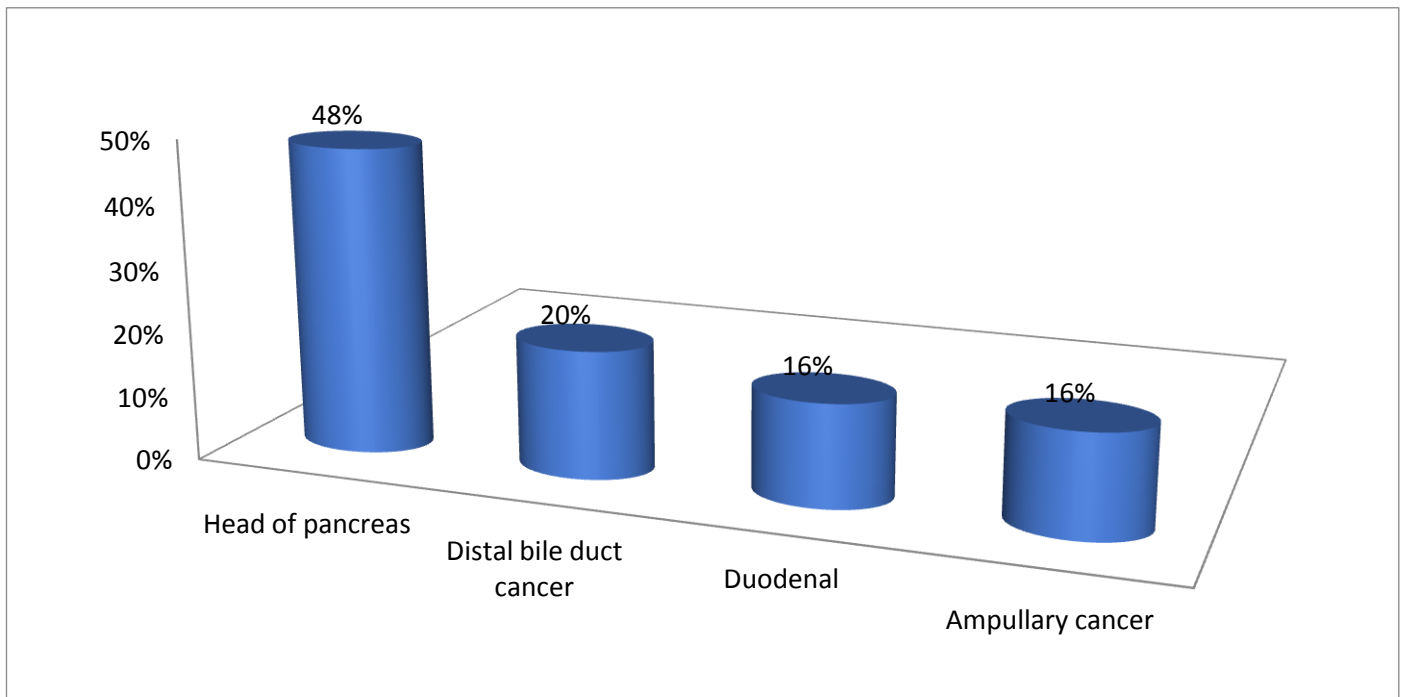


Postoperative Complications

Some type of complication occurred in 45.8% of the patients.

In Hospital mortality for postoperative cases was 08% (2 patients).

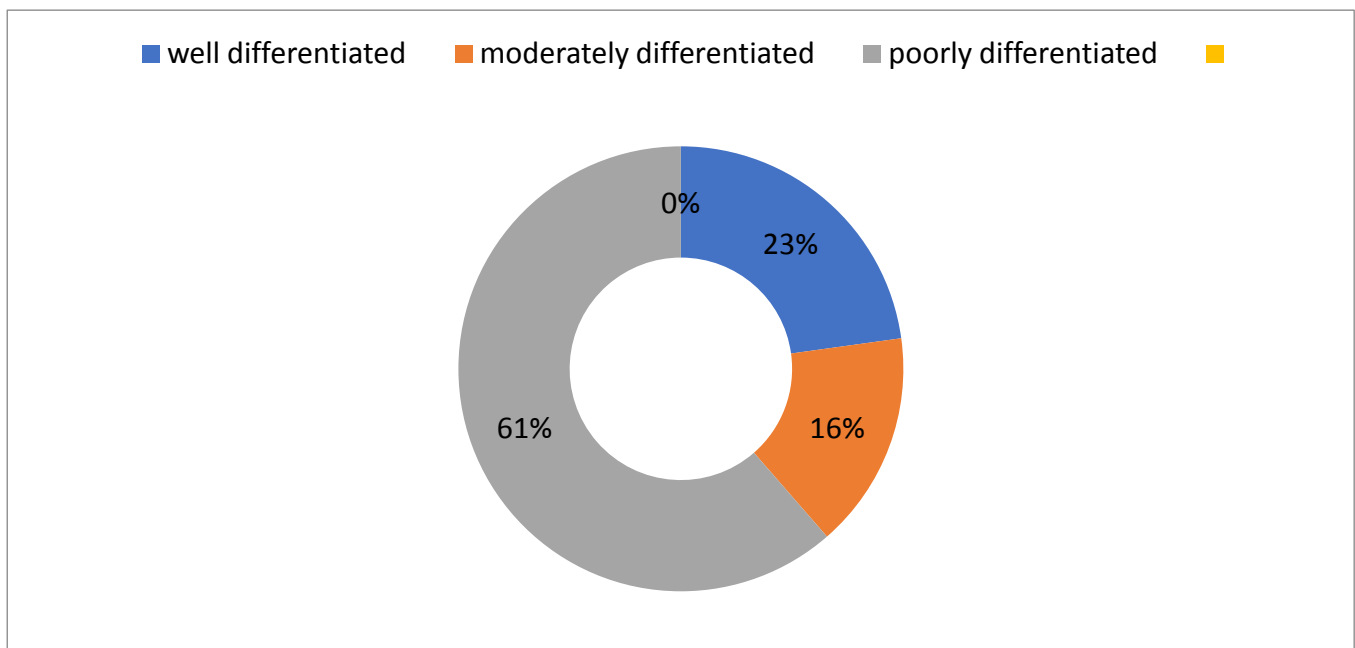




Postoperative biopsy showed predominance of pancreatic cancer (48%), followed by distal bile duct cancer (20%).

Histopathology showed all specimens to be adenocarcinomas. One patient had neuro

endocrine component along with adenocarcinoma. Majority of the tumours were well differentiated (52%).



Review of literature

In the present study, the average age of patients was 52.6years comparable with studies conducted by JON R. COHEN et al⁴ , Xun Wang et al⁵, TaxiarchisBotsis et al⁶.

There is a male preponderance similar to studies by Carlos Chan et al⁷ and Woo-Song Ha et al⁸.

Symptoms	Tarazi et al ⁹	Robertson et al ¹⁰	Shanti et al ¹¹	Present study
Jaundice	78%	93%	76%	92%
Loss of appetite	70.6%	NM	73%	32%
Pain abdomen	57.9%	47%	46%	32%

Diagnostic modalities

Ultrasound is the first investigation used in our study. It and could accurately diagnose 44% of the cases.

EUS is significantly more sensitive, specific, and accurate than helical CT for evaluation of the

periampullary mass. Parameters evaluated included tumour size, lymphnode metastases, and major vascular invasion. They are helpful in preoperative staging of the disease.

Sensitivity of Diagnostic Modalities

Test	Woo-Song Ha et al (1980) ⁸	Malla BR, et al(2017) ¹²	Current Study
Upper GI Endoscopy	58.1%	85.41%	96%
USG abdomen	87.5%	79.16%	44%
CECT abdomen	NM	47.91%	80%
ERCP	85.7%	25%	32%

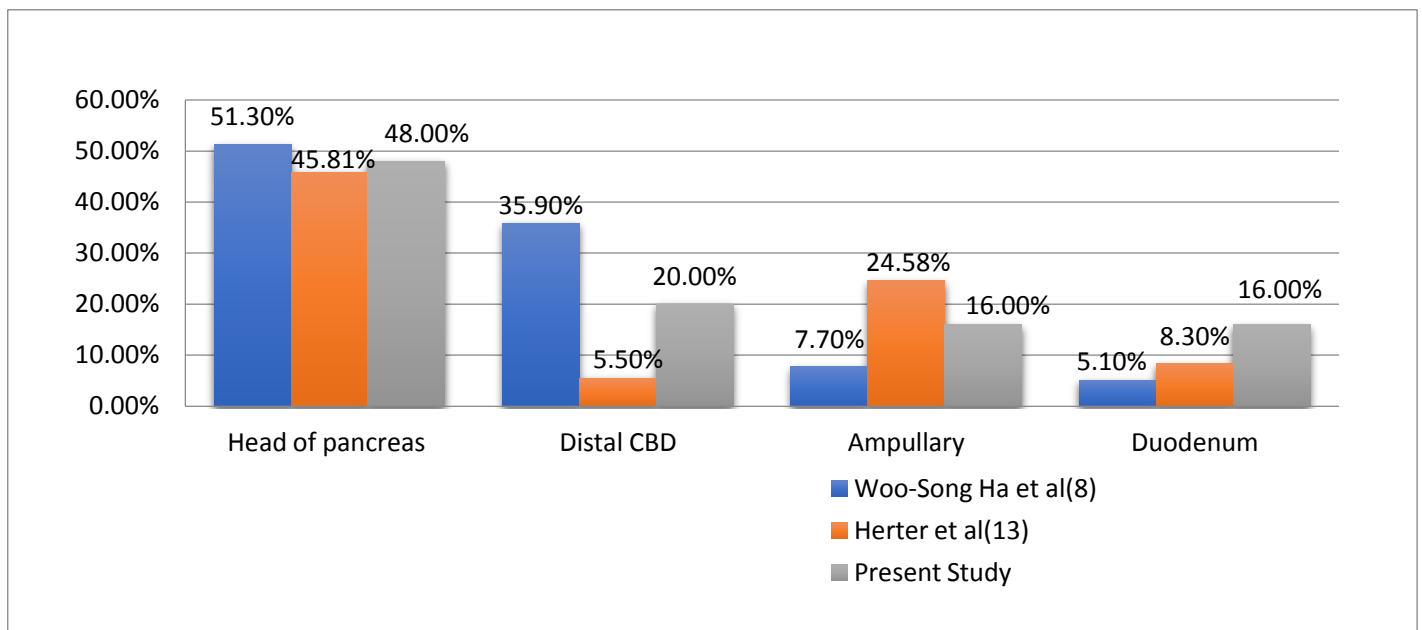
Treatment Modalities

Classical Whipple’s Pancreaticoduodenectomy is the standard resectional surgical procedure being done in our department for operable cases. It was done in 21 cases. Palliative surgeries include hepaticojejunostomy, choledochojejunostomy and cholecystojejunostomy to relieve obstructive

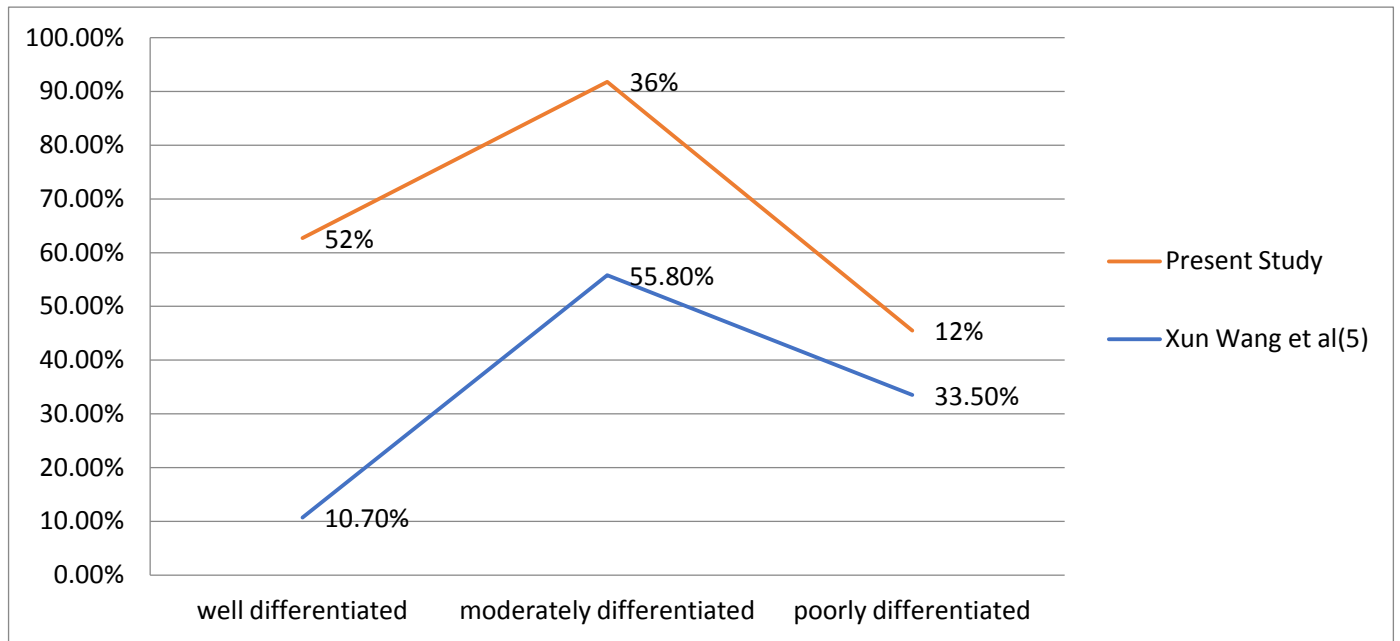
jaundice; gastrojejunostomy, gastrostomy are used to relieve gastric outlet obstruction. Chemical splanchinectomy can be used to relieve pain.

In this study we have done palliative gastrojejunostomy and choledochojejunostomy for cases. One case was sent for palliative radiotherapy.

Location of tumour



Tumour Differentiation



Postoperative Complications:

Postoperative Complications	Saraee et a ¹⁴	Gupta et al ¹⁵	Current study
Delayed gastric emptying	32.9%	35.29%	14.2%
Biliary leak	2.9%	13.72%	9%
Pancreatic leak	0%	17.64%	14.2%
Cholangitis	0%	NM	4%
Haemorrhagic drain	7.1%	19.6%	4%
Wound infection	17.1%	39.21%	14.2%
Pneumonia	10%	23.52%	9%

In hospital moratlity was 08%.

Conclusion

Patients with pancreatic and periampullary cancer represent a difficult and challenging group to treat. Pancreaticoduodenectomy is a standard procedure that has been adopted for the treatment of this group of cancers.

Resection should be performed by experienced surgeons to minimize morbidity and mortality.

Although traditionally patients with these diseases had a dismal prognosis, proper staging and patient selection have led to improved results.

Early diagnosis is crucial for resectability to improve survival rates.

References

1. Jagannath P, Shirkande S, Current options in the diagnosis and management of periampullary carcinoma. Indian J surg.2003;65;347-53.
2. Jakhmola CK, Kumar A. Whipple’s pancreaticoduodenectomy : Outcomes at a tertiary care hospisital. Med J Armed Forces India. 2014;70:321-6.
3. Charles J, Yeo M, John L, Cameron MD. Pancreaticoduodenectomy with or without extended retroperitoneal lymphadenectomy for periampullary adenocarcinoma comparison of morbidity

- and mortality and short-term outcome. *Ann Surg.* 1999;229(5):613-24.
4. J R Cohen, N Kuchta, N Geller, G T Shires, and P Dineen. Pancreaticoduodenectomy. A 40-year experience. *Ann Surg.* 1982 May; 195(5): 608-617.
 5. Xun Wang, Jian Feng, Mingyi hen, ShouwangCai, JianjunLeng, Zhiwei Liu, Wenzhi Zhang. A comprehensive clinicopathological analysis and survival outcome of periampullary cancer following pancreatoduodenectomy. *Int J Clin Exp Med* 2016;9(8):15678-15688.
 6. TaxiarchisBotsis, Valsamo KA, Gunnar Hartvigsen, Georges Hripisak and Chunhuaweng. Modeling prognostic factors in resectable pancreatic adenocarcinoma. *Cancer inform* 2009;7:281-91.
 7. Carlos Chan, Miguel F. Herrera, Lorenzode La Garza, Leticia Quintanilla-Martinez, Florenciavargas-Vorackova et al. Clinical behaviour and prognostic factors of periampullary adenocarcinoma. *Annals of Surg* 1995;222(5):632-37.
 8. Woo Song Ha, and JinPok Kim. A clinical study of periampullary carcinoma. *Cancer Research and Treatment*, 1980;12(1):79-90.
 9. Tarazi RY, Hermann RE, Vogt DP, Hoerr SO, Esselstyn CB Jr, et al. Results of surgical treatment of periampullary tumours: A thirty-five year experience. *Surgery.*1986;100;716-21.
 10. Robertson JFR, Imrie CW, Hole DJ, Carter DC, Blumgart LH. Management of periampullary carcinoma. *Br J Surg.* 1987;74:816-9.
 11. VissaShanthi et al. Pancreatobiliary versus intestinal type of histological differentiation: A comparative study with histomorphological prognostic factors in periampullary carcinoma. *Int J Med Res Health Sci.*2013;2(3):380-387.
 12. Bala Ram Malla, Gabriel Rodrigues. Periampullary carcinoma: An audit of an institutional experience with literature review. *Malla BR, et al. SurgChron* 2017; 22(1):4-6.
 13. Frederic P. Herter, Avram M. Copperman, Thomas N. Ahlborn, and Charles Antinori. Surgical Experience with pancreatic and periampullary cancer. *Ann Surg.* 982 Mar;195(3):274-281.
 14. Amir Saraee et al. Whipple procedure: a review of a 7-year clinical experience in a referral center for hepatobiliary and pancreas diseases. *World journal of oncology* (2015)13:98.
 15. Gupta et al. Whipple's procedure: Yesterday and today. *Int J Hepatobiliary Pancreat Dis* 2015;6:1-5.