



## THE ROLE OF CA 19-9 IN PREDICTING TUMOR RESECTABILITY AND PROGNOSIS IN CARCINOMA HEAD OF THE PANCREAS.

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### ABSTRACT

**Background:** Pancreatic cancer is the fifth leading cause of cancer death.. Pancreatic cancer is difficult to diagnose in its early stages. at the time presentation nearly 50% cases have distant metastasis. CA 19-9 is tumor associated mucin glycoprotein present in epithelial tissues of pancreas, biliary ductularcells, stomach, gall bladder. Blood levels may be elevated in benign as well as malignant conditions.

**Aims And Objectives:** To study the relation between levels of CA 19-9 and tumor respectability in cases of carcinoma head of pancreas. To study the relation between levels of CA 19-9 and prognosis of the cases.

**Materials And Methods:** A Retrospective analysis of all the cases of carcinoma head of pancreas admitted over a period of 2 years, June 2019 to may 2021 at king George Hospital Visakhapatnam and in them the data was collected from all the patients of ca head of pancreas on basis of CECT, MRCP. CA 19-9 levels were measured and recorded. During surgery the operative findings on operability and prognosis were documented and tabulated against corresponding CA 19-9 levels.

**Results:** A total of 45 cases Carcinoma head of pancreas of which 30 were operated; of which 21 cases were operable and underwent whipples procedure and 9 under went palliative bypass procedure. CA 19-9 was elevated in all the cases. In operable cases (21) CA 19-9 levels were elevated but not more than 1000IU/ml. Among inoperable cases (24) 85% cases have high levels of CA 19-9 (greater than 1000 IU/ml)

**Conclusion:** Rasie in CA 19-9 levels are seen in many benign conditions and CA 19-9 is tumor marker for various GI malignancies. Very high levels of CA 19-9 denotes high chances of inoperability and distant metastasis and poor prognosis.

### KEYWORDS :

#### INTRODUCTION

Pancreatic cancer is the fifth leading cause of cancer death. Pancreatic cancer is difficult to diagnose in its early stages. At the time presentation nearly 50% cases have distant metastasis. Pancreatic cancer carries a poor prognosis; at operation approximately 25% of patients will be found to have unresectable tumors even though CT has demonstrated that they are resectable.

CA 19-9 is tumor associated mucin glycoprotein present in epithelial tissues of pancreas, biliary ductularcells, stomach, gall bladder. Carbohydrate antigen 19-9 (CA 19-9) is a tumour associated antigen. Blood levels may be elevated in benign as well as malignant conditions. Its sensitivity (70-90%) and specificity (68-91%) are inadequate for accurate diagnosis. It can be used to predict the extent of disease and outcome after resection.

#### AIMS & OBJECTIVES

1. To analyze the relation of the tumor marker CA 19-9 levels to the stage of disease in cancer head of pancreas.
2. To study its role in predicting the tumor resectability
3. To study its role in prognosis of disease.

#### MATERIALS & METHODS

- **Study Type:** A Retrospective analysis
- **Study Centre:** Department of General surgery, king George Hospital Visakhapatnam
- **Study Period:** 2 years, June 2019 to May 2021.
- **Study subjects:** All the cases of carcinoma head of pancreas

Carcinoma head of pancreas cases were studied with respect to the incidence, data collected on basis of CECT, MRCP. CA 19-9 levels were measured and recorded. And prognosis were taken with respect to period of survival.

Patient records, operative notes of surgeries regarding operative findings on operability and histopathology reports were reviewed.

Postoperative morbidity and mortality 3 months followup were recorded.

#### Inclusion Criteria

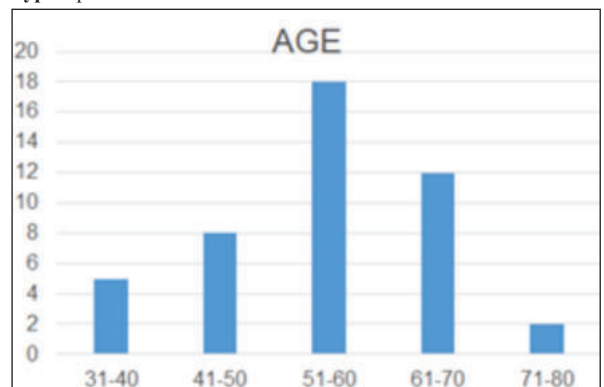
1. Adult patients (age 18-75 years).
2. All patients diagnosed with periampullary malignancy on the basis of CECT Abdomen and MRCP.
3. Patients willing for investigations and treatment.
4. Those patients who give consent for surgical management.

#### Exclusion Criteria

1. Pediatric patients below the age of 18 years.
2. Patients diagnosed with malignancies other than periampullary malignancy.
3. Patients refusing for investigations and treatment.
4. Those who are not willing to participate in the study.

#### RESULTS

Excluding other types of periampullary malignancies a total of 45 cases of **Carcinoma head of pancreas** were treated in the study period. In that 30 cases were operated; of which 21 cases were **operable** and underwent **whipples procedure** and 9 cases under went **palliative bypass procedure**.



**Figure 1 :** Age Distribution

The incidence of carcinoma head of pancreas in periampullary

malignancies was 60%. The number of male patients were 35 and number of female patients were 10 (ratio 7:2)

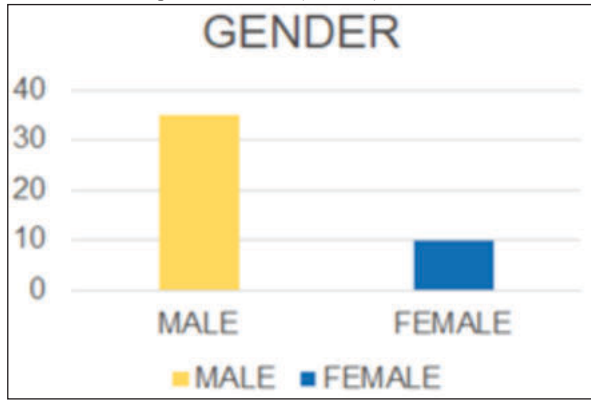


Figure 2: Gender Distribution

Total of 30 operated cases 21 cases underwent Whipples Procedure and 9 cases underwent Palliative procedure.

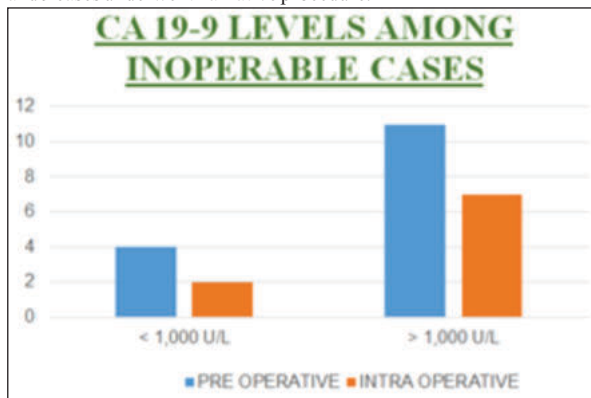


Figure 3: Nature Of Surgery

Table 1: Tumor Marker Values

TUMOR MARKER	<1,000 U/L	>1,000 U/L
CA 19-9	24 CASES	21 CASES

In total of 45 cases 24 cases have CA 19-9 level <1,000U/L and 21 cases have level >1,000 U/L

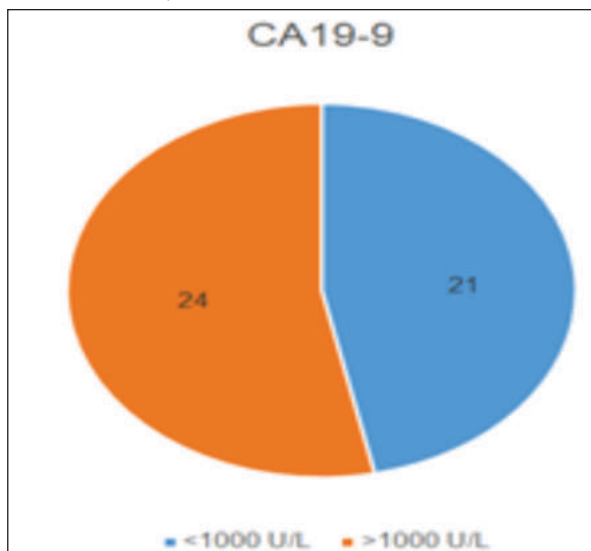


Figure 4: Tumor Marker Levels In Cases

A total of 45 cases of which preoperatively inoperable are 15 in which 4 cases have CA 19-9 level <1,000 U/L and 11 cases have >1000 U/L.

Table 2: Correlation Between Operability And CA 19-9 Levels

LEVELS OF CA 19-9	PRE OPERATIVELY INOPERABLE	INTRA OPERATIVELY INOPERABLE	RESECTABLE	TOTAL CASES
<1,000 U/L	4	2	18	24
>1,000 U/L	11	7	3	21
NUMBER OF CASES	15	9	21	45

Total of 9 cases were inoperable intraoperatively of which 2 cases have level <1,000 U/L and 7 cases have level > 1000 u/L. Total of 21 cases are resectable of which 18 cases have level <1,000 U/L and 3 Cases level >1,000U/L

A total of 11 cases preoperatively and 7 cases intraoperatively have levels >1,000 U/L which are inoperable.

A total of 4 cases preoperatively and 2 cases intraoperatively have levels <1,000 U/L which are inoperable.

Table 3: CA 19-9 Levels In Operable And Inoperable Cases

CA 19-9	OPERABLE	INOPERABLE
< 1,000 U/L	18	6
> 1,000 U/L	3	18

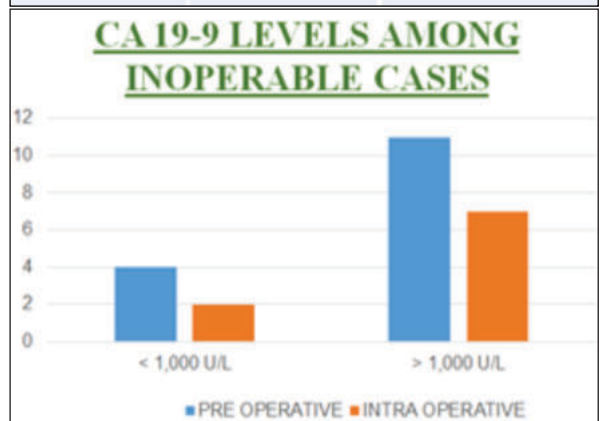


Figure 5: CA 19-9 Levels Among Inoperable Cases

CA 19-9 was elevated in all the cases of carcinoma head of pancreas (>37 U/L).

In operable cases (21) majority have CA 19-9 levels elevated but not more than 1,000 IU/ml in most of the cases.

Among inoperable cases (24) majority 85% cases have high levels of CA 19-9 (greater than 1000 IU/ml).

**Prognosis**

Normalization or decrease in post operative CA 19-9 serum levels by 20-50% from baseline following surgical resection and chemotherapy is associated with prolonged survival compared to failure of CA 19-9 levels to normalize or an increase.

**DISCUSSION**

The overall prognosis associated with carcinoma of the pancreas has not improved over the last 20 years.

The current modalities for staging are patient history and physical

examination, laboratory studies, imaging techniques and surgical findings.

The enormous progress made in imaging has resulted in more accurate diagnosis and staging. CT is extremely accurate in predicting unresectable disease, thereby avoiding unnecessary laparotomy. Thin-cut, contrast-enhanced CT has become the imaging study of choice for staging and evaluation.

Although, CT can predict unresectability with great accuracy, this imaging study can only reliably predict resectability in 20%–90% of patients.

The serum markers CEA, CA 19-9 and CA-125 have been disappointingly inaccurate. CA 19-9 has been found superior to CEA for diagnosing pancreatic cancer and is often considered to be the standard marker for this type of cancer.

CA 19-9 shows a high sensitivity and specificity for detecting recurrent and progressive disease and has been reported to predict resectability of pancreatic cancer.

Among patients whose preoperative imaging studies indicated resectable pancreatic cancer, laparotomy show that those with abnormally high serum levels of CA 19-9 may have unresectable.

Patients with CA 19-9 levels greater than 1,000 U/L have advanced tumours, and resection is rarely possible in these cases.

Failure of CA 19-9 levels to normalize or decrease showed high morbidity and mortality.

## CONCLUSION

The CA 19-9 level may be a useful marker for determining preoperatively which patients have unresectable pancreatic cancer.

The presence of an elevated CA 19-9 level should direct the surgeon to more liberal use of staging laparoscopy before proceeding to actual procedure.

## REFERENCES

1. Forsmark CE, Lambiase L, Vogel SB. Diagnosis of pancreatic cancer and prediction of unresectability using the tumor-associated antigen CA 19-9. *Pancreas* 1994;9:731-4. [PubMed]
2. Mann DV, Edwards RS, Ho Siglazer G. Elevated tumour marker CA 19-9: clinical interpretation and influence of obstructive jaundice. *Eur J Surg Oncol* 2000;26:474-9. [PubMed]
3. Osswald BR, Klee FE, Wysocki S. The reliability of highly elevated CA 19-9 levels. *Dis Markers* 1993;11:275-8. [PubMed]
4. Lind PA, Marks LB, Hollis D, et al. Receiver operating characteristic curves to assess predictors of radiation-induced symptomatic lung injury. *Int J Radiat Oncol Biol Phys* 2002;54:340-7. [PubMed]
5. Sener SF, Fremgen A, Menck HR, et al. Pancreatic cancer: a report of treatment and survival trends for 100,313 patients diagnosed from 1985–1995, using the National Cancer Database. *J Am Coll Surg* 1999;189:1-7. [PubMed]
6. Lundin J, Roberts PJ, Kuusela P, et al. The prognostic value of preoperative serum levels of CA 19-9 and CEA in patients with pancreatic cancer. *Br J Cancer* 1994;69:515-9. [PMC free article] [PubMed]
7. Bottger T, Engelman R, Seifert JK, et al. Preoperative diagnostics in pancreatic carcinoma: Would less be better? *Langenbecks Arch Surg* 1998;383:243-8. [PubMed].