

# Obstructive Jaundice; A Clinical Study of Malignant Causes.

Bhuban Mohan Das<sup>1</sup>, Sushil Kumar Patnaik<sup>1</sup>, Chitta Ranjan Panda<sup>1</sup>, Joseph. J. Kattady<sup>1</sup>

<sup>1</sup>Associate Professor, Department of Surgery, SCB Medical College and Hospital, Cuttack, Odisha.

Received: October 2017

Accepted: October 2017

**Copyright:** © the author(s), publisher. It is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

## ABSTRACT

**Background:** Aim-In recent times there has been an increase in the incidence of obstructive jaundice, especially due to malignant cases. The aim was to diagnose compare the surgical procedures to palliative procedures. **Methods:** This study was carried out on 125 patients at S.C.B Medical College, Cuttack, Odisha. The diagnosis of mechanical obstruction to the biliary tree is difficult at times as the clinical features and biochemical investigation results may be atypical. **Results:** Non operative management with endoscopic stenting and interventional radiological procedures (PTBD) was a choice in certain group of patients. **Conclusion:** Majority of the tumors are in the head of the pancreas (56.8%). The maximum age incidence of malignant obstructive jaundice is between 51 years and 60 years (28.8%). Moderately differentiated adenocarcinoma is the histology in 41.7% of the cases, poorly differentiated adenocarcinoma in 41.7% of the cases and well differentiated in 16.7% of the cases.

**Keywords:** Obstructive jaundice, malignancy.

## INTRODUCTION

In obstructive jaundice cases, the problem of diagnosis becomes an acute one as the obstruction in the biliary tree should be surgically relieved. The accurate diagnosis of mechanical obstruction to the biliary tree becomes difficult at times as the clinical features and the biochemical investigation results may be atypical. Intrahepatic cholestasis may mimic mechanical obstruction by virtue of similar clinical features and laboratory values. Many a times, hepatocellular damage and mechanical obstruction coexist, making the diagnosis together.

Treatment of malignant obstructive jaundice is challenging. Surgical treatment ranges from definitive surgical procedures to palliative procedures. On the other hand, non-operative management includes endoscopic stenting, balloon dilatation and interventional radiological procedures (like PTBD). All these test the surgeon because of the relative inaccessibility of the extrahepatic biliary tree and pancreas.

## MATERIALS AND METHODS

The study was done at S.C.B Medical College Hospital, Cuttack, Odisha in renious General Sourgical Units on 125 patients from October 2014 to June 2016. The patients of

obstructive jaundice, a detail history, thorough clinical examination was done.

### Inclusion Criteria

1. Patients with malignancies of hepatobiliary system or pancreas producing obstructive jaundice.
2. Patients with malignancy outside the hepatobiliary system or pancreas producing infiltration of biliary tree or secondaries in portahepatis.

### Exclusion Criteria

1. Patients with benign causes of obstructive jaundice.
2. Patients with hemolytic and hepatocellular jaundice.

The investigations included, liver function Tests, illhasoundsean, CT Scan, CRCP/PTC. MRAP

## RESULTS

**Table 1: Age distribution of cases in study population.**

Age Group	Number	Percentage
20-30	4	3.2%
31-40	14	11.2%
41-50	24	19.2%
51-60	36	28.8%
61-70	32	25.6%
71-80	14	11.2%
More than 80	1	0.8%

The maximum number of patients (36 out of 125) were in the age 51 to 60 years.

A total of 125 cases of malignant obstructive jaundice were included in the study. These cases were admitted to the SCB Medical College Hospital, Cuttack, between July 2014 and October 2016. Going through the statistics, it is inferred that there

### Name & Address of Corresponding Author

Dr. Sushil Kumar Patnaik,  
Associate Professor,  
Department of Surgery,  
SCB Medical College and Hospital,  
Cuttack, Odisha.

are a substantial number of patients with malignant obstructive jaundice.

Out of the 125 patients studied in detail, there are 76 males and 49 females. Age analysis of these cases shows that the maximum incidence is between 51 years and 60 years. 16 patients complained of a past history of jaundice.

**Table 2: Sex distribution of cases in study population.**

Sex	Number	Percentage
Male	76	61%
Female	49	39%

**Table 3: Tumor types.**

Tumor Types	Number	Percentage
Carcinoma of head of the pancreas	21	56.8%
Periampullary carcinoma	22	17.6%

Among the malignancies causing obstructive jaundice carcinoma of head of the pancreas is the commonest cause, followed by periampullary carcinoma, cholangiocarcinoma, carcinoma of the gall bladder and miscellaneous causes. Miscellaneous causes include secondaries to portahepatitis from the stomach or the gastrointestinal tract and malignancies producing an extrinsic compression of the bile duct.

**Table 5: Presenting symptoms**

Symptom	Number	Percentage
Jaundice	125	100%
Dark colored urine	125	100%
Anorexia	122	97.6%
Weight loss	110	88%
Pruritus	106	84.8%
Abdominal pain	86	68.8%
Weakness	83	66.4%
Nausea	70	56%
Vomiting	31	24.8%

In our study, the most common presenting complaints are jaundice, dark colored urine, anorexia and weight loss. 72 patients gave a history of a palpable mass in the right upper abdomen, probably gall bladder. A presentation with abdominal mass and ascites was common when compared to western studies, suggesting that patients were to seek treatment.

**Table 6: Clinical signs elicited.**

Sign	Number	Percentage
Scleral icterus	125	100%
Hepatomegaly	112	89.6%
Palpable gall bladder	72	57.6%
Abdominal mass	41	32.8%
Ascites	28	22.4%
Pelvic deposit	4	3.2%
Virchow's node	2	1.6%

Various operative procedures were done for the patients with malignant obstructive jaundice. Cholecystojejunostomy + gastrojejunostomy +

entero-enterostomy led the list, with 58 patients undergoing this procedure. Classical Whipple's resection was done in 12 patients. Segment III bypass + hepaticojejunostomy was done in 2 patients, no palliative surgeries were possible and only stenting was done. No surgical intervention was done in 35 patients, as they either refused to consent for surgery or had a poor general condition.

**Table 7: Operative procedures performed.**

Procedure	Number	Percentage
Cholecystojejunostomy + gastrojejunostomy + entero-enterostomy	58	46.4
Whipple's pancreaticojejunostomy	12	09.6
Segment III bypass + hepaticojejunostomy	02	01.6
Bile duct stenting	18	14.4
No procedures done	35	28.0

When laparotomy was performed, it was found that the regional lymph nodes were affected in a majority of patients (76.5%), followed by liver metastasis and peritoneal deposits. Very few had metastases to the pelvic region, the lungs and the brain.

**Table 8: Pattern of Metastasis.**

Pattern of Metastasis	Number	Percentage
Regional lymph nodes	96	76.8%
Liver deposits	83	66.4%
Peritoneal deposits	41	32.8%
Others	18	14.4%

**Table 9: Complications following surgical palliation.**

Complication	Number	Percentage
Wound infection	9	10.47%
Cholangitis	6	6.98%
Delayed gastric emptying	6	6.98%
Seroma	1	1.16%
Ascitic fluid leak	4	4.65%
Bile leak	1	1.16%
Renal failure	2	2.33%
Death	8	9.3%

Complications following Whipple's procedure are not low. There were 4 cases of enterocutaneous fistula, 2 cases of pancreatitis, 2 cases of wound infection and one case of myocardial infarction. Two patients died in the postoperative period (mortality within 30 days of surgery). One patient died due to myocardial infarction and the other patient died due to a life threatening cholangitis.

In four cases of obstructive jaundice caused by an extension of a growth from the stomach into the region of the terminal common bile duct, a cholecystojejunostomy with gastrojejunostomy was possible for palliation of jaundice and duodenal obstruction, The remaining two cases had infiltration from the growth up to the portahepatitis, where no decompression was attempted.

None of the common hepatic duct or common bile duct growths were resectable, due to local infiltration to the vital vasculature around the portahepatis. Out of 16 cases that had such growths, 6 patients were treated with the placement of a stent through the growth into the dilated intrahepatic biliary tree.

In 5 cases of carcinoma of the gall bladder, the growths were very advanced with an infiltration of the hepatic ducts and liver metastases. Of these, 2 patients were treated with the passage of a stent through the growth into the dilated biliary tree. In the other 3 patients, no surgery was possible.

Wound infection was reported in 9 patients, followed by cholangitis in 6 patients, which were treated by antibiotics, removal of the collection and proper dressing.

There were 6 cases of delayed gastric emptying, which was treated with nasogastric suction.

There were 8 deaths in this group. Most of the patients died due to life threatening cholangitis and renal failure.

Histopathology reports of the patients subjected to a Whipple's resection reveals that most of the growths are either moderately differentiated or poorly differentiated adenocarcinomas. There is a well-differentiated histology in only 5 of the cases.

The average hospital stay in the patients undergoing a curative surgery depended on whether they underwent a pre-operative endoscopic biliary stenting or not. Patients who underwent a pre-operative biliary stenting had an average hospital stay of 27 days, compared to an average hospital stay of 35 days for the patients who did not.

## DISCUSSION

Obstructive jaundice is a fascinating surgical topic because of a wide variety of etiological factors, a varying number of surgical methods and the challenges a surgeon faces while operating on the pancreas and the biliary tree.

In cases of pancreatic malignancies producing obstructive jaundice, whether to proceed with a radical surgical procedure like Whipple's resection or to choose a simple bypass procedure is highly debatable. The hospital mortality for pancreaticoduodenectomy cases has decreased substantially, and long term survival has improved significantly. In the mid 1990s, pancreaticoduodenectomy was performed at regional referral centers with an operative mortality of 1-2%. 5-year survival lay between 20%-30% for patients with a resected pancreatic cancer. Recent data suggest that the quality of survival is better with standard operations. However, the debate will continue.

In 1993, Geer and Brennan reported 130 patients who underwent a standard pancreaticoduodenectomy, with an actuarial 5-year survival rate of 21%. In John Hopkins, 201 patients

undergoing a pancreaticoduodenectomy (in 1995) had an actuarial 5-year survival rate of 37%. This study also demonstrates that the survival has improved from decade to decade (14% in 1970, 21% in 1980 and 36% in 1990). In sharp contrast, the Mayo clinic group (1995) reports a hospital mortality of 3% and a 5-year actuarial survival rate of 6.8%.

The factors, which appear to influence survival, include negative resection margins, tumor diameter more than 5 mm and a DNA content measured by image cytometry. In patients in the Hopkins series (1995), 5-year survival was 39% when the DNA content of the malignancy was diploid, but was only 8% when the DNA content was aneuploid. Lymph node status is another important factor that has a bearing on the prognosis. In the study from Hopkins, 144 patients with positive nodes had a 5-year survival of 14%. Thus, positive lymph nodes are clearly a negative prognostic finding.

Prognostic predictive values of other factors have also been arrived at in other studies with a univariate analysis, but not in studies with a multivariate analysis. These include histological differentiation, gender of patient, operative time and number of blood transfusions.

Survival following pancreaticoduodenectomy has improved over the past several decades. There are multiple reasons for this. Between the 1970s and 1980s, a decrease in operative and hospital mortality clearly played a major role. In 1980s, a decreased number of blood transfusions contributed to this trend. Positive resection margins were common in the 1970s, than in the 1980s and 1990s. In the late 1990s, adjuvant therapy was primarily responsible for the improvement.

For palliative procedures, recent reports from John Hopkins (in 118 patients) showed a mortality of 1.5% and an overall complication rate of 37%. Nearly all complications were non-life threatening, and the median hospital stay was 14 days. In our study, the hospital mortality is 9.32% and a complication rate of 34.5% is noted. The median hospital stay is 21 days.

A comparison between a Whipple's resection and a bypass, in some series, does not show any significant difference in mean survival rate. This observation is largely applicable in only late stages of the malignancy. Survival reported at the Peter Bent Hospital, Birmingham, following a Whipple's resection in a stage III carcinoma of the head of the pancreas is only 6 months, as against 5.4 months following bypass surgery. Thus, in late stages of the disease, it is not wise to undertake formidable surgical procedures like Whipple's for a marginal improvement in the long term prognosis.

The single most important factor in the surgical treatment of carcinoma pancreas, apart from the stage of the disease, is the experience of the surgeon.

Pancreaticoduodenectomy is not an operation to be performed by the occasional surgeon.

In the review of literature by Longmire, Whipple's resection was associated with a 1-year survival rate of 31 %, whereas bypass surgery is associated with a survival rate of 6%.

From these records, it is evident that a Whipple's resection is a better form of surgical treatment, at least in cases of periampullary carcinoma in experienced hands.

Treatment of a cholangiocarcinoma, especially a hilar carcinoma, is disappointing. In tumors at the confluence of the bile duct, the limit of resection is strongly debated. While treating such patients, Longmire was able to resect only 6 out of 33 lesions. Similarly, Smith (1981) treated 33 such cases in 33 years, and excised only five. None involved hepatic resection. Longmire, in anatomical and clinical studies, recognized that the involvement of vessels was the limiting factor to resection in many instances. Risk of drainage surgeries in treatment of biliary tract obstruction is high, with a mortality of 20% or more. Indeed, even non-operative endoscopic or percutaneous intubation methods are associated with a significant morbidity and a 30-day mortality of 20%.

Majority of the patients with cholangiocarcinoma will not be suitable for resection, and may be acutely sick or elderly or might have concomitant disease. The options open in the management of such patients are either conservative or some form of biliary decompression, either by means of a biliary-enteric anastomosis or by a transnasal drainage tube. Alternative methods of tubal drainage (such as the placement of a transhepatic endoprosthesis) have a potential for serious infection.

Evander and colleagues (1980), in a series of 53 patients, subjected 40 patients to some form of biliary drainage, majority of them undergoing a percutaneous transhepatic technique. The median survival was only 2.5 months. It is clear that the results of non-operative techniques for biliary decompression in biliary cancer have yet to show improvement over a surgical approach. However, with the liberal use of round ligament approach, 28 patients were operated on with a mortality of 21%. Recent experiences in France (Bismuth 1988) reveal a good quality palliation, with an operable mortality of only 7%. The results are better than those achieved by non-surgical methods.

In 16 cases of cholangiocarcinoma in our study, treatment was disappointing. Only 2 (1.6%) were subjected to a segment III bypass, and 6 patients were palliated with transtumoral stenting. Neither operative nor palliative procedures were attempted in 4 patients.

In our study, when curative surgeries were taken into consideration, patients who underwent a pre-operative endoscopic biliary stenting had a comparatively shorter average hospital stay of 27

days, compared to an average hospital stay of 35 days for patients who did not undergo the same. This was also correlated with a decrease in the frequency of post-operative complications. This may be explained by the fact that the decrease in the bilirubin load reduces all other comorbidities associated with surgery in a jaundiced patient.

## CONCLUSION

- There is a significant increase in the incidence of malignant obstructive jaundice.
- Majority of the tumors are in the head of the pancreas (56.8%). The maximum age incidence of malignant obstructive jaundice is between 51 years and 60 years (28.8%).
- The male: female ratio of the cases studied is 3:2.
- The resectability rate of the lesions is 9.6%, with 12 patients having undergone a Whipple's resection.
- Chronic calcific pancreatitis is a premalignant condition.
- All patients complained of jaundice. The commonest clinical presentations are jaundice, weight loss and anorexia.
- A palpable gall bladder was noted in 57.6% of our cases, compared to a reported rate of 30-35% in western literature.
- A palliative cholecystojejunostomy with gastrojejunostomy tops the list of operative procedures.
- The mortality rate due to palliative procedures is 93%. The observed morbidity patterns are wound infection (10.46%), cholangitis (6.9%) and delayed gastric emptying (6.9%).
- The median hospital stay for palliative procedures is 21 days.
- Mortality rate following a Whipple's procedure is 16.67%.
- Only palliative procedures were possible in Klatskin's tumor, like segment III bypass (1.6%) and transtumoral stenting.
- Moderately differentiated adenocarcinoma is the histology in 41.7% of the cases, poorly differentiated adenocarcinoma in 41.7% of the cases and well differentiated in 16.7% of the cases.
- A pre-operative endoscopic biliary stenting before a curative surgery reduces the average hospital stay from 35 days to 27 days, and also entails lesser post-operative complications.

## REFERENCES

1. Sewnath. M. E, Karsten. T. M, Prins. M. H - 'A meta-analysis on the efficacy of preoperative biliary drainage for tumors causing obstructive jaundice' (Annals of Surgery 2002; 17-27 : 236)
2. Nakeeb. A, Tran. K. Q, Black. M. J- 'Improved survival in resected biliary malignancies' (Annals of Surgery 2007; 555-564 : 132)
3. Ahrendt. S. A, Pitt. H. A, Cameron J. L - 'Do preoperative biliary stents increase post-pancreaticoduodenectomy

- complications?' (Journal Of Gastrointestinal Surgery 2002; 258-268 :4)
4. Nakeeb. A, Tran. K. Q, Black. M. J - 'Cholangiocarcinoma : A spectrum of Intrahepatic, perihilar and distal tumors' (Annals Of Surgery 2006; 463-475 : 224)
  5. Kubo H Chijiwa Y Akahoshi K Preoperative staging of ampullary tumors by endoscopic ultrasound (British Journal Of Surgery 2001; 443-447 :72)
  6. War Shaw A L Zhuo-Yun- Gu Wittenberg J-Preoperative staging and assessment of respectability of pancreatic cancer (Archives Of Surgery 2000; 230-233: 125)
  7. Dowsett J, F,Russel R. C, Hatfield A. R. Malignant obstructive jaundice A prospective randomized trial of surgery versus endoscopic stenting (Gut 1992; 1493)
  8. Michaud, D.S Epidemiology of pancreatic cancer (Minerva Chir 2006; 99-111:59)
  9. Bettschart V,Rahman. M.Q, Engelken F. J Presentation treatment and outcome in patients with ampullary tumors (BritishJournal Of Surgery 2007; 1600 -1607 : 91)
  10. Cullen J. J.Sarr M. G,Ilstrup D. M Pancreatic anastomotic leak after pancreaticoduodenectomy- Incidence significance and management (Lancet 2001; 295-298:168)

**How to cite this article:** Das BM, Patnaik SK, Panda CR, Kattady JJ. Obstructive Jaundice; A Clinical Study of Malignant Causes. Ann. Int. Med. Den. Res. 2018; 4(1): SG23-SG26.

**Source of Support:** Nil, **Conflict of Interest:** None declared