

# To Evaluate the Effectiveness of Percutaneous Transhepatic Biliary Drainage in Relief of Symptomology in Malignant Obstruction

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**Abstract:** Malignancies leading to obstructive jaundice present too late to perform surgery with a curative intent. Despite technological advances, only 20% of periampullary tumors are found to be resectable at the time of presentation due to their invasiveness, late symptom appearance and onset in elderly people<sup>(1,2,3)</sup>. Percutaneous transhepatic biliary drainage (PTBD) and endoscopic retrograde cholangiopancreatography (ERCP) are widely used palliative procedures for malignant biliary obstruction<sup>(4,5)</sup>. Patients with hilar neoplasm (Klatskin tumor) may be better managed by a percutaneous approach. Percutaneous transhepatic biliary drainage (PTBD) is a procedure to drain the bile ducts in the presence of a blockage or damage that prevents normal bile drainage. It has been shown that even if only 30% of the liver parenchyma is drained, it provides adequate palliation to relieve jaundice and associated pruritus<sup>(5,6)</sup>.

**Keywords:** Percutaneous Transhepatic biliary drainage (PTBD)

## 1. Aims and Objectives

To evaluate the usefulness of left versus right lobe PTBD in terms of relief of malignant obstruction and symptoms of same.

## 2. Materials and method

- 1) This study was a prospective hospital based study. It was conducted in the Department of Radio diagnosis & Imaging in collaboration with the Department of Surgical and Medical Gastroenterology of SKIMS.
- 2) 31 elective patients who were referred to our department for PTBD were included in this study. PTBD was performed either via right (subcostal or intercostal) in 16 patients or left-ductal (sub-xiphoid) approach in 15 patients, on the basis of status of primary biliary confluence and atrophy of liver parenchyma.

### Inclusion Criteria

- Patients with confirmed diagnosis of malignant obstructive jaundice who were surgically unresectable.
- Unresectable malignant tumour, biliary stricture in whom ERCP has failed.
- As a temporary measure to gain time before elective surgery can be performed.

### Exclusion Criteria

- Patients with severe coagulopathy.
- Patients with severe ascites.
- Patients with severe allergy to contrast material.
- Refusal to participate in the study.

## 3. Planning of Intervention

### Imaging

- Prior to the initiation of procedure, three-dimensional cross-sectional imaging, i.e. computed tomography or magnetic resonance imaging) ± magnetic resonance cholangiopancreatography (MRCP) of patients were reviewed to help identify dilated ducts and/or the level of obstruction for consideration of a target.

### Laboratory Analyses:

Evaluation of the patient's coagulogram, liver and kidney function was needed. Most patients need contrast administration for cholangiogram which can derange renal function.

### Patient Preparation

Prophylactic antibiotics were started before the procedure along with conscious sedation with midazolam and fentanyl. Informed consent was taken from each patient. Monitoring of vital signs (blood pressure, pulse and oxygenation status) was done during and after the procedure.

The procedure was performed in the department using ultrasound and fluoroscopic guidance under all aseptic precautions.

### ANALYSIS

- Technical success and change in symptomatology were assessed in both groups. Technical success was defined as the successful deployment of the internal-external drainage tube in the appropriate position resulting in drainage of the respective bile ducts
- On the basis of symptomology, patients were divided into five groups:-
  - Group I: No symptoms before PTBD.
  - Group II: Decrease in symptoms after PTBD.
  - Group III: Disappearance of symptoms after PTBD.
  - Group IV: Increase in symptoms after PTBD.

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Group V: No change in symptoms after PTBD.

- Symptoms that were assessed include itching, anorexia, abdominal pain and nausea. These were assessed before PTBD and 30 days after PTBD.

#### 4. Results

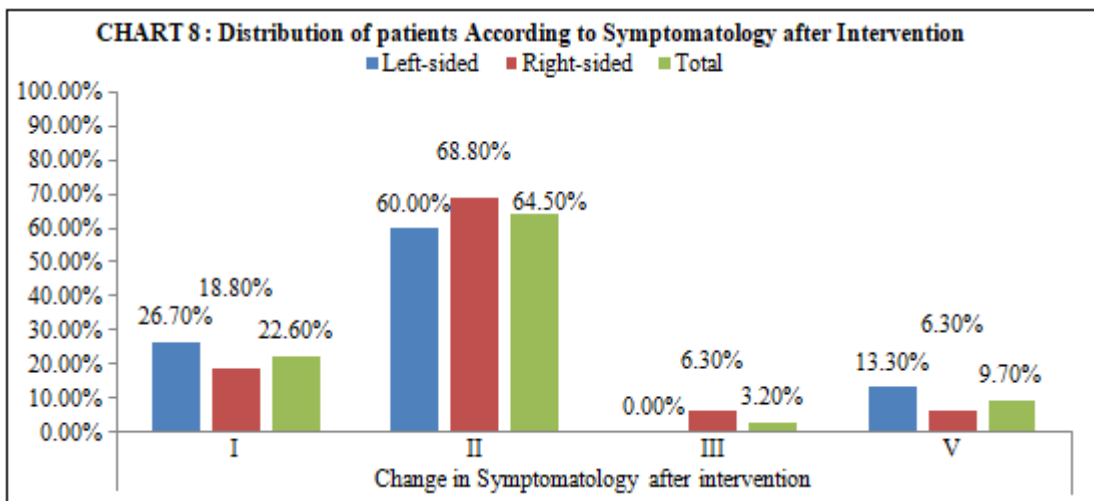
Successful deployment of external/ internal drainage in approved position was in 16/16 patients in right-sided approach and 15/15 patients using left-sided approach. Rate of technical success was 100% in both groups.

#### Symptomology

Patients were analyzed on the basis of change in symptomatology after intervention. It was found that in left-lobe approach, 26.75% patients had no symptoms(4 out of 15), 60% (9 out of 15)patients had decrease in symptoms, 13.3%(2 out of 15) patients had no change in symptoms and no patient had disappearance of symptoms after intervention. In right-lobe approach, 18.8%(3 out of 16) patients had no symptoms, 68.8%(11 out of 16) patients had decrease in symptoms, 6.3% (1 out of 16) patients had no change in symptoms and 6.3% (1 out of 16) patients had disappearance of symptoms after intervention. The difference between left and right sided approach was clinically insignificant ( $p>0.05$ ).

**Table 8:** Distribution of patients According to Symptomatology after Intervention

		Change in Symptomatology after intervention				Total	
		I	II	III	V		
approach	Left-lobe	Count	4	9	0	2	15
		% within approach	26.7%	60.0%	0.0%	13.3%	100.0%
	Right-lobe	Count	3	11	1	1	16
		% within approach	18.8%	68.8%	6.3%	6.3%	100.0%
Total		Count	7	20	1	3	31
		% within approach	22.6%	64.5%	3.2%	9.7%	100.0%



#### 5. Discussion

Technical success in left group was 100%(15/15) and in right group was 100%(16/16). In the study reported by **Shivanand Gamanagatti et al<sup>(7)</sup>** Catheter/Stent placement was successful in all patients (100%), which is similar to the reports of previously published studies. In the study reported by **Saluja et al<sup>(8)</sup>** the technical success achieved was 93%, in the PTBD group. Better technical success in our study could be attributed to the advancement in micropuncture needles, guide wires and catheters.

Patients with no symptoms before PTBD had milder form of malignant Biliary obstruction. Greater decrease in symptoms in right sided approach is attributed to the fact right lobe drains 60% of liver volume. No change in symptoms after PTBD is attributed to fact that these patients had advanced stage of disease and were in liver failure. . In a study by **Masahiko Iwasak et al<sup>(9)</sup>**, almost all the symptoms of obstructive jaundice were relieved after PTBD , except in one patient who complained of generalized malaise. Thus,

PTBD is useful for relief of symptoms, caused by obstructive jaundice in patients.

#### 6. Conclusion

Our data support the fact that *Percutaneoustranshepatic biliary drainage (PTBD)* is an excellent procedure to drain the bile ducts in the presence of a blockage or damage that prevents normal bile drainage. Our data also concludes that there is a significant decrease in symptoms after PTBD which is slightly more in right-lobe approach than in left-lobe approach.

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