



**Service Priorities and Programmes**  
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**Clinical Audit on the Success and Complication Rates of PTBD Procedures dealing with External Drainage of Dilated Ducts**

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Percutaneous transhepatic biliary drainage

Technical success

Complication

Clinical safety

**Introduction**

Percutaneous transhepatic biliary drainage (PTBD) is an effective method for the management of biliary abnormalities such as gallstone obstruction, benign and malignant strictures under imaging guidance when endoscopic retrograde cholangiopancreatogram (ERCP) is not feasible or contraindicated.

However, it has been associated with complications including sepsis, haemorrhage and localised infective, as well as inflammatory processes such as abscess, peritonitis, cholecystitis, and pancreatitis, with an overall 30-day in hospital mortality rate of reported up to 20% in literatures.

**Objectives**

1. Review all PTBD (external drainage of dilated ducts) performed over a 9 month period in Princess Margaret Hospital;
2. assess technical success and complication rates and,
3. assess the compliance rate of Department and the Society of Interventional Radiology (SIR) guidelines on pre-operative INR / platelet levels.

**Methodology**

Audit period: 1st Jan 2017 to 30th Sep 2017

Keywords of 'percutaneous transhepatic biliary drainage', 'biliary drainage' and 'PTBD' were searched in Radiology information system (RIS).

Only procedures dealing with external drainage of dilated intrahepatic ducts were included. Procedures not related to PTBD, those dealing with non-dilated ducts and those aimed for internalization, revision, or biliary tract dilatation were excluded.

Clinical notes, laboratory results, prescribing history and radiological images of each patient were reviewed in CMS and ePR. Demographic and other relevant clinical information were recorded.

Quality Improvement Guidelines for Percutaneous Transhepatic Cholangiography and Biliary Drainage and Consensus Guidelines for Periprocedural Management of Coagulation Status and Hemostasis Risk in Percutaneous Image-guided Interventions

published by the Society of Interventional Radiology were used as reference standard.

## **Result**

Total number of audited patients: 26

Total number of audited PTBD external drainage of dilated ducts: 43

Male to Female ratio was 17:9

Mean age: 65.2 years old

Range: 48-89 years old

81% of patients suffered from malignancy biliary obstruction.

PTBD technical success rate: 97.7%

PTBD related sepsis: 7%

PTBD related hemorrhage: 0%

PTBD related death: 0%

Pre-operative INR / PLT compliance: 100%

These were all up to standard.

This audit reviewed:

1. the success rate and complication rate of PTBD dealing with external drainage of dilated ducts done in our Department were satisfactory, meeting standards prescribed in the reference guideline.

2. the compliance rate of pre-operative INR / PLT levels recommended by the reference guidelines were satisfactory reaching 100%.

Nevertheless, we found that not all patients who developed sepsis received antibiotics prophylaxis. And they actually received different prophylactic antibiotics. Liaison with microbiologists and surgeons to establish a standardized PTBD prophylactic antibiotics protocol is recommended.

Although our PTBD service performed within the threshold limits, a few points are recommended for further improvement in our performance:

Regarding prevention of sepsis, radiologists should check whether prophylactic antibiotics is given before commencing the procedure. Avoid over-distention by injecting too much contrast agent into the already dilated system.

Regarding pre-operative INR and platelet levels, straight compliance to the reference guidelines is recommended unless in emergent or highly urgent procedures in which the risk of procedural delay may outweigh the potential hemorrhagic risk. Always liaise with the referring clinical team when encountering abnormal clotting profile in emergent or urgent procedures.

Audit on other aspects of our PTBD services, such as success and complication rates of PTBD dealing with non-dilated ducts, internalization and on catheter dislodgement should be carried out.

To maintain the current standard of PTBD success rate and complication rate.

Recommend re-audit after 1-2 years.