

# To Determine the Degree of Agreement between MRCP and ERCP Findings in Diagnosis of Iatrogenic Bile Duct Injury after Cholecystectomy

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## ABSTRACT

**Aim:** To determine the degree of agreement between MRCP and ERCP findings in diagnosis of iatrogenic bile duct injury after cholecystectomy.

**Duration:** From 01-07-15 to 31-12-15

**Methodology:** Descriptive cross sectional study at Shaikh Zayed Hospital, Lahore. Non probability sampling technique was used. Informed consent was taken from all the patients. All the data was entered and analyzed on SPSS version 20.

**Results:** In this study, the agreement between the MRCP and ERCP for diagnosing IBDI was found in 143(95.3%) patients. **Conclusion:** There was strong agreement (95.3%) between the MRCP and ERCP findings in diagnosis of iatrogenic bile duct injury after cholecystectomy.

**Keywords:** Bile duct injury, magnetic resonance cholangiopancreatography, endoscopic retrograde cholangiopancreatography, choledocholithiasis

## INTRODUCTION

Bile duct injuries consisting excision injury, stricture, biliary dilatation and biliary leak leading to free fluid or fluid collection in peritoneal cavity. Imaging technique is important for the diagnosis of bile duct injury, its extent, and its guidance for treatment. Imaging include cholescintigraphy, ultrasonography, computed tomography, MRCP, ERCP, percutaneous transhepatic cholangiography, and fluoroscopy with contrast medium injected via percutaneously placed biliary drainage catheter<sup>1</sup>. Percutaneous transhepatic cholangiography(PTC) and Endoscopic retrograde cholangiopancreatography (ERCP) have been done for confirmed diagnosis of subjects for biliary anatomy before surgery of duct injury. These methods are invasive and have complications i.e., hemorrhage (1.3%), post ERCP pancreatitis (3.5%), cholangitis<sup>2</sup>.

The therapeutic success rate of ERCP in iatrogenic bile duct injury (IBDI) is 94%. In MRCP technique, contrast media or ionizing radiations is not used and it is noninvasive and free of complication thus examination is short. MRCP is mostly accurate in the diagnosis of biliary dilatation and the site and cause of stenosis<sup>3</sup>. Sensitivity and specificity of MRCP is 95% and 92% respectively<sup>3</sup>.

MRCP is especially used for patients of poor clinical health and allergy to contrast media and are unable to undergo ERCP. ERCP has an advantage over MRCP that it is both diagnostic and therapeutic tool. In one study, agreement between MRCP and ERCP of biliary complications after hepatobiliary surgery is about 98%<sup>4</sup>. IBDI remain an important problem in gastrointestinal surgery and most frequently caused by laparoscopic cholecystectomy<sup>5</sup>.

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## METHODOLOGY

### Inclusion criteria

- Ages of 18-80 years with both sexes and persistent pain, nausea, vomiting, jaundice within 30 days after laparoscopic or open cholecystectomy.
- Patients having ERCP done in last 24 hours suggesting post-cholecystectomy bile duct injury without intervention.

### Exclusion criteria

- Patients with past H/O CBD injury.
- Patients having surgery of cochlear implants, pace-makers, replaced metallic cardiac valves or any other metallic foreign body which are contraindicated for MRCP.
- Patients having H/o any intervention during ERCP.

**Data Collection Procedure:** After informed consent, first 150 patients from endoscopy procedure had ERCP for iatrogenic CBD injury, in last 24 hours, referred to Radiology department for biliary anatomy before surgery, undergoing MRCP examination. The data was collected was analyzed using Statistical Package for SPSS vr 20.

## RESULTS

The detail of results is given in tables 1, 2, and 3

Table 1: Distribution of IBDI on MRCP

IBDI on MRCP	n=	%age
Present	84	56
Absent	66	44
Total	150	100

Table 2: Distribution of IBDI on ERCP

IBDI on ERCP	n=	%age
Present	85	56.7
Absent	65	43.3
Total	150	100.0

Table 3: Comparison of IBDI on ERCP versus IBDI on MRCP

		IBDI ERCP		Total
		Present	Absent	
IBDI MRCP	Present	81	3	84
	Absent	4	62	66
Total		85	65	150

Kappa value=0.905, P value =0.01 (Significant)

## DISCUSSION

According to this study, the agreement between the MRCP and ERCP for diagnosing IBDI was found in 143(95.3%) patients. By applying Kappa statistics, significant agreement between the IBDI on MRCP and IBDI on ERCP i.e. p-value=0.01. In one study, MRCP is the imaging technique of choice for suspected BDI. It shows intra and extra-hepatic biliary tree and can provide a better look of anatomy of biliary tract thus planning of reconstructive surgery as compared to ERCP<sup>6</sup>. MRCP is an accurate noninvasive alternative for ERCP. In CT cholangiography, the sensitivity to CBD stones presence is 93% and specificity 100%. In stones of size <0.5 cm, sensitivity is 70%<sup>7</sup>.

In another study, ERCP is more invasive as compared to MRCP but at the same time, it works as therapeutic procedure e.g. biliary stents insertion. These are also beneficial for management of CBD stenosis<sup>8</sup>.

## CONCLUSION

There is strong association (95.3%) between the MRCP and ERCP findings in diagnosis of iatrogenic bile duct injury after cholecystectomy.

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