

# Choledocholithiasis: overview



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Cholelithiasis (which called bile duct stones or gall bladder stones in the bile duct) is the presence of stones from gall bladder in the common bile duct. Stones usually form in gall bladder but they sometimes pass through the cystic duct into common bile duct.

There are many symptoms of gallstone in common bile duct. For example; abdominal pain (in the right upper or middle upper abdomen), fever, jaundice (yellowing of the skin and eyes), loss of appetite, nausea and vomiting and clay-colored stools.) Healthline, 2016) So, this condition diagnosed and treated by ERCP.

ERCP (Endoscopic retrograde cholangiopancreatography) is a procedure that enables doctor to examine the pancreatic and bile ducts by insert lighted tube which called endoscope (like the thickness of your index finger) is placed through the mouth and into stomach and first part of the small intestine (duodenum) exactly in (ampulla) and passed of cannula (which a small plastic tube) through the endoscope and into this opening with injected contrast material and X-rays are taken to study the common bile duct. (SAGES, 2018)

Fluoroscopy is a radiographic procedure that provides a dynamic image of the inside of the body frequently after the administration of the contrast media with the use of persistent x-ray beam that passes through the area of interest and later the attenuated beam that come out of the patient is received by a video monitor to view the body part motion in details.

The fluoroscopic studies can efficiently detect variety of abnormalities of different body systems such as the skeletal, digestive, cardiovascular,

respiratory, reproductive and urinary system. (University of Rochester Medical Center, 2018). In this assignment I will discuss about equipment used in ERCP, role of radiographer in ERCP, technical and exposure consideration of ERCP and case study. ?

ERCP Equipment ERCP contain endoscopy and fluoroscopy. Fluoroscopy consists of C-arm and monitor. Endoscopy consist of flexible tube which called endoscope with at the end it contain a tiny video camera and light. There is a canal inside components of the scope through which thin instruments are passed and can be poked out the tube's end.

These instruments include a catheter, balloon, basket, sphincterotome, biopsy forceps and cytology brush and stents. So, for injecting contrast media into the ducts by used of catheter. Used of balloon is to stretch tight areas of the bile duct or pancreatic duct. Also, for removing and manipulating stones used of basket, and to incise tissue and make the bile duct or pancreatic duct opening larger used of a sphincterotome.

Biopsy forceps and cytology brush use to obtain microscopic exam, and use stent to bridge blockages. Other openings allow the doctor to suck out water or air inside digestive system as well as clean the camera lens. Control the movement of the tube by gently pushing and pulling on its outside end is done by the doctor while also steering the inside end with control knobs that the doctor holds in his hand. Video television screen in the procedure room is received images from the endoscope.

Also, obtain an x-ray image of the bile duct and pancreatic duct by the fluoroscopy. (University et al., 2018) Role of Radiographer in ERCP: Before  
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examination: First, asked to remove any clothing or jewelry that may get in the way of the body area to be examined and wear gown. Then, check name and an identification number of the patient.

Third, prepare the C-arm machine and the monitor. Fourth, positioned on the x-ray table depending on what the doctor want. Fifth, make sure everyone who stays in ERCP room wear lead apron. During examination: Regarding on department's equipment, radiographer may have to stay out in the control panel or may be able to stand in the room to x-ray. stand in the room to x-ray In the latter, it is important to pay close attention so as not to miss cue to x-ray.

The doctor will ask the radiographer to x-ray when it is required if screen or spot. Also, the radiographer be attention for doctor and patient condition.

After examination: The radiographer save the image and sent it. Make sure the machine is clean. Technical of ERCP: Endoscopic retrograde cholangiopancreatography (ERCP) is a technique that to diagnose and treat diseases regarding to the pancreatobiliary system by used of endoscopy and fluoroscopic imaging.

The endoscopic portion of the examination uses endoscope that is passed through the esophagus and stomach and into the second portion of the duodenum. For obtaining high-quality radiographic images and for the prevention of pulmonary aspiration and considered optimal for cannulation of the papilla, so ERCP is performed with the patient in the prone position. But, patients who can not able for prone position for ERCP are often placed in the left lateral decubitus or supine positions. ( Malas, 2017)

Radiation exposure consideration of ERCP: In ERCP the fluoroscopy time is shorter when ERCP is performed by doctor who has many years experience of done ERCP and carried out a large number of ERCPS in the past year. In general, radiation exposure is higher during therapeutic ERCP than duringdiagnosticERCP.

Radiation dose to patients during ERCP depends on many factors, and the doctor unable to control some variables which are patient size, procedure type, or fluoroscopic equipment used. In a recent prospective study where ERCP instruments used for example, stent insertion, lithotripsy, needle-knife, biopsies, the use of a guide wire or additional wires other than the standard, a balloon and catheter, that will significantly increase fluoroscopy duration. (Boix and Lorenzo-Zúñiga, 2011)

Patient preparation and care: Before the examination, the stomach should be empty. The patient who does the ERCP must not eat anything after midnight on the evening before the exam. Regarding for examination time, if the procedure is done early in the morning, no drinks must be taken, but if examination is done at noon time, a cup of tea, juice, milk, or coffee can be taken four hours earlier. medications of heart and blood pressure must always be taken with a little amount of water in the early morning.

The patient needs to have a companion drive them home after the procedure, since the procedure will require intravenous sedation. (Jay and Marks, 2018)To cause relaxation and sleepiness, the patient will be given medications through a vein. Local anesthetic is given to the patient to decrease the gag reflex.

Some doctors prefer to give the patients more intravenous medications for sedation, so do not use local anesthetic. This also applies to those patients who cannot tolerate the bitter taste of the local anesthetic or who have a history of allergy to xylocaine and the numbness sensation in the throat.

The intravenous medication is given, while the patient is lying on the left side on the X-ray table, and then the instrument is inserted gently through the mouth into the duodenum. The instrument advances through the food passage and not the air passage. It does not interfere with the breathing and gagging is usually prevented or decreased by the medication. After the examination, patients must be observed in the recovery place until most of the effects from the medications have worn off.

This sometimes takes one to two hours. (Jay and Marks, 2018) Case study: This case study is about 77 years old female patient with H/O common bile duct stones. The condition started 8 months ago by right upper abdominal pain and clay colored stools. The patient came to Royal Hospital and the doctor decided to take x-ray first.

So, they found 3 large stones in common bile duct. Then the doctor decided to do ERCP. The ERCP was done in 7/5/2018. The doctor saw a peripapillary diverticulum and with injected contrast through common bile duct, the cholangiogram showed 3 large stones proximally back to back, the balloon was used to remove the stones.

However, this patient was uncooperative, so stenting done in long time with use 9cm plastic biliary stent with good bile drainage. (Royal, 2018) Conclusion: Overall, ERCP is procedure to examine different diseases

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regarding to biliary system. One of these conditions is cholelithiasis which is stone in gallbladder or common bile duct.

ERCP can diagnose and treat cholelithiasis. ERCP used fluoroscopy to examine the endoscope inside the patient, so radiographer is one of most important member in ERCP room. Also, ERCP used endoscope insert through the mouth into stomach with insert some instrument inside its canal.

Technique of insertion endoscope with lower radiation dose for the experienced endoscopists, patient and who stay in ERCP room. Nowadays, ERCP is most common done in world, so most of the people know about it.