



ENDOSCOPIC ULTRASOUND

By Dr Patrick Walsh

Endoscopic Ultrasound is an imaging modality that combines ultrasound and endoscopic techniques. It was originally developed approximately twenty years ago to image the pancreas when non-invasive imaging was unable to give clear pictures of the pancreas gland. Since then it has developed into an imaging modality that is used for many indications and now allows a relatively non-invasive way of obtaining tissue samples. The endoscopic ultrasound equipment involves a gastroscop with a small ultrasound machine at the tip of it. The scope is inserted into the patient to the area of interest and the ultrasound machine is then turned on which allows imaging of mucosal structures and structures lying close to the gastrointestinal tract. These procedures are done as day only procedures in a fashion similar to a normal gastroscopy.

The indications for endoscopic ultrasound are diverse but fall into two main groups:

- The first group is characterizing luminal lesions that are seen at endoscopy or colonoscopy. These include cancers and submucosal tumours such leiomyomas or gastrointestinal stromal tumours.
- The other large group include extra luminal structures and these are further categorized into organs and lymph node chains. Within the mediastinum, endoscopic ultrasound provides a very valuable role of assessing mediastinal masses of unknown origin. The endoscopic ultrasound equipment allows real-time ultrasound guided fine needle aspiration of these hard to reach structures. It provides a very valuable role in the staging of non-small lung cell cancer patients. It is also useful in the diagnosis of Sarcoid and other unusual mediastinal tumours that are hard to access by other means.

Endoscopic ultrasound is also used extensively for interrogation of the pancreas and biliary system. Endoscopic ultrasound provides very clear visualization of the pancreatic gland structure and the main pancreatic duct. If a lesion of interest is seen, it can be sampled using a ultrasound guided fine needle aspiration technique where a needle is passed either through the gastric wall or duodenal wall into the lesion.

Endoscopic ultrasound is also highly accurate at determining microlithiasis within the common bile duct and common hepatic ducts. Its sensitivity for this indication is at least that of MRCP and CT cholangiogram.

Endoscopic ultrasound's role is expanding in recent times with a number of new therapeutic techniques. Endoscopic ultrasound is very useful for performing Coeliac Plexus Neurolysis which is used to control severe abdominal pain that arises in pancreatic cancer. Ultrasound can identify the coeliac nerve plexus and under real-time ultrasound guidance a block can be performed.

Endoscopic ultrasound is now being used to drain pancreatic cysts and pseudocysts. Local ablative treatment to tumours of the pancreas and liver can also be delivered by endoscopic ultrasound guided fine needle injection techniques.

Dr Patrick Walsh and Dr Benedict Devereaux are both internationally trained national leaders in endoscopic ultrasound. Currently in Brisbane, there are four Centres that have Endoscopic Ultrasound expertise. These include the Royal Brisbane and Princess Alexandra Hospitals, Holy Spirit Northside and Greenslopes Private Hospitals.

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