CASE REPORT

ENDOSCOPIC ULTRASOUND GUIDED BIOPSY OF A MEDIASTINAL MASS

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Endoscopic ultrasound (EUS) now has an established role in the diagnosis, staging and management of cancers of the oesophagus, stomach, pancreato-biliary system and rectum. Recently, a role for EUS in the staging of lung cancers has been proposed. Linear EUS allows fine needle aspiration (FNA), core biopsies and therapeutic manoeuvres such as coeliac plexus block to be performed. We present here the first reported EUS-guided biopsy from Pakistan. A patient with probable bronchogenic carcinoma was referred for assessment of operability. A thoracic CT scan showed subcarinal and aorto-pulmonary recess lymphadenopathy. An EUS-guided FNA was performed, confirming metastatic non-small cell lung cancer and rendering the patient inoperable.

INTRODUCTION

EUS is now considered the standard of care for staging of oesophageal, gastric, pancreatic and rectal cancers. The primary advantage of EUS over other forms of imaging, such as CT and MRI, is its unique ability to accurately stage mucosal depth of invasion of tumours. This often upstages lesions extending beyond the serosa, and thus prevents unnecessary surgery.1,2 With the advent of linear EUS, a number of interventions have become possible. Gastroenterologists can now perform EUS-guided FNA and core biopsies of lymph nodes and other masses in the mediastinum and abdomen.3 Accessible liver metastases can also be biopsied through the oesophageal or gastric wall. Indeterminate pancreatic tumours, submucosal tumours and large gastric folds mimicking gastric varices or otherwise causing diagnostic confusion, can all be biopsied using linear EUS. Other therapeutic manoeuvres, such as EUS-guided coeliac plexus block4,5 and transgastric endoscopic pseudocyst drainage6,7, are also possible. Current modalities available to obtain tissue from mediastinal masses include CT-guided FNA or core biopsy, mediastinoscopy, video-assisted thoracic surgery (VATS) and EUS-FNA. Recently, transbronchial needle biopsy of mediastinal nodes has also been described.8 Each procedure has its own risks and benefits. EUS-FNA is safe, well-tolerated and avoids exposure to radiation and anaesthesia associated with other methods.

CASE HISTORY

A 54-year-old male smoker with COPD presented with a six month history of increasing hoarseness and a productive cough. A chest radiograph revealed a mediastinal mass with left hilar lymphadenopathy. A CT scan of the thorax showed a subcarinal lymph node mass extending into the aorto-pulmonary window and left peribronchial region. EUS-guided FNA of this mass was performed under conscious sedation, after obtaining written, informed consent, with continuous monitoring of pulse, blood pressure and pulse oximetry. Using an Olympus linear echoendoscope (GF-UMD240P), the subcarinal region was identified between the left atrium and the left main pulmonary artery. Pathologically enlarged nodes were seen
here as hypoechoic masses. An aspiration needle (Olympus NA-10J-1) was passed through the wall of the oesophagus into the adjacent lymph node mass, under direct vision, and tissue aspirated for cytological examination. Material so obtained was smeared, air dried, stained and examined by an on-site cytopathologist. The needle was then flushed with fixative to recover material to prepare a cell block. In the patient described, small clusters of atypical epithelial cells, with cellular crowding and nuclear overlapping, were seen. The cells showed high nuclear-cytoplasmic ratio and hyperchromatic nuclei, with occasional small nucleoli. The cytoplasm was pale to clear. A cytological diagnosis of non-small cell lung cancer was made.

Following the procedure, the patient was observed for one hour to exclude immediate complications, before being allowed home. Based on the EUS-FNA findings, the patient was deemed inoperable and was referred for palliative radiation therapy.

**DISCUSSION**

In linear echoendosonography, the ultrasound beam travels in a plane parallel to the shaft of the endoscope, allowing tracking of instruments extending from the working channel of the endoscope, so that EUS-guided FNA and core biopsies of lymph nodes and other masses in the mediastinum and abdomen\(^3\) can be performed. Liver metastases, pancreatic tumours, submucosal tumours and large gastric folds mimicking gastric varices can all be biopsied. EUS-guided coeliac plexus block\(^4,5\) and transgastric pancreatic pseudocyst drainage\(^6,7\), are also possible. EUS-guided FNA is very safe\(^9\), with only occasional infectious complications being reported. Apart from the initial costs of equipment and training, consumable costs are low and a re-usable FNA needle is available.

EUS provides the most accurate assessment available for the staging of oesophageal cancer. It has been shown to be superior to CT in this respect\(^1\) as well as for staging of gastric carcinoma.\(^10\) EUS-guided FNA of mediastinal masses is now a standard procedure in many countries.\(^9\) Several studies support the use of EUS-guided FNA for diagnosing pancreatic masses.\(^11-16\)

**CONCLUSION**

EUS-guided aspiration of mediastinal masses is a safe and well-tolerated procedure. This case serves to highlight the need for expanding facilities in selected hospitals to allow physicians to train in and perform such advanced techniques. Cancer is an increasingly common diagnosis in Pakistan. As the burden of illness from infectious diseases falls, diagnosis and treatment of illnesses such as cancer will become increasingly important. Many such patients would be helped by EUS and we should continue to see exciting developments in interventional therapies guided by EUS.

**REFERENCES**


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