

# Percutaneous Computed Tomography-guided Oesophageal Needle Biopsy

## Abstract:

Sir,

Biopsies of suspicious lesions in the oesophagus can be readily performed via a flexible endoscope in most settings. However, structuring lesions may require a rigid endoscope under general anaesthesia or a percutaneous approach to successfully biopsy. The percutaneous approach however, is rarely used with upper gastrointestinal tract lesions. We describe the fine needle aspiration (FNA) of a cervical oesophageal lesion via a percutaneous computed tomography (CT)-guided approach. A 60 year-old-male presented with progressive dysphagia over several weeks.

He had a history of oesophageal carcinoma which was treated by partial oesophagectomy and radiotherapy six-years previously. Oesophagogastroduodenoscopy demonstrated a stricture in the upper oesophagus; however multiple attempts to pass and biopsy the stricture endoscopically were unsuccessful. CT of the neck showed circumferential mass-like thickening of the oesophagus between C6-T1 vertebral levels. A biopsy of the stricture was required to differentiate between a benign stricture and recurrence of malignant disease. In view of previous unsuccessful attempts at endoscopic biopsy, percutaneous FNA of the oesophagus was performed under CT fluoroscopic guidance. The procedure was performed under conscious sedation and local anaesthesia with the patient placed supine with the neck held in left lateral rotation. Under aseptic technique, a 22-gauge x 9 cm spinal needle was advanced via a right posterolateral supraclavicular approach with the needle traversing between the right internal jugular vein and common carotid artery in the carotid sheath anteriorly and the right vertebral artery and vein posteriorly (Figure 1A). The needle trajectory was then horizontally angulated and advanced into the oesophageal lesion (Figure 1B) where two FNAs were performed. The procedure was well tolerated with no complications and cytologic examination demonstrated cellular changes consistent with malignancy.

## Discussion

Percutaneous access to the upper digestive tract is an unconventional biopsy approach with few reports described in the literature.<sup>1,2</sup> Percutaneous biopsies of neck structures are challenging due to the presence of numerous vessels, nerves and airway structures. Nevertheless, with careful consideration of the anatomical relationships, two main approaches have been described: the anterolateral approach between the carotid sheath and trachea or the posterolateral approach<sup>2-4</sup> with the needle passing between the carotid sheath and vertebral vessels (Figure 1A) as described in our case. A transtracheal approach may also be used, however this carries additional risks such as aspiration, pneumomediastinum and airway haemorrhage. Additional methods can be employed to increase the working space posterior to the carotid sheath, including contralateral head rotation which moves the carotid sheath anteromedially and hydrodissection to separate out structures at the needle tip prior to further needle advancement. The technique described offers a valuable alternative to rigid endoscopic or open biopsy for difficult upper gastrointestinal lesions as it avoids the need for general anaesthesia and can be performed safely under CT guidance.

HK Kok, P Govender, S Leong, RFJ Browne, WC Torreggiani  
Department of Radiology, Tallaght Hospital, Dublin 24  
Email: terrykok@gmail.com

## References

1. Wu MH, Chern MS, Wu YC, Sheu MH, Chang CY. Percutaneous transtracheal computed tomography-guided biopsy of cervical esophageal carcinoma: an alternative approach. *J Vasc Interv Radiol*, 2006. 17: 402-3.
2. Gupta S, Henningsen JA, Wallace MJ, Madoff DC, Morello FA Jr, Ahrar K, Murthy R, Hicks ME. Percutaneous biopsy of head and neck lesions with CT guidance: various approaches and relevant anatomic and technical considerations. *Radiographics*, 2007. 27: 371-90.
3. Sherman PM, Yousem DM, Loevner LA. CT-guided aspirations in the head and neck: assessment of the first 216 cases. *AJNR Am J Neuroradiol*, 2004. 25: 1603-7.
4. DelGaudio JM, Dillard DG, Albritton FD, Hudgins P, Wallace VC, Lewis MM. Computed tomography--guided needle biopsy of head and neck lesions. *Arch Otolaryngol Head Neck Surg*, 2000. 126: 366-70.