Role of multidetector CT virtual laryngoscopy in evaluation of laryngeal mass lesions

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Multi-slice CT allows simultaneous acquisition of more than one slice at a time and a reduction of the gantry rotation time.With multi-slice CT the examination time has been significantly reduced, which proved to be of immediate clinical benefit for the quick and comprehensive assessment of trauma victims and non-cooperative patients..With multi-detector CT up to 320 slice scanners and improving computer technology, reconstructions became quicker and details improved.The most important clinical benefit of multi-sliceCT, is the ability to scan neoplasms within a given scan time with substantially reduced slice width with subsequent increased longitudinal resolution leading to accurate tumour staging .Conventional endoscopy allows direct visualization of mucosa and can be used for biopsy. It is however, invasive and requires sedation, and depends on the operator's experience . More importantly. It may not be possible to progress beyond a stenosis or obstruction, thus interfere with complete assessment of the lesion. In addition,viewing is limited to the lumen, restricting transmural evaluation. In contrast, virtual laryngoscopy is -non-invasive and uses two-dimensional computed tomography to create three dimensional endoscopic simulation with a number of advantages. It can show surface irregularities and can be used to view the distal aspect of obstructing lesions or stenosis which a conventional endoscope cannot pass through .While there are several advantages of virtual laryngoscopy, there are a number of disadvantages. It has the drawback of radiation exposure. Although excellent contour visualization is possible, mucosal irregularities and vascularity are not depicted . In addition, it does not allow biopsy, and cannot be used for contact examination of blood vessels unlike endoscopy. Combining the two techniques, and viewing virtual laryngoscopic images during endoscopy, a synergistic effect may be obtained, thus facilitating three-dimensional interpretation .In conclusion; The larynx is perhaps the area in the human body that is visualized most often via endoscopy. Virtual laryngoscopy (VL) would complement conventional laryngoscopy and prove to be especially useful for examinations in patients having stenosis and congenital defects. It would also be useful in patients who are unfit for general anesthesia. In our opinion, VE-based visualization of the larynx and upper airway would offer numerous benefits over conventional laryngoscopy, including providing unconventional internal and external views of the airway anatomy and the subglottic cavity in patients with infection, inflammation, and neoplasia of the lumen. Although VL holds promise for some clinical applications, the technique is

limited by the quality and speed of algorithms used for the reconstruction and navigation within the 3D laryngeal cavity.