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Opinion

Laryngeal Endoscopy by Incorporating Artificial Intelligence

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ABSTRACT

Early and accurate diagnosis of laryngeal lesions is necessary to begin treatment of patients with the potential to maintain organ function as soon as possible. Imaging tests are often supported by Artificial Intelligence (AI) to improve quality and facilitate proper diagnosis. The purpose of this study is to investigate the diagnostic benefits of AI in laryngeal endoscopy.

Keywords: Laryngeal endoscopy; Diagnosis; Artificial intelligence

DESCRIPTION

Rigid laryngoscopy

For rigid laryngoscopy, use a 70 degree or 90 degree rigid telescope. Oropharynx with protruding tongue. Occasionally, applying an anesthetic (lidocaine, setacine, etc.) to the oropharynx and / or tongue may improve patient tolerability. Patient anatomy and intolerance are rare. This investigation is prohibited. Rigid laryngoscopy provides a crisp, magnified view of the larynx, but can distort some aspects of the biomechanics of the larynx (muscle tension, voice slits, and laryngeal movements). Generally limited due to storage and voice testing required for testing for "e" vowel vocalization.

Flexible laryngoscopy

A flexible laryngoscope is inserted into the nasal cavity through the nose and oropharynx. A head side was placed on the larynx to fully evaluate the larynx. Nasal anesthesia (lidocaine) and / or nasal decongestant (oxymetazoline / phenylephrine) can be applied to the nose to improve patient comfort and tolerability. Supplementary methods such as dynamic speech evaluation (comprehensive larynx) Exercise evaluation), functional endoscopic evaluation of swallowing (+ / sensation) and other laryngeal procedures (eg injection, laser surgery, biopsy). Performed during flexible laryngoscopy. Flexible laryngoscopy is ideal for assessing real-time / unloaded vocal cord weakness. Assessment of task-specific anomalies (eg problem with my voice), and evaluation of the strength of glottic seizures.

Mirror laryngoscopy

While the patient`s tongue is protruded, a mirror is placed in the posterior oropharynx with gentle pressure on the soft palate while light is reflected caudally into the larynx. Mirror laryngoscopy can be challenging for both the examiner and the patient, has limited magnification, and may require topical anesthesia. Mirror laryngoscopy provides the most accurate color representation of laryngeal and pharyngeal tissue because there is no light or digital distortion.

Video laryngoscopy

The addition of stroboscopy to laryngeal visualization lets in for the distinct evaluation of vocal fold vibration and closure. It is the maximum beneficial exam for assessment of the mucosal cowl layer of the main fringe of the vocal fold. Because vocal fold vibration takes place a ways too speedy for visualisation with the unaided eye below herbal light, stroboscopy is carried out to both gradual or freeze the photo for evaluation. A microphone is positioned close to the affected person that detects the vibrating frequency of the vocal folds. Based in this frequency, the bulb is flashed both on the equal frequency and just slower than the glottic cycle, taking into consideration the photo to seem frozen, or in gradual motion respectively. Video stroboscopy exam protocol need to encompass assessment at modal pitch (at a snug intensity), low pitch (at tender and loud intensities), and excessive pitch (at tender intensity) for complete assessment. Characteristics evaluated throughout video stroboscopy encompass, however aren't restrained to, essential frequency, symmetry of movement, periodicity, glottis closure, amplitude of vibration, mucosal wave, and the presence of a dynamic segments. These are compared with predicted norms and former stroboscopic examinations. The video stroboscopic exam is recorded and reviewed with the aid of using the company with the affected person to offer documentation of the affected person`s development and evaluation with previous examinations.

The larynx is just below the pharynx. It consists of three pairs of small cartilage, three unpaired cartilage, and endogenous muscle. Three pairs of cartilage include arytenoid cartilage, corneal cartilage,

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and cuneiform. The three unpaired cartilage includes the cricoid cartilage, the thyroid gland, and the epiglottis. The cricoid cartilage is the only cartilage that surrounds the trachea. The epiglottis, which is superior to cricoid cartilage, is an important mark for direct laryngoscopy. The epiglottis is located at the base of the tongue and encapsulates the glottis to form a lid on it. The epiglottis protects the larynx from aspiration of stomach contents. At the base of the tongue, in front of the epiglottis, there is a cartilage pocket called valecula. Valecula is an equally important because there are certain types of direct laryngoscopy blades, such as laryngoscopy blades. B. You can insert a curved blade or Macintosh blade to manipulate the area and improve vocal cord visualization. When the laryngoscope blade is on the valecula, it is pressed against the epiglottis ligament, which hangs the epiglottis from the hyoid bone.