



Rationale of Point-of-Care Ultrasound in Otolaryngology and Head and Neck Surgery

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Abstract

Point-of-care ultrasound (POCUS) is an essential tool for medical assistance in all scenarios and specialties. In this paper, the main uses of POCUS in otolaryngology and head and neck surgery are described.

Keywords: point-of-care ultrasound, POCUS, ultrasound, otolaryngology, head and neck surgery

1. Introduction

Since point-of-care ultrasound (POCUS) was implemented two decades ago, protocols have been developed for its use in all medical specialties and in any setting.

Undoubtedly, POCUS also has its indications and uses in otolaryngology and head and neck surgery.

2. What is POCUS?

It is the ultrasonography study carried out bedside the patient by health providers (doctors, nurses, technicians) with the aim of offering immediate information on the condition that the patient presents from the clinical point of view, provides data on the anatomical or functional diagnosis of tissues, organs or systems and also facilitates the performance of invasive procedures required by the patient [1].

The main benefits of the POCUS are [2]:

- No need to transfer patients to another department
- Results are immediate
- Does not produce side effects
- Playable at any time
- It is low cost

The only limitation of POCUS is that its use is operator dependent; it requires the skills to obtain images and their interpretation. This condition can be improved by taking training courses [3].

2.1 Can this tool be used by otolaryngology and head and neck surgery specialists?

Pocus is useful for all medical specialties. In the case of otolaryngology and head and neck surgery specialists, it is used in daily office or inpatient care, during surgical interventions, for monitoring and evolution of patients with various diseases, and for helping invasive procedures.

2.2 What are the main uses of POCUS in otolaryngology and head and neck surgery?

POCUS has many indications and uses in otolaryngology and head and neck surgery. The most commonly used are listed below [4–8]:

1. Diagnosing causes of dyspnea or stridor:
 - Acute upper respiratory tract inflammation
 - Laryngeal tumors
 - Pharyngeal tumors
 - Vocal cord paralysis
 - Paradoxical vocal cord movement
 - Tracheal stenosis
 - Foreign bodies in the larynx and trachea
 - Subglottic region and tracheal lesions
2. Evaluating the possible cause of infections:
 - Peritonsillar abscess
 - Parapharyngeal space abscess
 - Odontogenic infections
 - Necrotizing fasciitis
3. Identifying masses, neck or cervical swellings

- Inflammation, infections, traumatic lesions, or tumors of:
- Cervical lymph nodes
 - Submandibular glands
 - Parotid glands
 - Thyroid gland
 - Pharynx
 - Larynx
 - Cervical esophagus
 - Common carotid artery
 - Internal jugular vein
 - Muscles and nerves
4. Swallowing function evaluation
 5. Determination of the tracheal tube size
 6. Confirmation of proper endotracheal intubation
 7. Verification of adequate lung ventilation
 8. Confirmation of gastrostomy tube replacement
 9. Ultrasound-guided fine needle aspiration
 10. Ultrasound-guided core needle biopsy
 11. Ultrasound-guided local anesthesia
 12. Ultrasound-guided vascular access
 13. Identification of the site for percutaneous airways cannulation

The main indications for the use of POCUS in otolaryngology and head and neck surgery were presented. Readers are referred to the literature to review the details of the procedures described.

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