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What Is the Role of Laryngoscopy in Angioedema Isolated to the Lips, Without Laryngeal Symptoms?

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BACKGROUND

Angioedema is defined as acute onset subcutaneous nonpitting or watery edema commonly localizing to the airway structures. Angioedema can be hereditary (C1 esterase deficiency) or acquired (angiotensin-converting enzyme inhibitors [ACEI], allergic reactions, and idiopathic etiologies). Regardless of etiology, the clinical presentation is similar, but will vary in severity. In the head and neck, the face, lips, palate, and tongue are the most commonly involved subsites, with laryngeal involvement occurring less frequently.1 Depending on the sites of involvement and symptoms, patients can be stratified and managed accordingly.

Flexible laryngoscopy (FL) is a critical part of the angioedema workup because it localizes and qualifies the extent of airway involvement. Ideally, it would be used in cases that are suspicious for airway involvement. In practice, however, it is common to find that every patient presenting with angioedema will undergo FL, even when edema is limited to one facial subsite without airway symptoms. FL is generally a safe and efficient way to quickly evaluate the airway structures, so it is vulnerable to overuse. Theoretical complications associated with FL include epistaxis, emesis, aspiration, lacerations, ecchymoses, and perforations. These complications are rare and do not typically warrant deferral of the procedure. Patients more commonly report pain in the nose and throat, as well as discomfort in the forms of gagging sensation and/or transient dyspnea. Alternative forms of imaging used to evaluate the function of the larynx and vocal fold mobility include computed tomography scans and magnetic resonance imaging. However, they are not as useful in cases of angioedema, because they are not feasible as modalities of point-of-care testing. They take longer to perform, require nonportable advanced equipment, and tend to be more expensive than FL.

The purpose of this review was to query the literature in an attempt to stratify patients who present with angioedema of any etiology of the head and neck into groups that do or do not need an endoscopic airway evaluation.

LITERATURE REVIEW

In 2012, Winters et al.2 performed a literature review of studies published from 1990 to 2012 that focused on emergency department management of patients with ACEI-induced angioedema (AIIA). Selected studies included randomized controlled trials, prospective trials, retrospective trials, case series, and case reports in human subjects. The conclusion was that patients reporting odynophagia, dyspnea, dysphonia, hoarseness, dysphagia, respiratory distress, stridor, and drooling were more likely to have laryngeal edema and should therefore undergo FL to determine the presence and extent of involvement.

Kieu et al.3 performed a retrospective study of 311 patients who reported to the emergency department for management of AIIA. Patients who reported at least one symptom suggestive of airway involvement (dysphagia, dysphonia, globus sensation, drooling, respiratory distress) were 9.2 times more likely to need airway intervention than those with no reported complaints ($P < .001$). The number of positive symptoms also correlated with airway intervention (0.9 vs. 2.5; $P < .001$). Furthermore, patients with two or more anatomic sites involved were 15 times more likely to have invasive airway management performed ($P < .001$). High-risk anatomical sites included the tongue, soft palate, vallecula, aryepiglottic fold, and true vocal folds. Patients with edema isolated to the face or lips were at lower risk for airway intervention, and there was no increased risk for airway involvement with only one anatomic site involvement ($P = .53$).

Another observational study of 33 patients presented additional information about the implications of certain anatomic-site involvement. This study excluded medically

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unstable patients or those who required emergent intubation. On exam, the upper lip was the most commonly involved site (58%), followed by the lower lip (45%), anterior tongue (30%), face (21%), soft palate (18%), supraglottis (18%), floor of mouth (15%), base of tongue (12%), and neck (9%). No glottic edema was observed in any of the patients, and more than one site was involved in 76% of patients. Only four patients (12%) went on to require intubation. Linkov et al. found that no anatomic site had a statistical association with intubation. In contrast to the above studies, Chan and Soliman's retrospective review of 50 patients with ACEI-induced angioedema suggests that patients with involvement of multiple anatomic sites were not more likely to have laryngeal edema as compared to those with only a single site affected (P = .543). No single anatomic site (face, lips, tongue, floor of mouth, soft palate/uvula) involvement was a significant predictor of laryngeal involvement. Dysphagia and voice changes as symptoms were actually more predictive of laryngeal edema (P = .0002 and P = .0007, respectively). Dyspnea was a poor predictor of laryngeal edema (P = .2108). However, the researchers found that dyspnea, dysphagia, and/or voice changes were all significantly associated with intensive care unit (ICU) admission, as was angioedema that involved the tongue and/or floor of mouth (P = .0012 and P = .0356, respectively).

Bentsianov et al. performed a retrospective chart review of 70 patients with angioneurotic edema from 1990 to 1999. Laryngeal symptoms, including stridor, hoarseness, and voice change, correlated with the need for immediate intervention (P < .001) and ICU stay (P < .001). Dyspnea was also related to the need for airway intervention (P < .005). The otolaryngology service was consulted in 42 patients, of whom 32 (80%) underwent fiberoptic laryngoscopic exam, and five patients had both pharyngeal and laryngeal edema, all (100%, P < .001) requiring immediate airway protection. Four (50%, P < .007) of the patients with isolated laryngeal edema went on to require airway intervention, with five patients receiving intervention before laryngoscopy. No patients with either a normal fiberoptic examination or isolated pharyngeal edema on fiberoptic laryngoscopy required either immediate or delayed airway intervention (P < .001).

BEST PRACTICE
Patients with isolated face and lip angioedema, with no signs/symptoms of laryngeal and pharyngeal involvement, can be individually assessed for the need of FL. Symptomatic patients or those with multiple subsite involvement or oropharyngeal involvement require FL.

LEVEL OF EVIDENCE
Four included studies are level 3. One included study is level 5.

BIBLIOGRAPHY