

Ultrasonographic Evaluation of Subglottic Stenoses: A Preliminary Analysis

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RATIONALE: Subglottic stenoses are defined as the reduction of tracheal lumen below the vocal cords, whose normal caliber in adults is about 12 mm. They can be congenital, usually associated with other malformations, or acquired. The most frequent causes of tracheal stenosis are intubation, tracheotomy, infections, radiotherapy and systemic diseases (i.e. Wegener's granulomatosis or amyloidosis). Also, there are the so called idiopathic stenoses when no causes can be identified. The diagnosis can be challenging and delayed in time. Signs and symptoms are not specific such as cough or dyspnea, and they are often diagnosed and treated for difficult asthma control. Computed tomography is the most useful imaging test to define the stenosis length and size. Pulmonary function tests show an extrathoracic fixed obstruction. The diagnostic gold standard is the flexible bronchoscopy to assess stenosis's location, length, and size and evaluate the mobility of the vocal cords. Treatment can be surgical or endoscopic. Ultrasonography is not often considered part of the diagnostic process of airways disease yet. However, many studies demonstrated the correlation between the diameter of the tracheal lumen assessed by ultrasonography and magnetic resonance imaging. To our knowledge, no studies correlated ultrasonographic and bronchoscopic measures in adults. **METHODS:** Enrolled patients underwent bronchoscopic evaluation to confirm the presence of stenosis and evaluate the tracheal lumen size. Then they underwent ultrasonographic assessment of the neck, also with Doppler techniques, both in inspiration and expiration, before and after the treatment. Ultrasonography was always performed by the same operator and in standardized conditions. Patients with previous tracheal resection or surgery were excluded. **RESULTS:** We enrolled 18 patients (17 females and 1 male, Mean age: 55.11 yrs \pm 11.14) with subglottic stenosis of all causes, both relapsed or new onset, addressed to our Center. We observed no statistically significant differences between ultrasonographic and endoscopic measures (p-value = 0,586). **CONCLUSIONS:** Ultrasonography is a non-invasive diagnostic tool increasingly used in medicine. Our study demonstrated it could be a useful method to evaluate the presence and size of subglottic stenosis, with a strong correlation with endoscopic measures.

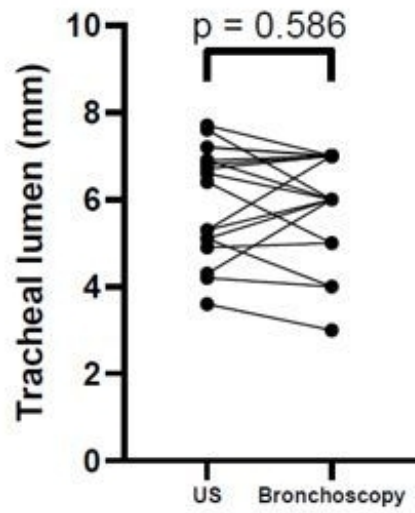


Figure 1. Comparison between tracheal lumen measured by ultrasonography and by flexible bronchoscopy

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