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Title: Laryngoscopy but not resting spirometry is diagnostic for exercise induced laryngeal obstruction

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Body: Background: Studies have suggested that abnormal (truncated) resting maximal inspiratory flow volume loops (FVL) and increased FEF50/FIF50 ratios are features characterizing vocal cord dysfunction (VCD), and hence may be used to diagnose patients with exercise induced laryngeal obstruction (EILO). The evidence supporting these assumptions is weak. Objectives: To study relationships between maximal resting flow volume loops and corresponding laryngeal response patterns, aiming to address if and how baseline maximal spirometry may serve as a diagnostic tool in patients with EILO. Methods: Ten patients (15.6 years) with EILO diagnosed objectively with continuous laryngoscopy exercise (CLE) test performed spirometry with simultaneous and real-time video recorded transnasal laryngoscopy. Spirometry was performed with Vmax 22 â spirometer according to guidelines, while corresponding laryngeal response patterns were video-taped and scored by an experienced otolaryngologist according to Maat et al. Results: In 9/10 subjects laryngeal structures (supraglottic or glottic) adducted during the inspiratory part of the spirometric maneuver, to a varying extent obstructing the laryngeal inlet. However, this observed adduction was not clearly associated with a truncated or otherwise abnormal inspiratory flow volume loop. In 4/10 subjects the FEF50/FIF50 ratio did not exceed 1.0 despite observed laryngoscopic abnormalities. Conclusion: Laryngoscopy but not spirometry during a resting maximal respiratory maneuver may serve as a diagnostic tool in VCD or EILO. The sensitivity of truncated maximal FVLs and increased FEF50/FIF50 ratios was low. Larger studies should explore these issues.