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Endoscopic Cricoid Split as a Treatment for Subglottic Stenosis: A Systematic Review

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Introduction: Subglottic stenosis, a fibrotic narrowing of the airway below the vocal cords extending to the lower border of the cricoid cartilage, can be classified as congenital, idiopathic, or acquired in neonates from prolonged intubation. Treatment has more recently expanded from open surgical intervention to include endoscopic procedures. This systematic review aims to evaluate existing literature on anterior and posterior endoscopic cricoid split procedures as a treatment for congenital and acquired subglottic stenosis in order to explore the efficacy of these techniques.

Methods: Literature searches were conducted in PubMed/MEDLINE, EMBASE, Web of Science, Cochrane Library, and Google scholar, which produced 496 results. After removal of duplicates, 242 records underwent two rounds of screening by two independent reviewers through Covidence systematic review software, based on title/abstract and full text. Nine retrospective case series were selected for further examination.

Results: 119 cases of management with endoscopic cricoid split had an overall success rate of 79.0%. The anterior and posterior approaches had success rates of 82.7% and 72.7%, respectively. Among studies which reported secondary endoscopic and open procedures, anterior approach cases had a higher overall secondary procedure rate (84.2% vs. 51.4%), while more posterior approach cases were followed by open surgery (28.6% vs. 15.8%). Notably, the posterior approach cases contained a larger proportion of higher-grade stenosis patients. Few complications were reported with either approach.

Conclusion: Based on these results, endoscopic anterior and posterior cricoid split procedures are generally successful in treating congenital and acquired subglottic stenosis and could be considered as a less invasive alternative to initial open surgical intervention. Further investigation is required to better understand the circumstances in which an anterior vs. posterior approach is more advantageous.