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**Introduction:** Since the 1980s, the classical management of symptomatic SGS consists of controlling associated risk factors and performing laryngotracheal surgery via an external approach. Three main surgical techniques have been proposed: cricoid split, single- or two-stage laryngotracheal reconstruction, and partial cricotracheal resection. These open airway procedures represented a great improvement in the management of pediatric laryngeal stenosis.

They proved to be effective in about 90% of cases, limiting the need for long-term tracheotomy and its associated morbidities such as cannula obstruction or inadvertent decannulation. Some of them, such as cricoid split [1] or partial cricotracheal resection [2], can be successfully proposed during infancy. However, they often require several surgical procedures, prolonged intensive care admission, prolonged intubation, or tracheotomy, and they have the potential for serious complications [2–5]. Their vocal outcome is often not very satisfactory [6] and they create unappealing cervical scars. In order to reduce or to avoid some of these drawbacks, several techniques of endoscopic treatments have been developed during recent years. In the present study, we present a series of 18 cases of congenital or acquired SGS treated with anterior cricoid split (EACS) associated with balloon dilation(s) and postoperative laryngeal stenting.

### **Abstract:**

**Objectives:** To analyze the outcome of a new endoscopic approach for the treatment of pediatric subglottic stenosis.

**Study design:** Case series.

**Setting:** Tertiary care center.

**Material and methods:** Eighteen pediatric cases of grade II to IV subglottic stenosis (8 congenital and 10 acquired) consecutively treated at our institutions by Endoscopic Anterior Cricoid Split (EACS) and balloon dilation between 2006 and 2010. Treatment protocol encompassed systematic postoperative laryngeal stenting (7 days of intubation or 1 month of Montgomery T-tube in previously tracheotomized patients) and endoscopic controls with possible additional balloon dilation every 15 days for at least 2 months.

**Results:** Patients' ages ranged from 1 to 101 months. Postoperative follow-up ranged from 4 to 45 months (median value  $\pm$  SD: 15.3  $\pm$  11.9). The mean duration of the endoscopic procedure was 35.2  $\pm$  13.2 min. The number of days spent in PICU during the perioperative period varied between 2 and 15. Four patients (22.2%) needed one and 14 patients (77.7%) required several (from 4 to 7) additional balloon dilations during the postoperative endoscopic controls. No incident was observed during or immediately after EACS. Treatment was efficient in 83% of cases (n = 15), with no residual respiratory symptoms and grade 0 to 1 SGS at the end of follow-up.

**Conclusion:** EACS is a safe and efficient technique to treat pediatric subglottic stenosis, regardless of their grade and length, provided to associate it with postoperative laryngeal stenting and regular endoscopic follow-up with possible additional balloon dilations. In our teams, it has become the first line treatment for most grades II to IV SGS. Its indications can be extended to congenital stenosis with cartilaginous involvement and to long-lasting acquired stenosis with firm fibrosis.

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## ARTICLE INFO

Article history:

Received 19 July 2010

Received in revised form 14 September 2010

Accepted 19 September 2010

Keywords:

Subglottic stenosis

Laryngotracheal surgery

Suspension microlaryngoscopy

Gastroesophageal reflux disease