Cold steel supraglottoplasty for severe laryngomalacia in infants

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DESCRIPTION

A 9-month-old female baby was brought to the emergency room (ER) by her parents with reports of noisy breathing, poor feeding, inadequate weight gain and intermediate cyanotic spells noticed for the past month. She was a full-term baby weighing 2.8 kg at birth and had no other comorbidities.

On examination, the baby was malnourished, weighing 7 kg (<15th percentile of weight for age). She was afebrile but had tachypnoea and tachycardia. She displayed severe suprasternal and subcostal chest retractions. She also had inspiratory stridor, which decreased in intensity on holding her in a prone position. On auscultation, she had bilateral normal vesicular breath sounds.

Transnasal flexible laryngoscopy showed an omega-shaped epiglottis with shortened aryepiglottic folds, mobile vocal cords and a normal subglottis (figure 1). She was diagnosed to have severe laryngomalacia necessitating surgical intervention.

She underwent endoscopic cold steel supraglottoplasty under total intravenous anaesthesia and spontaneous ventilation (refer video 1). The shortened aryepiglottic folds were snipped using microlaryngeal scissors, and the baby was kept intubated for 24 hours postoperatively. The immediate postoperative period was uneventful, with improvement in stridor and chest retractions. She was discharged on the age-appropriate dose of proton pump inhibitors, and her mother counselled regarding breastfeeding techniques to minimise regurgitation. She was kept on regular follow-up, and her weight was monitored weekly.

At 3-month follow-up, the baby had no stridor and/or chest retractions. She had had no further cyanotic episodes, her feeding had improved and she had achieved significant weight gain. She had gained

Video 1 Cold steel supraglottoplasty for severe stridor in infants

2 kg over 3 months, bringing her weight to 9 kg, although her weight was still less than that expected of her age (between the 15th and 50th percentile of weight-for-age).

Laryngomalacia is the most common cause of stridor in infancy.¹ It is a congenital anomaly believed to occur due to the inward collapse of the supraglottis during inspiration. The diagnosis is usually made based on the high-pitched fluttering inspiratory stridor that improves when the child is held in a prone position and confirmed by transnasal flexible laryngoscopy, which shows a characteristic omega-shaped epiglottis and inward collapse of the supraglottis on inspiration. Most cases of laryngomalacia are mild and self-limiting, with the symptoms resolving at around 12–24 months of age. Only severe laryngomalacia (15%) characterised by difficulties in feeding, obstructive sleep apnoea, failure to thrive and cyanotic spells requires surgical intervention.¹ The mainstay of surgical intervention is supraglottoplasty. Supraglottoplasty refers to the excision of redundant tissue to open up the airway, which may be achieved using either microlaryngeal instruments

Figure 1 Endoscopic view of the endolarynx demonstrating laryngomalacia.

Learning points

- ▶ Laryngomalacia is the most common cause of inspiratory stridor in infants—also consider the possibility of bilateral abductor palsy, posterior glottic cleft, subglottic stenosis/haemangioma.
- ▶ The diagnosis may be confirmed by awake transnasal flexible laryngoscopy.
- ▶ Only severe laryngomalacia requires surgical management—the mainstay of treatment is supraglottoplasty.
- ▶ While supraglottoplasty using a carbon dioxide laser is widely used, cold steel supraglottoplasty is an equally efficacious alternative in resource-poor countries.

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(cold steel supraglottoplasty) or using a carbon dioxide laser. Laser supraglottoplasty is believed to have better precision but is associated with the inherent risk of airway fires, laryngeal oedema and aspiration from thermal damage to supraglottic sensory receptors.² It also requires appropriate infrastructure (a laser operation theatre (OT), laser safe endotracheal tube, laser technician), which is more expensive and time-consuming.² In resource-poor settings, cold steel supraglottoplasty is a viable and efficacious alternative.

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