Management of long-segment tracheal stenosis: a continuing surgical challenge

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Keywords: Paediatric • Tracheal surgery • Congenital heart disease

Yazdanbakhsh et al. [1] report a surgical technique using autologous pericardial patch and strips of costal cartilage for relieving severe tracheal stenosis. Over nearly two decades of experience, 21 patients were treated, with 3 (14%) suffering late postoperative mortality. Seven patients underwent bronchoscopic reintervention and 8 underwent surgical intervention, including 3 sliding tracheoplasty and 5 patch and strip techniques. This paper presents good results with a detailed long-term follow-up. I believe it is worth a careful read for its appraisals of various tracheoplasty techniques.

The patch and strip technique has benefits for both pericardial patch and costal cartilage. Pericardial patch is too flaccid and results in tracheomalacia after reconstruction, and costal cartilage is too rigid making it difficult to achieve air-tight anastomosis. Combining both materials can reconstruct an enlarged trachea with good external support. However, a major drawback is potential leakage and granulation tissue formation. The authors reported on a follow-up period of over 10 years, showing that trachea growth was evident with this technique.

Currently, many centres, including our own, favour slide tracheoplasty for long-segment tracheal stenosis [2, 3]. This technique reconstructs a widened trachea lumen with native respiratory epithelium, and has also shown growth potential in animal experiments [4] and in clinical observation. The authors worried about blood supply issues after dissection around the trachea, so they favoured a patch and strip technique. However, we did not encounter this issue in our personal experience or in the literature. Nonetheless, it should be kept in mind that dissection around the trachea needs to be meticulous.

Congenital trachea stenosis is a rare condition, but often presents in combination with congenital heart defect and vascular ring-sling complex [5, 6]. Both relief of external compression and correction of intrinsic stenosis (complete trachea cartilage rings) are important. As in the report, 3 patients with persistent compression of the trachea by the right aortic arch and 1 patient with agenesis of right lung required reoperation. Treating these patients required thorough consideration of the entire airway and cardiovascular structures, and their inter-relationship, to optimize the final results.

Despite the improved survival rate, there was still considerable mortality, morbidity and trachea cannula placement. Management of tracheal stenosis as well as tracheobronchial malacia and cardiovascular abnormality (frequently seen in combination) still have much room for improvement. A multidisciplinary approach and a choice of the optimal surgical technique for each individual condition are important to improve long-term results. This paper provides a detailed description on the benefits, complications and recent results, and I recommend it be read by surgeons who are interested in this topic.

REFERENCES