



## Tracheal surgery: present and future

Airway and tracheal surgery represent one of the main branches of general thoracic surgery. However, it is a relatively new field, as surgical procedures on this district have only been undertaken in the last 70 years, but in the meantime, it has undergone a rapid evolution. Indeed, in the early 1960s, it was thought that no more 2 cm of trachea could be removed. By the end of the decade, the better knowledge of airway anatomy and blood supply, tension-releasing maneuvers, particularly with the fundamental contributions of pioneers like Dr. Grillo and Dr. Montgomery, and the improved anesthetic techniques challenged this limit and now about half of the trachea may be resected with limited morbidity and mortality.

However, it is still a challenging surgery and for its best results are of fundamental importance the pre-operative evaluation, the surgical planning and the anesthesiological management of the patients.

In this small special issue of *Journal of Visualized Surgery (JOVS)*, we aimed to give an updated view of some particular aspects of tracheal and airway surgery, both common clinical pictures and challenging cases, focusing not only on the surgical technique but analyzing all the perioperative aspects that equally contribute to the outcome of the surgical procedure.

We decided to discuss first a common issue that frequently involves the thoracic surgeons, as the management of benign tracheo-esophageal fistulas. Despite this frequency, therapeutic errors are not rare, in particular an improper use of endoscopic techniques, and often with detrimental effects. In the work by Marulli and Colleagues, the principles of surgical management of tracheo-esophageal fistulas are described, including preoperative preparation, operative techniques and postoperative care. Particularly the pre-operative management, facing patients with multiple comorbidities and malnutrition, is fundamental for the results of the operation.

Involvement of the distal trachea and of the carina may represent a challenge that surgeons have to face when dealing with oncological surgery, particularly locally advanced lung cancer or tracheal neoplasms. The article by Spaggiari and Colleagues clearly describes the technical tips necessary for this challenging surgery, focusing on the indication, contra-indication and alternative surgical techniques that may be necessary in such complex cases. Particular attention is posed on the multidisciplinary management of the patients.

On the other end of the trachea, another challenging and uncommon operation is represented by the laryngotracheal resections, because of the technical and functional implications surrounding the peculiar anatomy of the lower larynx. The work by Rendina and Colleagues deeply analyzes the main technical aspects and perioperative management in the field of laryngotracheal resection.

We finally elected to include what now represents the future of tracheal surgery, as tracheal transplantation. Tracheal regeneration and replacement represent the new frontier of airway surgery and may bring major treatment advances to cases with long-segment tracheal involvement. Dr. Delaere examines the current possibilities and future prospects in this new area of tracheal surgery.

In conclusion, this special issue on “Tracheal surgery” aims to provide comprehensive perspectives and surgical techniques in the tracheal surgery field to surgeons all around the world, which we hope will also be beneficial to the growth of young surgeons.

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