

Book review

The Egyptian Journal of Otolaryngology 2013, 29:56–58

Surgery of the larynx and trachea (Part 3/3)

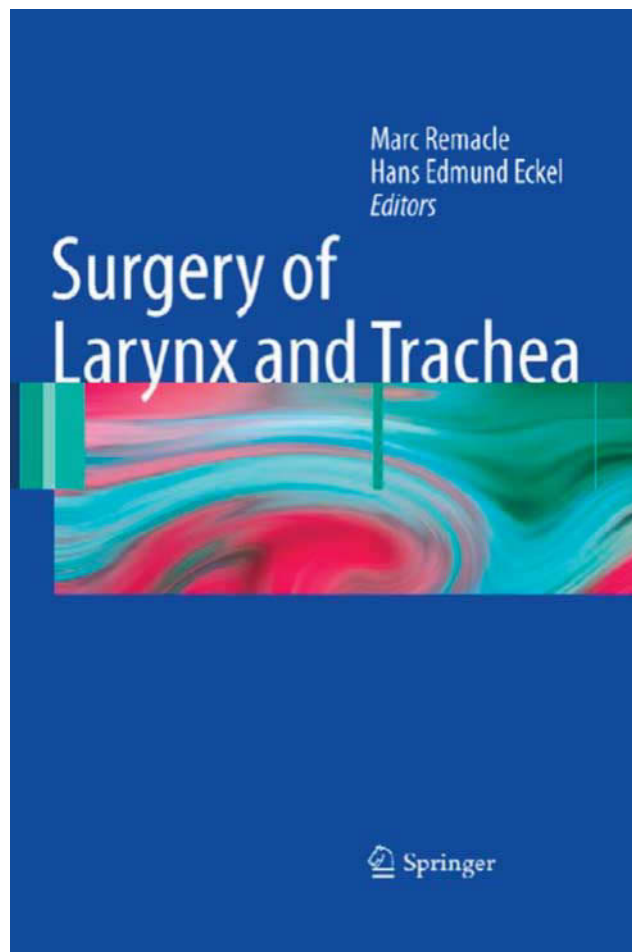
Prof. Marc Remacle (editor), Dr Hans Edmund Eckel (editor), Publisher: Springer-Verlag, Berlin, Heidelberg, 1st ed., Date of publication: 2010.

ISBN: 978-3-540-79135-5; Pages: 308; Price: \$161.02

In Chapter 13 C, titled 'Open partial resection for malignant glottic tumors', the German surgeon Christian Arens stressed that endoscopic resection of laryngeal malignancies could not push open partial resection out of the picture. He clearly stated that it was predominantly the Italian and French head and neck surgeons who developed and advocated partial laryngectomies. He attributed the development of partial resection to the progress in knowledge of tumor spread and laryngeal function and to the improvement in endoscopic diagnoses.

He defined the indications for a transcervical approach for glottic cancers as: presence of T1a vocal fold carcinoma with deep involvement of the anterior commissure; T1b tumors; small glottic cancers in case of inadequate exposure; glottic cancers with involvement of supraglottic or subglottic structures; one-sided, slightly impaired mobility; or cases of large T1 and T2 tumors wherein the endoscopic resection may result in glottic insufficiency and thus in an impaired voice and a reduced quality of life. He stated that T2 carcinomas that extend to the ventricle or the paraglottic space or that lead to fixation of the vocal fold posteriorly with highly differentiated squamous cell carcinoma and expanding borders are suitable for a vertical partial resection in carefully selected cases where the craniocaudal diameter does not exceed 2 cm. He warned that open partial resection of T2 tumors with involvement of the anterior commissure should be performed cautiously because of possible cartilage infiltration and invasion, or even penetration of the cricothyroid ligament. According to him, T3 tumors may require open partial resection in selected cases after careful assessment of the arytenoid infiltration and tumor grading. In cases of T4 glottic carcinoma, surgery with total removal of the thyroid cartilage, such as cricothyroidopexy or cricothyroidoepiglottopexy (CHEP), may be indicated as an alternative to total laryngectomy. His contraindications for conservative open laryngeal surgery include invasion of the thyroid cartilage, arytenoid fixation, interarytenoid invasion, subglottic extension with involvement of the cricoid cartilage, lesions that extend outside the larynx, and pre-epiglottic space invasion, as well as in elderly patients and patients with severe cardiopulmonary disease. At the end of this chapter, Arens gave short insights into the surgical techniques and postoperative care of some lesser known open vertical laryngeal surgeries.

In Chapter 13D entitled 'Surgery for laryngeal and hypopharyngeal cancer: open neck approach-partial and reconstructive laryngectomy', the French surgeon Dominique Chevallier gave brief notes on what he considered



frequently used and published partial laryngeal procedures; however, he included among them quasi historical frontolateral laryngectomy and Tucker operations. At the beginning, he emphasized the role of direct laryngoscopy with 30 and 70° scopes in the preoperative assessment. He stressed that, in case of small laryngeal tumors, it is preferable to perform the computed tomography (CT) scan before the endoscopy and biopsy. He stated that MRI is more sensitive for detecting minimal neoplastic invasion to the cartilage than is CT, whereas CT is more specific. Nevertheless, MRI is not routinely performed when staging cancer of the larynx because of its susceptibility to motion-induced artifact. The author stressed on the role of cervical ultrasonography in detecting sub-clinical lymph nodes and in follow-up. For him, supra-cricoid CHEP is indicated in T2 and selected T3 glottic carcinomas with impaired vocal cord motion but mobile arytenoid. When the subglottic extension goes beyond the superior border of the cricoid, as well as when the petiole of the epiglottis is invaded, CHEP is contraindicated. In the surgical technique of CHEP, he underlined the importance of preserving the superior and recurrent laryngeal nerves and the posterior mucosa of the

arytenoids, whenever the cartilage is excised, to be approximated anteriorly, improving the functional outcome. For cricothyroidopexy, he stated that the indications are supraglottic cancer without extension to the upper part of the pre-epiglottic space, glottic cancer that has invaded the supraglottis, particularly when the site of origin is the anterior commissure, and transglottic and supraglottic cancer with vocal cord fixation but without arytenoid fixation. He gave an expert note saying that, at the time of pexy, the cricoid cartilage and hyoid bone must be at the same level. If the cricoid cartilage is located backward, the risk of aspiration is higher. For the widely known, less debatable supraglottic laryngectomy, he defined its indications as tumors of the epiglottis and the anterior part of the ventricular folds and its contraindications as the invasion of the glottis and/or the ventricle or the thyroid cartilage, as well as the impaired motion of the vocal cord and the tongue base extension. The author attributed the fewer number of partial pharyngectomies compared with partial laryngectomies to the fact that few patients are amenable to the former; in addition, they have poor prognosis because of second primaries and metastases. He advocated that supracricoid and supraglottic hemipharyngolaryngectomies are indicated for tumors of the medial wall of the pyriform sinus without impaired mobility of the larynx and located either above the level of the superior border of the cricoid cartilage or at the level of the vocal cord, respectively.

At the foremost of Chapter 13 D entitled 'Total laryngectomy', the authors Quer and Eccle stated that total laryngectomy is the gold standard for surgical treatment of advanced laryngeal and hypopharyngeal tumors, which means that it is the standard against which the cure rates of other treatment modalities are compared. They added that, despite all the efforts to substitute it by conservative surgery or other treatment modalities, total laryngectomy continues to be highly useful, either as primary treatment or as salvage surgery. The locations for which partial surgery is often not recommended are the retrocricoid, the interarytenoid, and the posterior subglottis, as well as the multifocal affection of the larynx (carcinomatosis). They cited that, in general, total laryngectomy is indicated for most T3 and T4 tumors, for some T2 tumors with wide subglottic extension, and for conditions such as chondronecrosis and recurrent aspiration pneumonia that cannot be controlled with more conservative measures. Contraindications for total laryngectomy include lesions too extensive to permit complete resection, when it is associated with unacceptable medical risks, and in case of patient refusal. The authors gave a perfect account of the technique of total laryngectomy, its modifications, complications, and the postoperative follow-up. One of their strong points was detailing the use of the stapler in the closure of the pharynx after total laryngectomy.

Hilgers and his coauthors from the Netherlands Cancer Institute have extensive experience in prosthetic voice restoration using Provox (318 patients over 10 years). In Chapter 13 E they gave an account of surgical prosthetic voice restoration, which consists of a one-way valve

implanted in a surgical puncture in the tracheoesophageal wall that allows a controlled diversion of pulmonary air into the pharynx and prevents aspiration. They emphasized that the patient has to understand that this voice prosthesis is a semipermanent implant that requires regular replacement. In their series, the mean actuarial life of the device for all replacement indications was 163 days (median 89 days). They stated that the primary insertion of the prosthesis during total laryngectomy has a low complication rate. In this domain they gave some specific recommendations for surgical refinements. They stated that some authors advocate carrying out an insufflation test to predict the success of secondary tracheoesophageal puncture. They gave some recommendations for follow-up and advised the institutions involved in the follow-up of such patients to have a protocol dealing with all the complications and adverse events. They finished the chapter by detailing the most important adverse events of the prosthesis and some non-prosthesis-related adverse events that may hamper voice restoration.

After the six consecutive chapters dedicated to partial and total laryngeal surgery comes Chapter 14, written by Guntinas-Lichius and Sittel on Neurolaryngology. They reported that neurolaryngology is a challenge for otolaryngologists. They gave information about the techniques of laryngeal electromyography (LEMg), which should be challenging not only to otolaryngologists but also to patients. From the analysis of the results of LEMg one can conclude that, in case of vocal cord paralysis, normal electrical patterns on LEMg suggests arytenoid fixation, whereas abnormal electrical activity suggests unilateral vocal fold paresis/paralysis. The clinical use of LEMg is advocated more for the prognosis of vocal fold palsy. The accurate prognosis of a defective recovery at an early stage can be valuable for the timing of the definitive surgical treatment (posterior cordectomy), especially in case of bilateral recurrent nerve paralysis. This reduces the number of tracheostomies performed in this condition. In contrast, to indicate a favorable outcome, the prognostic accuracy of LEMg is comparatively low. Hence, LEMg cannot replace clinical monitoring over at least 6 months or until complete recovery. A summary of other neurolaryngologic disorders due to upper and lower motor neuron lesions was then given, together with their electromyographic pictures. The chapter ends with an account on treatment using Botulinum toxin: its forms, dosage, indications, and contraindications.

Eckel prepared the short and concise Chapter 15 on swallowing disorders. In the anatomical and physiological background, he stated that, phylogenetically, protection of the airways is the oldest and most essential function of the larynx. He clinically classified swallowing disorders as obstruction, aspiration, and globus sensation. In the section on Zenker's diverticulum, he gave an account of the treatment modalities, the advantages and disadvantages of each. He considered fiberoptic endoscopic evaluation of swallowing as the most important diagnostic tool and gave an algorithm for the different diagnostic procedures. The chapter ends with a citation of some

rarely performed surgeries to control the problem of aspiration.

Jean-Paul Marie wrote Chapter 16 on laryngeal reinnervation to correct a defective/injured nerve supply. He thoroughly described different surgical techniques to reinnervate the larynx using the phrenic nerve, the hypoglossal nerve, and the ansa cervicalis. He showed some results for each technique. However, the number of clinical reports dealing with this issue is limited. Reports contain a small number of patients and these techniques are still mostly justified by data from preclinical animal experiments.

Chapter 17 focuses on some helping drugs used in laryngology. First are steroids, especially methylprednisolone followed by fibrin glue, mitomycin C, and cidofovir, used in the treatment of recurrent respiratory papillomatosis. The

author attracted attention to some reports claiming a possible carcinogenic effect of mitomycin C and cidofovir.

In the last chapter, Rasmussen gave short hints on preoperative and postoperative speech therapy. He thinks that the techniques lack standardization, which make them widely variable among practitioners, and lack consistent evidence of efficacy.

The book ends with a subject index and no section for the references as each chapter had its own reference list.

Acknowledgements

Conflicts of interest

There are no conflicts of interest.

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