line. The patient is fed through a feeding tube for some days, the tamponade is left in situ for 8 to 10 days, and the tracheostomy tube is removed after 2 to 3 weeks.

With vertical partial laryngectomy for T1 tumors, and even for tumors involving the anterior commissure (Fig. 3), we were able to achieve a 5-year cure of 89 percent, which corresponds to the results obtained by Jackson, Blady, Norris and Robbin in a total of 695 cases.

References


Experiences with Vertical Partial Laryngectomy with Special Reference to Laryngeal Reconstruction by Sternohyoid Fascia

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Between 1955 and 1960 at the Department of Otorhinolaryngology, University of Zagreb, vertical partial laryngectomy was performed for small glottic tumors. The endolaryngeal defect was covered by Thiersch grafts, but the functional results were disappointing. After 1960 the hypopharyngeal mucosa was used in smaller vertical procedures. Again we were not satisfied by the reconstructed larynx. Since 1969 the use of either the superficial or medial cervical fascia was introduced, while in recent years we have combined both layers of fascia for the reconstruction of the inner laryngeal surface. There is always material enough to cover even large defects. This is essential for the prevention of stenosis and disturbed respiration. The fascia has also proven to be resistant to infections and to maceration by saliva.

Indications

While in earlier years only T1 and T2 tumors were submitted to partial laryngectomy, during recent years T3 tumors were also treated by this method. Vertical partial laryngectomy may be performed if a tumor is unilateral or involves all three compartments of the larynx. Combined vertical and horizontal laryngectomy may be carried out if the tumor has infiltrated the epiglottic laryngeal surface and one
side of the larynx. The indications for vertical and frontolateral partial resections were:

1. unilateral tumor involving one, two or three compartments but not the laryngeal skeleton. If the vocal cord was fixed, the resection included the subglottic compartment to the lower edge of the cricoid.
2. Tumors involving the anterior commissure with possible resection of not more than the anterior third of the contralateral vocal cord.

Combined and sub-total partial laryngectomies were performed on supraglottic tumors spreading to the glottis and subglottis of one side. The anterior commissure and one arytenoid may be involved.

Unilateral mobile lymph nodes without perinodular infiltration were no contraindication to partial laryngectomy, while histologically positive bilateral metastases required total laryngectomy or pharyngolaryngectomy.

In addition to the tumor's size and localization the patient's general condition and age are of importance for the selection of surgery. In older people we prefer total laryngectomy because of a higher incidence of complications and infection. Also chronic alcoholism is a contraindication.

Preoperative irradiation (20–30 gy) is administered during three days to laryngo-pharyngeal tumors and to undifferentiated tumors with marked cell mitoses. Operation follows on the fourth day. There was no increased hemorrhage. Adjuvant chemotherapy was rarely applied to partial laryngectomies.

**Surgical Technique**

The skin incision was made in a “half-U” shape. The superficial and medial fascia together are cut by a U incision and elevated up to the hyoid bone. The prelaryngeal muscles are severed along the inferior edge of the hyoid bone and moved aside. The perichondrium of the thyroid cartilage is mobilized and preserved for reconstruction. Only after the larynx has been opened on the preserved median or paramedian side of the thyroid cartilage and direct observation of the lesion has become possible will the extent of the resection be decided. Biopsies are taken from the edges of the defect for histological analysis. The combined fascial flap is then sutured to the hypopharyngeal mucosa and to the edges of the remaining larynx.

Before closing the wound we construct a fold in the fascia serving as vocal cord substitute. This helps voice production by the healthy vocal cord. The replaced prelaryngeal muscles are fixed by chromic catgut to the fascia, and to the hyoid bone. This will reinforce the new laryngeal wall.

If the arytenoid cartilage had to be removed a bulk of the surrounding mucosa is formed in its place. This detail is important for good deglutition.

The patient needs a tracheostomy for about one week. He begins to swallow solid food on the third postoperative day. After combined partial laryngectomy a nasogastric feeding tube is left in for 8 to 10 days. From our experience with bilateral section of the superior laryngeal nerves we recommend sacrificing the nerves if necessary. This would not increase the incidence of disordered deglutition.