SUPRAGLOTTIC LARYNGECTOMY WITH OR WITHOUT ONE ARYTENOID IN EPIGLOTTIC CARCINOMA (40 CASES REPORT)

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Abstract

Objective: To investigate the indications of supraglottic laryngectomy. Supraglottic laryngectomy with or without one arytenoid is a functional laryngectomy suitable for treatment of epiglottis squamous carcinoma. This procedure consists of resection of the thyroid cartilage, epiglottis and the entire preepiglottic space. Methods: Between 1990 and 1996, we used supraglottic laryngectomy to treat 40 patients with supraglottic carcinoma. The data were collected by a review of patient records and follow-up. The cancers were stages T1 (17 cases), T2 (17 cases) and T4 (6 cases) according to the 1987 UICC on cancer staging criteria. Results: 12 ipsilateral and one bilateral functional neck dissection were operated simultaneously. Of which 7 patients had metastasis in lymph nodes. No patient died postoperatively. Only 8 (20%) had slight aspiration before the 20th day. All patients had decannulated. 29 cases received radiotherapy and chemotherapy. A follow-up analysis showed survived rate of 74% at 3 years. Conclusion: We propose supraglottic laryngectomy for the surgical treatment of early supraglottic carcinomas, which could acquire almost normal laryngeal function.

Key words: Epiglottic squamous carcinoma, Supraglottic laryngectomy.

Supraglottic laryngectomy was first reported by Alouse in 1974 and accepted gradually.[1] At ventricular level including ventricle band, vestibule, aryepiglottic fold, epiglottis, preepiglottic space and hyoid bone excision was completed. It was also called horizontal supra-hemilaryngectomy. If we choose the patient correctly, supraglottic laryngectomy with arytenoidectomy could get satisfactory results, from July 1990 to Dec. 1996, we used supraglottic laryngectomy to treat 40 patients with supraglottic carcinoma.

This report will describe the surgical technique, discuss the results applied in 40 patients.

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MATERIALS AND METHODS

General Clinical Data

Forty epiglottic squamous carcinoma patients were operated aged from 38–71 years old. Male 35 cases, female 5 cases. The data were collected by a review of patient records and follow up. The cancers were divided as follow according to the 1987 UICC on cancer staging criteria: T_1NoMo 11 cases, T_1N_1Mo 6 cases, T_2NoMo 10 cases, T_2N_1Mo 7 cases, and T_4NoMo 6 cases (cancer involves preepiglottic space, lingual surface or margin of pyriform sinus).

Indications of the Operation

T_1, T_2, and selected T_4. Supraglottic cancer involving epiglottis, vestibule and aryepiglottic fold.

Supraglottic cancer involving lingual surface of epiglottis or early cancer of lingual surface of epiglottis.

Supraglottic cancer involving internal surface of pyriform fossa.

Contraindications

Tumor involvement of arytenoid cartilage, laryngeal ventricle, pyriform apex, interarytenoid area, postcricoid, anterior commissure, or base of tongue.

The Procedure of Operation

A short vertical tracheotomy is performed in second and third rings. An anesthesized tracheal tube is inserted, the tube is sutured to the neck skin. An incision is made horizontal to the midportion of the thyroid cartilage with extension laterally to the sternomastoid muscles bilaterally. A subplatysmal flap is elevated to the suprahyoid level and stabilized with gauze pad. Neck dissection is performed when lymph nodes have metastasis.

A horizontal incision is made transecting the strap muscles along the superior and inferior margin of the hyoid bone. The strap muscle is turn down to thyroid cartilage level. An incision is made at superior margin of thyroid cartilage and elevated the entire length. An inferiorly based muscle and perichondrial flap are developed. The hyoid bone is grasped with an Alis clamp, and removed greater half. The pharynx is entered by cutting the base of tongue into the vallecula. The epiglottis is grasped with a single hook and inspected for tumor, then retracted superiorly and anteriorly for better visualization. The larynx is exposed by incising vertically through the lateral preepiglottic space. On the contralateral side, the cut is completed from the posterosuperior margin of the thyroid ala toward obliquely and superiorly to the anterior midline at superior one third of thyroid ala. The ipsilateral horizontal cartilage cut is cut directly posterior. The cartilage cuts are completed by Stryker saw or scissors.

Resecting tumor: On the contralateral tumor side, the aryepiglottic fold is transected, connecting the cut with one blade on the posterosuperior thyroid ala cartilage cut, and the other blade on the ventricule, avoiding touching the true vocal cord. We open the hemilarynx to the level just superior to the anterior commissure by cutting above and parallel to the true cord. If the ipsilateral arytenoid cartilage is free of tumor, an incision across the left aryepiglottic fold is then made well above the arytenoid cartilage. The remainder of the supraglottic larynx is removed from anterior to posterior. The cut is carried posteriorly, and the specimen is removed. If the cancer involve the outer surface of ipsilateral arytenoid cartilage, a 5 mm inferior and posterior margin is cut with a knife, and lateral blade in the horizontal ipsilateral cartilage cut. The excision of the arytenoid cartilage en bloc with the specimen is achieved. The excised specimen includes the entire epiglottis and preepiglottic space, both false vocal cords and about two thirds of the left arytenoid cartilage. Hemostasis is attained. The specimen is examined grossly to make sure that the margins are adequate.

A 2-0 nylon suture is placed from the superior border of the cricoid cartilage just to the left of the posterior midline through the arytenoid remnant and brought out of the muscle body of the left true vocal cord at the junction of the anterior two thirds and the posterior one third. It is tied down as the arytenoid remnant is retracted medially with forceps. This secures the ipsilateral vocal cord in the midline and reduces aspiration after operation.

A cricopharyngeal myotomy is performed. The myotomy is accomplished with a vertical incision carried through the entire thickness of the cricopharyngeal sphincter muscle down to but not through the mucosa. Hemostasis is attained, and the wound is irrigated.

The closure is begun laterally, suturing lateral pharyngeal wall to lateral pharyngeal wall, then lateral pharyngeal wall to cut margin of the base of the tongue. The remaining sutures approximate the thyroid perichondrium to the base of the tongue. A second layer of 3-0 interrupted sutures is placed from the raw surface of the base of the tongue to the fascia overlying the residual strap muscles, rubber drains is put in place. The subcutaneous tissue is closed with interrupted sutures, and the skin is closed. A tracheal tube is substituted for anesthesia tube, tied and sutured in place.

RESULTS

Twelve cases was carried on modified radical neck dissection simultaneously, of which 7 had metastasis in lymph nodes, and 1 bilateral modified radical neck dissection had metastasis. No patient died postoperatively. Only 8 (20%) had slight aspiration before the 20th day and recovered gradually. All patients had decannulated. After operation 26 cases received radiotherapy, and 3 cases chemotherapy. 3 cases emerged enlarged lymph nodes during 6 month - 1 year after operation, and carried on modified radical neck dissection. Of 2 patients with local recurrence, one received pharyngo-tracheal anastomosis, the other, total laryngectomy with radical neck dissection. 8 patients died of local recurrence and cervical lymph metastasis. A follow-up and analysis showed survived rate of 74% at 3 years.

DISCUSSION

The key to achieve a better function and good cure rate for supraglottic laryngectomy is to select appropriate patient. Before operation, indirect laryngoscopy, fibric laryngoscope, CT scan and other examination should be performed in order to assess tumor location and extension. If the tumor involved ventricle and vocal cord, vertical hemilarynx should be removed.[2] If tumor extended to bilateral aryntenoid, cricopharyngoplasty should be underwent.[3] If tumor extended to lingual surface of epiglottis, part of

tongue base should be cut. The complications of supraglottic laryngectomy include wound healing, the rehabilitation of swallowing and tracheal decannulation.[4] If an arytenoid or part of the base of tongue were cut, in order to avoid aspiration, medialization of the arytenoid remnant and true vocal cord that allows adequate closure of the glottic chink by the healthy vocal cord was necessary. Cricopharyngeal myotomy helped to reduce aspiration. In these 40 cases, 8 had slighted aspiration and recovered gradually. All patients had decannulated. A satisfactory result was obtained. Supraglottic laryngectomy for the surgical treatment of selected supraglottic carcinomas was proposed that could acquire almost normal laryngeal function.

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