Laryngeal Cancer Surgical Practice Guidelines

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Scope and Format of Guidelines

The Society of Surgical Oncology surgical practice guidelines focus on the signs and symptoms of primary cancer, timely evaluation of the symptomatic patient, appropriate preoperative evaluation for extent of disease, and role of the surgeon in diagnosis and treatment. Separate sections on adjuvant therapy, follow-up programs, or management of recurrent cancer have been intentionally omitted. Where appropriate, perioperative adjuvant combined-modality therapy is discussed under surgical management. Each guideline is presented in minimal outline form as a delineation of therapeutic options.

Since the development of treatment protocols was not the specific aim of the Society, the extensive development cycle necessary to produce evidence-based practice guidelines did not apply. We used the broad clinical experience residing in the membership of the Society, under the direction of Alfred M. Cohen, MD, Chief, Colorectal Service, Memorial Sloan-Kettering Cancer Center, to produce guidelines that were not likely to result in significant controversy.

Following each guideline is a brief narrative highlighting and expanding on selected sections of the guideline document, with a few relevant references. The current staging system for the site and approximate 5-year survival data are also included.

The Society does not suggest that these guidelines replace good medical judgment. That always comes first. We do believe that the family physician, as well as the health maintenance organization director, will appreciate the provision of these guidelines as a reference for better patient care. This article includes the laryngeal cancer practice guidelines and accompanying narrative. Guidelines on oropharyngeal and oral cavity, parotid, and thyroid cancer are also featured in this issue.

Society of Surgical Oncology Practice Guidelines: Laryngeal Cancer

Symptoms and Signs

Early-stage disease

- Hoarseness
- Sore throat
- Persistent throat irritation

Advanced-stage disease

- Cervical lymphadenopathy
- Dysphagia
- Difficulty in breathing
- Hemoptysis

Evaluation of the symptomatic patient

Work-up

- Thorough head and neck examination, including indirect laryngoscopy and fiberoptic laryngoscopy
- CT scan of the larynx or MRI of the larynx and neck in patients with advanced laryngeal...
cancer
- Direct laryngoscopy with biopsy
- Micro-laryngoscopy with biopsy

Appropriate timeliness of surgical referral

- In an elderly person who is a chronic smoker, hoarseness should be considered cancer of the larynx unless proven otherwise.
- A complete head and neck examination with laryngoscopy is essential. If an obvious lesion is noted, a biopsy under general anesthesia should be considered. If there is minimal disease on the vocal cords, the patient should be scheduled for microlaryngoscopy with stripping of the vocal cords to evaluate the exact pathology and extent of disease.

Pre-operative evaluation for extent of disease
Indirect laryngoscopy
Fiberoptic evaluation
Direct laryngoscopy
CT scan

Role of the surgeon in initial management
Preoperative evaluation and diagnostic procedures

- Evaluation of the symptomatic patient
- Evaluation of the exact extent of disease, location of disease, and vocal cord mobility should be documented.
- Diagnostic procedures include indirect and direct laryngoscopy, CT scan, or MRI to evaluate the extent of disease involvement of the anterior commissure, pre-epiglottic space, paraglottic space, and the subglottic extension, especially in advanced lesions.

Surgical considerations

- Depending on the extent of disease, surgery may include: vocal cord stripping, endoscopic laser ablation of the vocal cord tumor, hemi-laryngectomy, supraglottic laryngectomy, subtotal laryngectomy with crico-hyoidopexy, or total laryngectomy.
- Chemotherapy, including cisplatin and fluorouracil, may be used for two to three cycles to evaluate response.
- Consideration should be given to radiation therapy and salvage laryngectomy.
- Primary radiation therapy is used in patients with early stage laryngeal cancer (T1 vocal cord lesion with mobile cords).
- In patients with anterior commissure involvement, subglottic extension, or impairment of the vocal cords, total laryngectomy maybe indicated or extended partial laryngectomy may be required. Subtotal (supracricoid) laryngectomy with crico-hyoido-epiglottopexy is becoming an increasingly popular operation. Radiotherapy is an alternative to surgery if any two of these criteria are present.
- A larynx-preserving approach with initial chemotherapy followed by radiation therapy has shown encouraging results.

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Approximately 10,900 cases of laryngeal cancer are diagnosed every year, and the annual death toll from this cancer is approximately 4,230. The early diagnosis of laryngeal cancer is very critical since cure rates are excellent for stage I and II disease. The most common risk factors are smoking, alcohol consumption, and laryngeal papillomatosis. The most frequent symptom of laryngeal cancer is hoarseness. Other possible symptoms include sore throat and persistent throat irritation. Patients with advanced-stage disease may present with cervical lymphadenopathy, difficulty in breathing, hemoptysis, or, occasionally, dysphagia, although
hoarseness still remains the most common presentation. Hoarseness in an elderly, chronic smoker should be considered cancer of the larynx unless proven otherwise. Hoarseness in any elderly person should prompt an appropriate evaluation to rule out early laryngeal cancer. Occasionally, the laryngeal pathology may include vocal cord polyps or hyperkeratotic lesions. Patients with dysplastic pathology should be followed very carefully to rule out progression into carcinoma.

**Screening**

Laryngeal cancer patients are at high risk of developing a second primary in the lung and esophagus. Approximately 30% of patients with head and neck cancer will present with a second primary, either synchronous or metachronous. They should be kept under regular observation for the rest of their lives. Even though there are no standard screening practices for laryngeal cancer, patients with other head and neck cancers should be carefully evaluated for any laryngeal pathology. A chronic smoker should be assessed regularly for any change in voice, and patients with lung cancer should also be evaluated to rule out laryngeal pathology.

**Staging**

Appropriate staging of laryngeal cancer is very important in decision-making and selecting a definite treatment modality. Vocal cord mobility plays a key role in the staging system (see Table 1). In stages I and II, the vocal cords are mobile; fixity of the vocal cords reflects deep infiltration of the tumor, and patients with these findings are staged as stage III or IV. Lymph node metastasis is another important factor. The presence of lymph node metastasis puts the patient directly in stage III or IV, and also considerably diminishes overall survival. T1 tumors are limited to the vocal cord only with normal cord mobility; T2 tumors extend to the supraglottis or subglottis. T3 denotes fixity of the vocal cord, while T4 tumors invade through the thyroid cartilage or extend to the tissues beyond the larynx. Distant metastases are quite rare in laryngeal cancer, although they may be noted occasionally in the mediastinum or lungs. A nodular lesion in the lung, if single, may be considered a second primary cancer. However, a CT scan is important in such cases to rule out the possibility of multiple pulmonary nodules. The stage I and II tumors have excellent overall survival (5-year survival rates of 90% to 95% and 80% to 85%, respectively). Compared to early-stage laryngeal cancer, stage III and IV tumors generally have a poor prognosis (5-year survival rates of 60% to 70% and 40% to 50%, respectively). Advanced-stage laryngeal cancer patients who require total laryngectomy may be entered into a larynx-preservation protocol with a combination of chemotherapy and radiation therapy. However, it should be remembered that the presence of cartilage destruction, massive soft-tissue disease, or extensive subglottic tumor generally respond poorly to chemotherapy plus radiation therapy.

**Evaluation**

The work-up for a patient with suspected laryngeal cancer should include a thorough head and neck examination, including indirect laryngoscopy and fiberoptic laryngoscopy. Photographic documentation of laryngeal pathology can be performed with fiberoptic endoscopes. CT and MRI of the larynx may be helpful in cases of advanced laryngeal cancer, especially to evaluate the depth of tumor in fixed vocal cord or pre-epiglottic and paraglottic tumor spread. Direct laryngoscopy in the operating room with the help of an operating microscope is crucial in making the diagnosis, evaluating the exact extent of disease, and making a decision about the type of surgical procedure.

**Treatment**

Even though there is considerable controversy over whether radiation therapy or surgery should be used to treat early laryngeal cancer, there is general agreement that radiation therapy is preferable because it results in better vocal function. Supraglottic laryngectomy may be considered for early cancers of the supraglottic larynx. In patients with advanced laryngeal cancer, total laryngectomy generally gives the best results.
However, quality of life is a major concern in patients undergoing total laryngectomy. With the recent advances in post-laryngectomy voice rehabilitation, especially the advent of tracheo-esophageal puncture, quality of life is quite good. Combination chemotherapy with cisplatin (Platinol) and fluorouracil followed by radiation therapy was shown to be effective in the Veterans Affairs Cooperative Trial. If total laryngectomy is used as the primary modality in advanced laryngeal cancer, most patients will require postoperative radiation, especially if multiple lymph node metastases are noted at the time of surgery.

In patients whose neck is staged N0, treatment of the neck depends on how the primary is treated. In those whose neck is staged N1, a modified neck dissection is appropriate if the primary is best treated with surgery. If the neck is staged N2 or N3, combined treatment with surgery and radiation is indicated.

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