

and chemotherapy. The prognosis depends on a variety of factors: tumor stage, the patient's gender and age, and pathologic features of the tumor, including the grade and depth of infiltration. The treatment plan also depends on whether this is an initial diagnosis or a recurrence. Small glottic tumors, stage I and II, with no infiltration to the lymph nodes are associated with a 75% to 95% survival rate. Patients with stage III and IV or advanced tumors have a 50% to 60% survival rate and have a 50% chance of recurrence and a 30% chance of metastasis. The highest risk of laryngeal cancer recurrence is in the first 2 to 3 years. Recurrence after 5 years is rare and is usually due to a new primary malignancy (Lenhard et al., 2001) (**Chart 22-7**).

Surgery and radiation therapy are both effective methods in the early stages of cancer of the larynx. Chemotherapy traditionally has been used for recurrence or metastatic disease. It has also been used more recently in conjunction with either radiation therapy to avoid a total laryngectomy or preoperatively to shrink a tumor before surgery. A complete dental examination is performed to rule out any oral disease. Any dental problems are resolved, if possible, prior to surgery. If surgery is to be performed, a multidisciplinary team evaluates the needs of the patient and family to develop a successful plan of care.

### SURGICAL MANAGEMENT

Recent advances in surgical techniques for treating laryngeal cancer may minimize the ensuing cosmetic and functional deficits. Depending on the location and staging of the tumor, four different types of **laryngectomy** (surgical removal of part or all of the larynx and surrounding structures) are considered:

- Partial laryngectomy
- Supraglottic laryngectomy

- Hemilaryngectomy
- Total laryngectomy

Some microlaryngeal surgery can be performed endoscopically. The CO<sub>2</sub> laser can be used for the treatment of many laryngeal tumors, with the exception of large vascular tumors.

**Partial Laryngectomy.** A partial laryngectomy (laryngofissure-thyrotomy) is recommended in the early stages of cancer in the glottic area when only one vocal cord is involved. The surgery is associated with a very high cure rate. It may also be performed for a recurrence when high-dose radiation has failed. A portion of the larynx is removed, along with one vocal cord and the tumor; all other structures remain. The airway remains intact and the patient is expected to have no difficulty swallowing. The voice quality may change or the patient may be hoarse.

**Supraglottic Laryngectomy.** A supraglottic laryngectomy is indicated in the management of early (stage I) supraglottic and stage II lesions or when a patient is not a candidate for surgery. The hyoid bone, glottis, and false cords are removed. The true vocal cords, cricoid cartilage, and trachea remain intact. During surgery, a radical neck dissection is performed on the involved side. A tracheostomy tube (see Chap. XX) is left in the trachea until the glottic airway is established. It is usually removed after a few days and the stoma is allowed to close. Nutrition is provided through a nasogastric tube until there is healing, followed by a semisolid diet. Postoperatively, the patient may experience some difficulty swallowing for the first 2 weeks. Aspiration is a potential complication since the patient must learn a new method of swallowing (supraglottic swallowing). The chief advantage of this surgical procedure is that it preserves the voice, even though the quality of the voice may change. Speech therapy is required before and after surgery. The major problem is the high risk for recurrence of the cancer; therefore, patients are selected carefully.

**Hemilaryngectomy.** A hemilaryngectomy is performed when the tumor extends beyond the vocal cord but is less than 1 cm in size and is limited to the subglottic area. It may be used in stage I glottic lesions. In this procedure, the thyroid cartilage of the larynx is split in the midline of the neck and the portion of the vocal cord (one true cord and one false cord) is removed with the tumor. The arytenoid cartilage and half of the thyroid are removed. The patient will have a tracheostomy tube and nasogastric tube in place for 10 to 14 days following surgery. The patient is at risk for aspiration postoperatively. Some change may occur in the voice quality. The voice may be rough, raspy, and hoarse and have limited projection. The airway and swallowing remain intact.

**Total Laryngectomy.** A total laryngectomy is performed in the most advanced stage IV laryngeal cancer, when the tumor extends beyond the vocal cords, or for recurrent or persistent cancer following radiation therapy. In a total laryngectomy, the laryngeal structures are removed, including the hyoid bone, epiglottis, cricoid cartilage, and two or three rings of the trachea. The tongue, pharyngeal walls, and trachea are preserved. A total laryngectomy will result in permanent loss of the voice and a change in the airway.

Many surgeons recommend that a radical neck dissection be performed on the same side as the lesion even if no lymph nodes are palpable because metastasis to the cervical lymph nodes is common. Surgery is more difficult when the lesion involves the



### Chart 22-7 • Ethics and Related Issues

#### Situation

A 68-year-old attorney was diagnosed with cancer of the larynx 8 years ago. He was treated successfully with radiation therapy, resulting in an altered voice quality. Recently, he has complained of shortness of breath and difficulty swallowing. In the past few months, he also has noticed a marked change in his voice and physical condition, which he attributed to “winter colds.”

After a complete physical exam and an extensive diagnostic workup and biopsy, it is determined that the cancer has recurred at a new primary site. His health care provider recommends surgery (a total laryngectomy) and chemotherapy as the best options. The patient states that he is not willing to “lose my voice and my livelihood” but instead will “take my chances.” He has also expressed concern about his quality of life after surgery. His family has approached you about trying to convince him to have surgery.

#### Dilemma

The patient's right to refuse treatment conflicts with the family's wishes and recommendation from his health care provider.

#### Discussion

1. Is the patient making a decision based upon all pertinent information concerning his health status, treatment, options, risk/benefits, and long-term prognosis?
2. What arguments can be made to support the patient's decision to forego treatment?
3. What arguments can be made to question the patient's decision to forego treatment?