

Approaches to Diagnosis and Management of A Lump in the Neck

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Malignancies of the head and neck constitute 15 percent of the malignancies of all patients seen with cancer. Those individuals who present with neck masses deserve appropriate physical and diagnostic work-up before any surgical or therapeutic approaches are contemplated. In the series of patients presented here, only six percent had unknown primary lesions.

Neck masses, especially non-lymph node tumors, comprise a large variety of pathologic lesions seen in the neck and head area. Fortunately, most of these masses are benign. Congenital lesions such as thyroglossal duct cysts, branchial cleft cysts, dermoid cysts, and cystic hygromas are easily recognized and can be safely removed through standard surgical procedures. However, benign salivary gland tumors, carotid body tumors, neurofibromas, and thyroid masses are difficult to differentiate from malignancies without special studies or surgical intervention.

Cancer of the neck and head constitutes 15 percent¹ of all malignancies seen in clinical practice. The patient who presents to his/her physician with a lump in the neck deserves an appropriate physical and diagnostic work-up

before any surgical approaches are contemplated. Unfortunately, malignant tumors are often neglected and allowed to progress because the neck mass was considered benign, or an inadequate partial removal of the tumor was accomplished for biopsy purposes, thus violating important cancer surgery principles.

Martin² and others^{3,4} have emphasized the need for careful evaluation of patients with cervical nodal enlargements. Yet, MacComb³ found in a study at the M. D. Anderson Hospital that 78 percent of patients with malignancies had one or more cervical nodes removed before referral was made for definitive therapy.

Metastatic tumors of unknown primary sites constitute only a small percentage, varying from five to nine percent^{5,6} in various series, of the cancers seen in the neck. Nearly 70 percent^{4,7} of metastatic neck tumors are found in the upper orodigestive tract, 16 percent in the thoracic and abdominal cavities, and six percent in the skin. A diligent search will reveal these primary tumor sites and appropriate therapy can then be instituted.

The purpose of this paper is to define the principles of adequate examination and therapy for malignant tumors in the head and neck areas.

History

A careful history of the size of the lump, duration of the lesion, and any pain, dysphagia, hoarseness, cough, hearing loss, and/or weight loss will provide important clues as to site and diagnosis. Nasopharyngeal carcinomas may occlude the eustachian tube producing unilateral or bilateral serous otitis media and subsequent hearing loss. Sore throat, sore tongue, and muffled voice can occur with tumors of the tonsil, tongue, and epiglottis. A hoarse voice leads one to suspect vocal cord involvement. An inability to eat clues one to the hypopharynx and esophagus, while a cough and hemoptysis point toward the lungs. Ear pain can be referred from tonsil, tongue, and hypopharyngeal lesions. Certain benign tumors such as Warthin tumors (papillary adenocystoma lymphomatousum), carotid body tumors, and neurofibromas have positive family histories although cancer should always be suspected before suspecting a benign lesion.

Examination

A careful physical examination is necessary before contemplating any diagnostic procedures. The head, scalp, and posterior auricular area are first examined for signs of infection or lesions with melanomas and squamous cell carcinomas being the main concern. Both ears should be examined. Serous otitis media may point toward nasopharyngeal carcinoma. Perhaps a rare squamous cell carcinoma of the external ear canal will be found. Next, the nose and nasopharynx are evaluated for obstructions, bleeding, or tumor masses using the nasopharyngeal mirror and nasal speculum. The mouth and tongue should be examined and palpated bimanually for occult lesions. All oral prosthetic appliances should be removed and all underlying mucosa examined carefully. Next, the tonsils, hypopharynx, and larynx are examined with the aid of the laryngeal mirror. The fiberoptic

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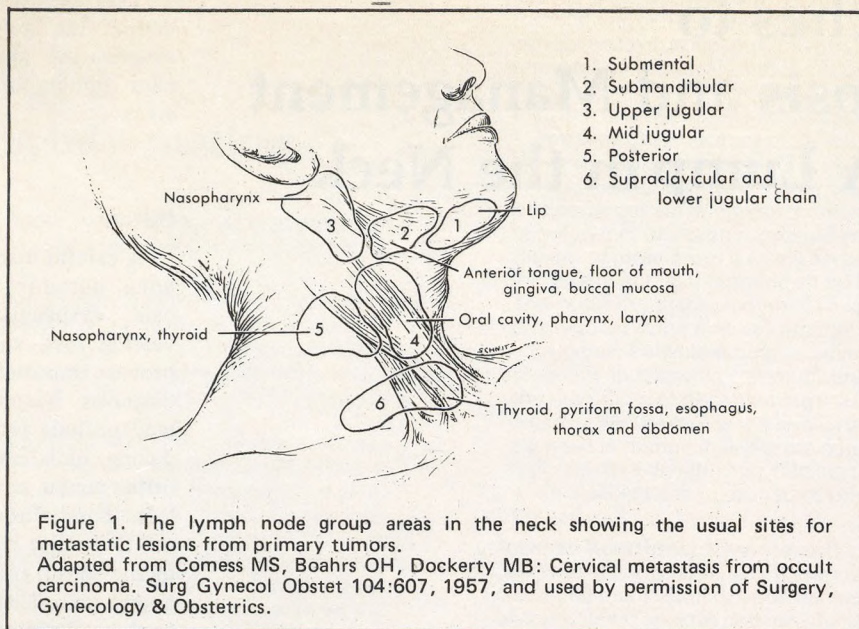


Figure 1. The lymph node group areas in the neck showing the usual sites for metastatic lesions from primary tumors. Adapted from Comess MS, Boahrs OH, Dockerty MB: Cervical metastasis from occult carcinoma. *Surg Gynecol Obstet* 104:607, 1957, and used by permission of Surgery, Gynecology & Obstetrics.

flexible laryngoscope may be used in the office to further evaluate the larynx and subglottic area.

The neck is systematically examined by inspection and palpation. Firm nontender nodes, especially when fixed, indicate malignant cancers metastatic to the neck. However, while this is generally true, it should be remembered as a note of caution that lymph nodes with metastatic tumor may be exquisitely tender. Tenderness of the lymph node, therefore, does not exclude metastatic tumor by any means.

Nodal enlargement confined to the neck places increased significance on the location. Those nodes located in the upper anterior neck are the submental and submandibular chains which drain the tongue and the floor of the mouth (Figure 1). Cancers in these areas will metastasize to the submandibular nodes before spreading to other nodal groups. Upper jugular nodal chain involvement suggests lesions of the tonsil or nasopharynx while lymphadenopathy in the midjugular chain points to a primary lesion in the larynx, oropharynx, or tongue. Supraclavicular nodes especially on the left side suggest metastatic lesions from the lung, chest, or stomach. Tumors of the pyriform sinus and base of tongue may also present into the supraclavicular area. Tuberculosis and lymphomas which

present in the neck can usually be differentiated from the metastatic squamous cell carcinomas of the upper airway. The matted nodes of tuberculosis lymphadenopathy are well known and usually lung lesions will be presented to point toward this disease process. Lymphomas are usually systemic in nature, and lymphadenopathy outside the neck suggests the lymphomatous involvement of the neck.

Case History 1

A 52-year-old white male was transferred to St. John's Hospital with a history of dyspnea, hoarseness, and increasing stridor of two months duration. He had undergone several bronchoscopy examinations and exploratory thoracotomy for evaluation of this problem in another hospital without a tumor being found. A complete laryngeal examination had not been performed. He was seen at St. John's on an emergency basis because of marked inspiratory and expiratory stridor. The patient was noted to have a small, movable, midjugular lymph node. Indirect laryngoscopy revealed an obstructive lesion of the left vocal cord, false cord, and epiglottis. He underwent an emergency tracheostomy and subsequently a complete laryngectomy and left radical neck

dissection for a squamous cell carcinoma. The patient has been free of tumor for approximately one year.

Case History 2

A 40-year-old white male noted a lump in his right neck three months before being seen by his family physician. At that time he denied weight loss, pain in the neck, or difficulty in swallowing. His chest x-ray was within normal limits. He was taken to surgery for removal of what was thought to be a branchial cleft cyst; however, at the time of surgery a large solid tissue mass adherent to the thyroid cartilage was found. A frozen section was obtained and showed squamous cell carcinoma. He was transferred to Memorial Medical Center; a direct laryngoscopy was performed and a large carcinoma of the right pyriform sinus with invasion of the larynx was discovered. A right radical neck dissection and a complete laryngectomy were performed. The follow-up included a postoperative course of radiation therapy for this squamous cell carcinoma. Five months following surgery this patient developed a mass in the operated neck which proved to be recurring carcinoma. His health declined progressively and he expired ten months following the diagnosis.

**Table 1. Distribution of Head and Neck Tumors
June 1973-December 1976**

	Number of Cases	Metastatic to Neck	Inappropriate Biopsy ³
Larynx ¹	34	15	3
Tongue	19	11	3
Tonsil	10	3	0
Mouth	7	3	0
Nasopharynx	7	7	2
Unknown Primary	6	6	3 ⁴
Maxillary sinus	5	1	0
Thyroid	4	1	0
Oral pharynx	4	1	0
Palate	3	1	1
Buccal	3	0	0
Retromolar trigone	3	0	0
Other ²	7	2	0
Total	113	51	12

¹including glottic, supraglottic and pyriform sinus

²nose, ear, parotid, submandibular

³biopsy performed before adequate examination performed

⁴biopsy performed before endoscopy. No radical neck performed immediately after biopsy.

only six percent of the tumors seen were truly of unknown origin. The unknown primary sites which have metastasized to the neck constituted only 12 percent of all the metastatic tumors found in this series. The vast majority of the tumors were squamous cell carcinomas with primary sites in the head and neck area (Table 2). MacComb³ pointed out that incisional biopsies of cervical nodes primarily for diagnosis should be condemned unless all other procedures have been exhausted and biopsies have proven to be negative. Incisional biopsies of malignant tumors seed the skin and adjacent tissues, increasing the chance of local recurrence following excision of the primary lesion. In the presence of completely negative biopsies of the orodigestive tract and completely negative x-ray findings, a total excision of an enlarged node is indicated. If squamous cell carcinoma is found, immediate radical neck dissection rather than radiation or a period of waiting is the option which offers the best prognosis. Any mass in the neck should be treated with the utmost care and caution lest a biopsy be performed inadvertently on a malignant tumor.

The incidence of multiple primary cancers in the oral cavity is well known and, when followed, frequently about ten percent will develop a second primary cancer.³ It is for this reason that patients who have had a carcinoma of the upper orodigestive tract are seen monthly for the first year, bimonthly for the second year, and quarterly until five years have elapsed. These patients are also advised to stop smoking and drinking alcoholic beverages.

**Table 2
Histological Type of Primary Tumor**

Squamous cell	105
Adenocarcinoma	2
Undifferentiated	3
Lymphoma	3

unknown primary origin. A thorough examination including an indirect laryngoscopy showed a tumor of the posterior tongue and base of tonsil. She subsequently underwent a course of radiation therapy with a complete regression of the tumor mass in the tongue and tonsil and then had a left radical neck dissection.

Discussion

The cases presented in this paper illustrate inadequate examination and inappropriate therapy for the tumors involved. Nearly 24 percent of the patients with palpable masses (Table 1) have had biopsies of neck nodes and diagnoses of unknown primary sites made before being sent for definitive therapy. In this series of 113 patients which spans three and one half years,

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Case History 3

A 67-year-old white female was seen at another institution with a left neck mass. An open biopsy revealed a squamous cell carcinoma and the patient was sent to Memorial Medical Center for radiotherapy with a diagnosis of metastatic squamous cell carcinoma of the left neck lymph node of