

The Diagnosis and Management of Parotid Disease

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KEYWORDS

- Fine-needle aspiration biopsy
- Superficial parotidectomy
- Partial superficial parotidectomy
- Extracapsular dissection

KEY POINTS

- The diagnosis and management of patients with disease of the parotid gland represents a formidable discipline in oral and maxillofacial surgery.
- Disease of the parotid gland is represented by a diverse array of diagnoses, ranging from acute infection to malignant neoplastic disease with facial nerve palsy.
- A specific and regimented approach to such disease is necessary so as to properly diagnose and manage the disease in a timely fashion.
- Evaluation of patients with a parotid lesion should result in the development of a differential diagnosis that includes neoplastic and nonneoplastic entities.

INTRODUCTION

Evaluation of patients with a parotid lesion should result in the development of a differential diagnosis that includes neoplastic and nonneoplastic entities. The primary exercise in the initial evaluation of a patient with a parotid swelling, therefore, is to distinguish neoplastic from nonneoplastic processes and to initiate the exercise of proper diagnosis and treatment.¹ Salivary gland tumors as a whole are rare compared with the overall incidence of head and neck tumors. Overall, salivary gland tumors vary worldwide from about 0.4 to 13.5 cases per 100,000 people in the population.² The parotid gland is the most common site of occurrence of salivary gland tumors, generally comprising 60% to 75% of all salivary gland tumors in large series (**Table 1**).^{3–6} The most common benign tumor of the parotid gland and the most common salivary gland tumor overall is the pleomorphic adenoma. The most common

malignant tumor of the parotid gland is the mucoepidermoid carcinoma. Most nonneoplastic salivary gland swellings represent acute or chronic infections of these glands.⁷ Although any of the major or minor salivary glands can become infected, these conditions most commonly occur in the parotid and submandibular glands, with the sublingual and minor salivary glands rarely becoming infected. From an etiologic standpoint, these infections are caused by a diverse number of bacterial, mycobacterial, viral, fungal, or parasitic organisms, or occasionally by immunologically mediated mechanisms. Moreover, an equally diverse number of risk factors may predispose patients to parotid infections (**Box 1**). An assessment has been reported of the relative frequency of neoplastic versus nonneoplastic disease of the major salivary glands, including the parotid gland. In this study, the investigators evaluated 140 parotidectomy specimens, 102

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Table 1
Frequency of parotid tumors amongst salivary gland tumors

References	Number of Salivary Gland Cases	Number of Parotid Neoplasms (%)	Number of Benign/Malignant Parotid Neoplasms (%)
Ellis et al, ³ 1991	13,749	8222 (59.8)	5566 (67.7)/2656 (32.3)
Eveson and Cawson ⁴ 1985	2410	1756 (72.9)	1498 (85.3)/258 (14.7)
Spiro ⁵ 1986	2807	1965 (70)	1342 (68.3)/623 (31.7)
Ito et al, ⁶ 2005	496	336 (67.7)	256 (76.2)/80 (23.8)

(73%) of which showed neoplastic disease and 38 (27%) specimens showed nonneoplastic entities.⁸ In this study, the investigators also examined 110 submandibular gland excisions, 17 (15%) of which were performed for neoplastic disease and 93 (85%) of which were performed for nonneoplastic disease. When examining a patient with a parotid swelling, therefore, the likelihood of a neoplastic process should be highly considered, because it is more likely than when examining a patient with a submandibular swelling.

INITIAL EVALUATION AND GENERAL CONCEPTS

History

The initial evaluation of a patient with a parotid gland swelling must begin with a comprehensive history and physical examination, which should primarily distinguish infectious/obstructive processes from neoplastic processes. Historical elements that must be considered during this initial evaluation include whether the examination is being performed in an inpatient or outpatient setting; the patient's specific symptoms and their chronicity; and the possible presence of systemic disease. A patient with acute parotid swelling who is examined in an intensive care unit setting after surgery, for example, might be experiencing a parotitis. By contrast, a patient with a 10-year history of parotid swelling who is being examined in an outpatient setting might be experiencing a parotid neoplasm. The setting in which this initial evaluation occurs provides valuable information as to the cause of a parotid swelling, including a parotitis. For example, the microbiological cause and treatment of a community-acquired parotitis is different from that of a hospital-acquired parotitis. The clinician may begin to disclose important information as to the cause of the parotitis based on the setting in which they are examining the patient. In general terms, gram-positive organisms are more commonly encountered in community-acquired infections, whereas gram-negative

organisms are more commonly encountered in hospital-acquired infections.

Symptoms being experienced by patients with parotid enlargement may further divulge their disease state and also qualify its magnitude. The presence of a painful swelling, particularly prandial pain, or pain during eating, may suggest a diagnosis of sialolithiasis. However, prandial pain is not pathognomonic of a diagnosis of sialolithiasis, because parotitis unrelated to sialolithiasis may also present in this way. Moreover, some patients with malignant tumors of the parotid gland complain of pain such that early discovery of such malignancies is of paramount importance. The patient's perception of the expression of purulence from the salivary duct should be ascertained during the history. Clearly, the greater the magnitude of purulent infection noted on physical examination, the greater the likelihood that admission to the hospital and incision and drainage are necessary. In addition, the presence of a significant volume of purulence at the opening of a salivary duct may point to the value of obtaining special imaging studies for proper patient management.

Obtaining information regarding the presence of comorbid systemic disease and therapeutic medications is an important aspect of the history taking of all patients regardless of their chief complaint. With regard to patients in particular with parotid swellings, inquiring as to the presence of diabetes, HIV/AIDS, and recent surgery may permit the disclosure of nonmodifiable, relatively nonmodifiable, and modifiable predisposing features of parotitis (see **Box 1**).

Physical Examination

The performance of a physical examination follows the history taking and may permit the clinician to distinguish an infectious/obstructive process from a neoplastic process (**Fig. 1**). In particular, extraoral inspection and palpation of the parotid swelling may determine the presence or absence of tenderness, erythema, and warmth. Intraoral inspection and palpation may identify purulence

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