Parotid Space Tumors of Non-salivary Origin

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A review of 700 parotidectomies showed that 98 procedures were performed for parotid space tumors of non-salivary origin. The clinical presentation in this group of patients did not differ significantly from the larger group of salivary tumors except for a higher incidence (12%) of the former in the younger age group. Of the 98 cases, 54 proved to be lymph node tumors, both neoplastic and inflammatory and 44 were tumors of various somatic origins. Among the latter group, bone and joint tumors, vascular lesions and some connective tissue tumors may be recognized preoperatively. Generally, however, the entire group of non-salivary tumors can be distinguished only intra-operatively, if at all. Correct recognition may lead to variations in operative techniques and extent of resection.

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IN ANY LARGE SERIES of parotidectomies a number of cases will always be found in which the tumor occupying the parotid space originated in other than salivary tissue.[1] However, these cases are rarely reported as a group, the literature containing chiefly individual case reports or analyses of a single histopathological entity.[5,8]

We have reviewed our own experience of approximately 700 parotidectomies and have collected 98 cases in which the tumor was of non-salivary origin. This group of tumors therefore represents 14% of the total number for which parotid surgery was undertaken.

Anatomy

The anatomic borders of the parotid space are the external auditory canal and mastoid tip posteriorly, the zygomatic arch superiorly and the ascending ramus of the mandible and the masseter muscle for a variable space anteriorly. Inferiorly the "tail" of the parotid extends below the angle of the mandible and the mastoid tip into the neck. In depth the so-called "deep lobe" of the parotid occupies the retromandibular space, resting upon the styloid process which separates it from the retrotonsillar region.

Masses within this space are almost always diagnosed as salivary gland tumors. Although these are statistically the most frequent there are many other structures within and traversing the parotid space which can give rise to tumors which will mimic the more common ones of parotid origin.[7]

It is important that the operating surgeon be aware of the existence and nature of these tumors because such recognition may: 1) alter his surgical approach and 2) influence the extent of resection called for.

In some instances, the correct diagnosis can at least be suspected preoperatively. In the majority, however, the nonsalivary nature of these tumors can be determined only at the time of surgery. The surgeon must therefore be prepared to recognize the true nature of these tumors and, if necessary, vary his operative procedure as indicated below in order to insure optimal surgical management.

Pathology

Our 98 non-salivary tumors could be classified on the basis of their histopathology as follows: tumors arising in (intraparotid and periparotid) lymph nodes: 54 (Table 1); Tumors of somatic origin: 44 (Table 2).

Clinical Presentation

Analysis of these cases in terms of age, sex and the presence of symptoms revealed no significant differences when compared with similar analysis of our group of patients whose tumors originated in the parotid gland itself, except with respect to age: 12 of our 98 tumors (12%)

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were found in patients under the age of 20. Fewer than 5% of salivary gland lesions occur in this range.[2–4,6] The breakdown of these 12 cases in terms of etiology is shown in Table 3. With respect to clinical presentation, for the entire group of parotid tumors, almost all came to attention because of the single symptom of a mass in the parotid area.

Discussion

Lymph Node Disease

It has been our experience that in the preoperative evaluation of a parotid tumor, it is almost impossible to differentiate lesions originating in lymph nodes from those of true salivary origin. None of the patients under discussion in this category had lymphadenopathy detectable elsewhere than in the parotid area. Certainly, if such is the case, one would not approach that parotid area first to establish the diagnosis. Similarly, those patients whose parotid tumors proved to be metastatic in nature never had an overt metastasis elsewhere in this series.

Surgical Management When Tumor Is Discovered to be of Lymphoid Origin

When enlarged periparotid lymph nodes are found and the salivary gland itself is seen to be intact, it is our experience that it is not always necessary to perform a parotidectomy. It is usually possible to enucleate the nodal tissue only, providing one has adequately identified the facial nerve divisions close to the node. Fortunately these nodal enlargements tend to occur at the "tail" (vide supra) of the parotid. In these circumstances, procedurally, the surgeon should first identify the posterior facial vein and trace this superiorly. Careful dissection of this structure will lead him to the cervical and submandibular divisions of the facial nerve. These are found crossing the vein on its superficial surface. By identifying and protecting the nerve branches it is not difficult to remove safely the lymph gland alone.

When the involved lymph node is intraparotid however, the correct diagnosis cannot be made even at surgery. The operative procedure then must be the same as for a salivary gland tumor. All of these intraparotid lymph nodes in our experience have been found in the superficial "lobe" of the parotid. Complete removal of the superficial lobe under these circumstances is exactly similar to the procedure used for salivary tumors: the first step is identification of the facial trunk by using the bony landmarks. Next, the superficial portion of the parotid gland is excised *en bloc* with preservation of its capsule and avoidance of the facial nerve branches. As with tumors of salivary origin no attempt is ever made to extract the tumor from the salivary gland proper.

TABLE 1. *Tumors Arising in (Intraparotid and Periparotid) Lymph Nodes*

A. Neoplastic		
1. Primary		
Malignant lymphoma		16
2. Metastatic		
Melanoma	(2)	
Colonic ca	(1)	
Tonsillar	(1)	
Lymphoepithelioma	(1)	
Total metastatic neoplasm		5
B. Inflammatory		
Hyperplastic lymph nodes	(19)	
Tuberculosis	(8)	
Actinomycosis	(1)	
Infectious mononucleosis	(1)	
Cat scratch fever	(1)	
Sarcoidosis	(2)	
Toxoplasmosis	(1)	
Total inflammatory		33
Total (Lymph node disease)		54

TABLE 2. *Tumors of Somatic Origin (44)*

A. Skin and appendages		
1. Benign		
Epidermoid inclusion cyst		2
Sebaceous lymphadenoma		1
Branchial cyst		1
2. Malignant		
Sebaceous gland carcinoma		1
Total skin	(5)	
B. Muscle and connective tissue origin		
1. Benign		
Lipoma		18
Fibroadenoma		1
Desmoid tumor		1
Granular cell myoblastoma		1
Hypertrophy masseter muscle		1
2. Malignant		
Fibrosarcoma		1
Myxosarcoma		1
Total muscle and connective	(24)	
C. Vascular origin		
Hemangioma		4
Venous aneurysm		1
Cystic hygroma		1
Total vascular	(6)	
D. Neurogenic origin		
Neuroma facial nerve		1
Neurofibroma		2
Meningioma		1
Total neurogenic	(4)	
E. Bone and joint origin		
Ameloblastoma		1
Vilonodular synovial sarcoma		1
Osteochondroma		2
Aneurysmal bone cyst		1
Total bone and joint	(5)	
Total Somatic Tumors	(44)	
Total Lymph Node	(54)	
Total Tumors of Non-salivary Origin	(98)	

TABLE 3. *Etiology of Tumors in Patients Less Than 20 Years of Age*

Reactive lymph nodes		2
Inflammatory lymph nodes		3
Infectious mononucleosis	(1)	
Tuberculosis	(1)	
Non-specific granuloma	(1)	
Skin Tumors (epidermoid cysts)		2
Masseter muscle hypertrophy		1
Bone tumor—benign		1
Vascular—hemangioma		1
Malignant tumors		2
Fibrosarcoma	(1)	
Myxosarcoma	(1)	
Total		12

Somatic Tumors

Among the somatic tissue tumors are some for which a correct preoperative diagnosis can be made or, at least, suspected. The epidermoid inclusion cysts and sebaceous adenoma included in our series were attached to the skin inside the external auditory canal: closer preoperative inspection might have yielded a clue. Similarly, masseter muscle hypertrophy can usually be distinguished by correct physical examination; however, in the one case included in our series we were fooled.

We were not able to distinguish preoperatively lipomas with any consistent degree of success. On a few occasions the correct preoperative diagnosis was considered because of the palpatory characteristics.

The four hemangiomas in our series all were of the cavernous ("adult") type without changes in the overlying skin. There are typical clinical features in this condition which can be used to make a correct diagnosis. These are: 1) increase in size with straining and leaning over; 2) compressibility; and, 3) x-ray evidence of microcalcification. These diagnostic features will be elaborated upon in a separate report.

The last group, bone and joint tumors, can be suspected by their hardness and can usually be confirmed radiologically if one includes sialography. Despite this, we have not been able to make the correct histological diagnosis easily, especially in the unusual tumors in our series.

Surgical Application

By correctly recognizing that a given tumor is of lymph node rather than salivary origin the operating surgeon can frequently limit the extent of his resection and simplify the procedure as outlined above. This holds true for both primary and secondary lymphatic tumors, as well as most inflammatory diseases. Somatic tumors on the other hand are less likely to respect the border of the parotid capsule and surgical excision may have to be extended beyond the "usual" confines of parotidectomy. In such cases, it is imperative that identification and preservation of the facial nerve be carried out prior to resection. Indeed, it is precisely those cases in which unusual tumors are present—where direction of growth cannot be adequately predicted and where malignancy is more likely—that the surgeon must establish precisely the location and possible involvement of the facial nerve. He must arrive at this decision *before* embarking upon resection of the tumor. In our opinion only bony landmarks, consisting of the mastoid tip, external auditory canal and styloid process can consistently be relied upon to lead the surgeon to the facial trunk quickly and without risk.

Summary

Of approximately 700 parotidectomies in our experience, 98 were performed for parotid space tumors of nonsalivary origin. Among these 98 cases were 54 involving intraparotid and periparotid lymph nodes and 44 tumors of various somatic origins. We have discussed the characteristic clinical features and the considerations which lead to correct intraoperative identification. Such accurate recognition influences greatly surgical judgement and the postoperative result.

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