Yonsei Medical Journal
Vol. 29, No. 2, 1988

Dermoid Cyst of the Parotid Gland

Eun-Chang Choi[1], Jong-Boo Jin[1], Jin-Yong Kim[1],
Won-Pyo Hong[2], Myoung-Joon Kim[3] and Yong-Koo Park[4]

A dermoid cyst of the head and neck region is a relatively infrequent occurrence and accounts for only 6.9% of all dermoid cysts. Its anatomical distribution is the orbit, floor of the mouth, other midline and nose in the order of frequency. A dermoid cyst of the parotid gland is extremely rare, and due to this and the absence of pathognomonic findings, it is often difficult to diagnose preoperatively. Thus thorough and careful examination including ultrasonic study is needed to evaluate this lesion. It must be differentiated from malignant tumors and other cystic lesions. Dermoid cysts usually recur after simple excision, so it is mandatory to excise it completely with a parotidectomy. This paper presents two cases of parotid gland dermoid cyst with a brief review of the literature.

Key Words: Dermoid cyst, parotid gland,

Teratomas are tumors composed of multiple tissues foreign to the part of the body in which they arise. In a more accurate sense, a teratoma is made up of a variety of parenchymal cell types representative of more than one germ layer, usually all three. The term "dermoid cyst" has been loosely applied to a number of dysontogentic cystic lesions wherever they occur in the body. In the head and neck, "dermoid cyst" may apply to three varieties of cysts: 1. epidermoid or epidermal cyst; 2. dermoid cyst; and 3. teratoid cyst (Batsakis, 1979). A dermoid cyst is a pathological type of congenital or acquired cyst. It is lined with epidermis and all elements of the skin appendages are present. The diagnosis derives from the demonstration of hair follicles, hair, sebaceous glands and connective tissue with papillae within the wall of the cyst. In the head and neck region, it accounts for 6.9% of all dermoid cysts, and this is the third most frequent site (coccyx 44.5%, ovaries 42.1%). In the head and neck area, dermoid cysts are predominantly found in the orbital, oral, and nasal regions (over 80%), and the frequencies are orbit 49.5%, nose 12.6%, submental and submaxillary region 23.3%, and the remainder 14.6% (occipital, frontal, lip, neck, soft palate) (New and Erich, 1937).

The parotid glands are a frequent site of cysts and congenital lesions. About 2 to 5 percent of all parotid gland lesions are cystic lesions which can be classified as acquired cysts (obstructive, neoplasm, calculi, trauma, parasite) or congenital cysts. Congenital cystic lesions of the parotid glands may be divided into dermoid cysts, branchial cleft cysts, branchial pouch cysts, and congenital ductal cysts. A cystic lesion of the parotid gland can occur in any portion of the gland, and clinical diagnosis is often difficult especially when its location is as deep as the facial nerve. So in many instances, a definitive diagnosis is made after excision.

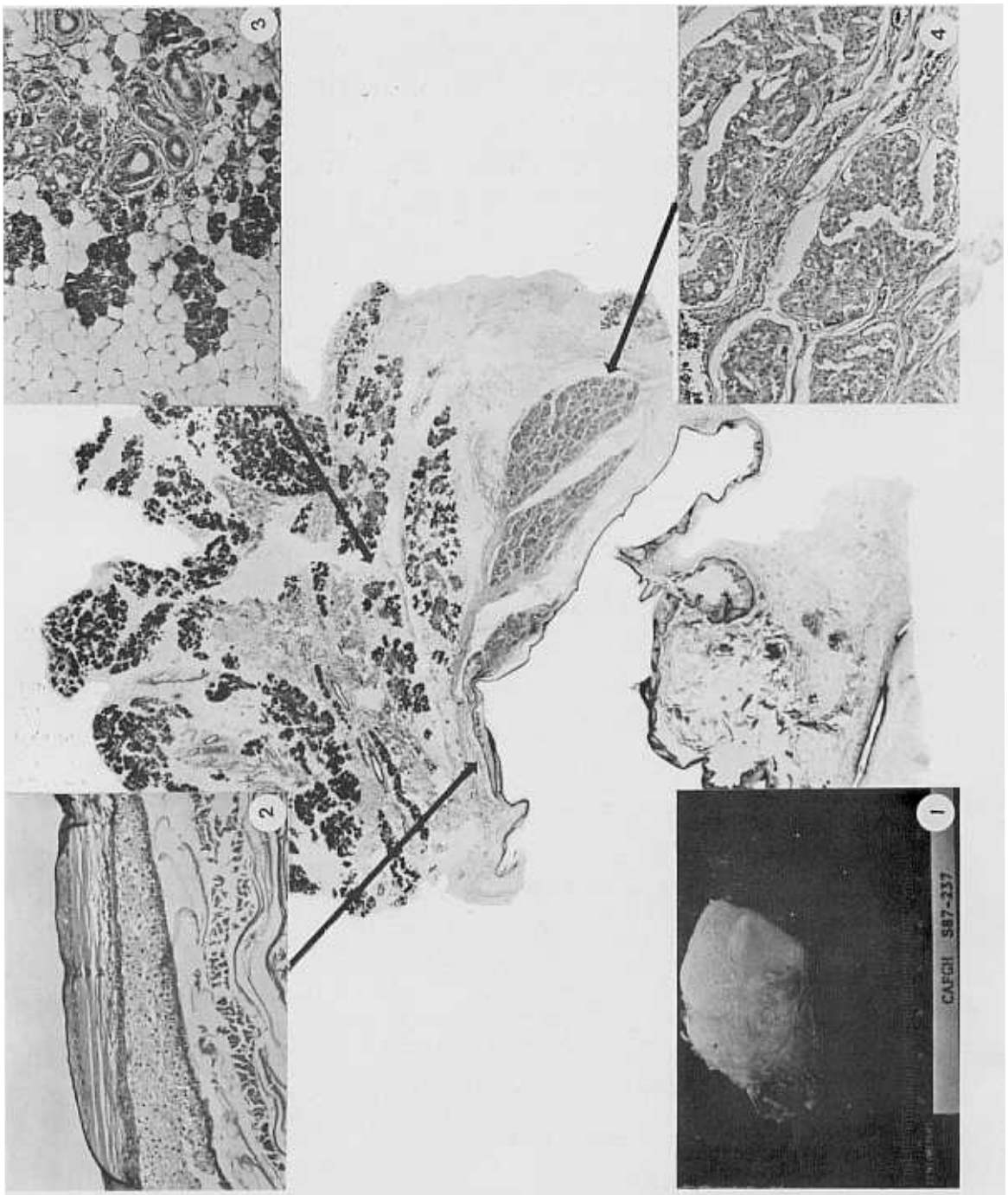
A dermoid cyst of the parotid gland is rarely seen and its report is rare. It must be differentiated from malignant tumors and many other cystic lesions preoperatively. Recently we experienced two cases of dermoid cyst of the parotid gland, so we report herein our cases with a brief review of the literature.

Received February 10, 1988
Accepted April 21, 1988
Departments of Otolaryngology,[1] Radiology[3], Pathology[4], Capital Armed Forces General Hospital, Seoul, Korea.
Department of Otolaryngology[2], Yonsei University College of Medicine, Seoul, Korea, 120-140
Address reprint requests to Dr. E.C. Choi, Department of Otolaryngology, Capital Armed Forces General Hospital, Kangseo P.O.Box 35, Seoul, Korea

CASE HISTORY

Case 1.

A 22-year-old male patient was admitted to our hospital on Nov. 4, 1986 with the complaint of a right



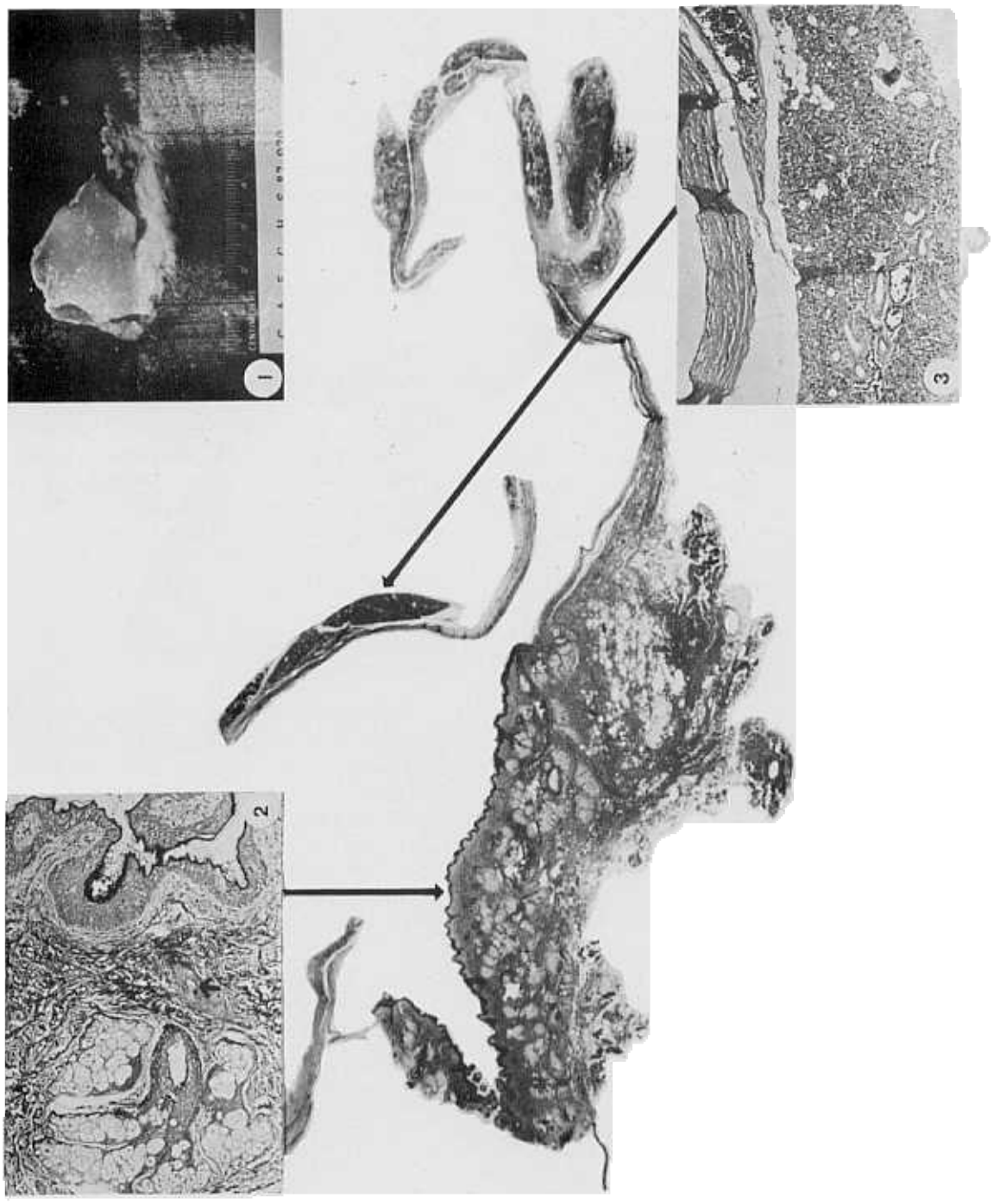
Case 1, Fig.

1. *Cut surface of the parotid gland shows gelatinous material with fibrosis.*

2. *The cyst wall is lined by stratified squamous epithelium with sebaceous gland.*

3. *The remaining parotid gland shows chronic inflammation.*

4. *In area, the parotid gland shows oncocytic changes.*



Case 2, Fig.

1. *Cut surface reveals an unilocular cyst filled with sebaceous material.*
2. *The cyst wall is lined by keratinizing stratified squamous epithelium with sebaceous gland and hair follicle.*
3. *The remaining parotid gland shows mild chronic inflammation.*

infraauricular mass. It was 4 x 4 cm in diameter, round, firm and non-tender. He underwent simple excision a year ago at a private clinic, but it recurred soon. Ultrasonography showed an ovoid inhomogeneous echogenic mass in the right parotid gland which was considered most likely to be a fat containing tumor such as a lipoma and dermoid tumor. Sialography revealed a normal ductal system. It was not possible to diagnose this three dimensional tumor, so surgery was performed. After the right parotid gland was exposed, a large cyst was found in the lower portion of the gland. It was superficial to the facial nerve and well encapsulated. It contained sebaceous material which was sterile. The thick walled cyst was dissected free from the gland tissue, a superfical parotidectomy performed and the facial nerve preserved.

Case 2.

Another case showed similar findings. A 22-year-old soldier visited our hospital on Jul. 30, 1987 with an expanding mass in the left parotid area. It was located just inferior to the lobule of left external ear. The mass was 4 x 5 cm in diameter, movable, non-tender, and more cystic in nature than the previous case. He had a history of an aspiration biopsy at another clinic. He stated that some serous fluid had been observed and the mass had recurred soon. Ultrasound examination and sialographic study revaled a similar fatty echogenic mass, and mild compression of the ductal system. A large cystic mass was noted in the inferior portion of the superfical gland and excision with superficial parotidectomy was performed.

PATHOLOGIC FINDINGS

Case 1.

Gross: The resected specimen was a part of the parotid gland with a small tumor mass measuring 4.5 x 3.5 x 4 cm. Characteristically, there was an unilocullar cyst that on section had a thin wall lined by an opaque gray-white epithelium fill in and a wrinkled wall surrounded by a dense fibrous wall. The lumen of the cyst was filled with a sebaceous secretion.

Micro: Histologically, the cyst wall was composed of stratified squamous epithelium with underlying sebaceous glands. The remaining salivary glands showed infiltration of lymphocytes and some plasma cells. In some parts, the secretory ductal epithelium exhibited oncocytic changes.

Case 2.

Cross: The resected parotid gland measured 5 x 4 x 3 cm. The outer surface showed an unilocular cyst filled with a jelly-like greenish material. The inner wall had a glistening, trabeculated, gray-white appearance.

Micro: The cyst wall was lined by stratified squamous epithelium with underlying sebaceous glands. In some parts, there were numerous hair shafts. The remaining salivary glands revealed chronic inflammatory changes.

DISCUSSION

Dermoid cysts of the head and neck account for nearly 7% of all dermoid cysts (Taylor, 1967). Due to their rareness, these cysts have recieved little attention in the literature. Dermoid cysts are predominantly seen in the orbital, oral, and nasal regions (over 80%) of the head and neck. New and Erich (1937) grouped these cysts into three categories based on their pathogenesis and microscopic appearance. 1. Congenital dermoid cysts of the teratoma type arising from

Table 1. Four types of dermoid cysts in the head and neck

Group	Region	Origin	Pathogenesis	Frequency
I	Periorbital	Naso-optic groove	Inclusion between maxillary and mandibular process.	47-70%
II	Nasal	Fronto-nasal plate	Inclusion of plate between	8-12%
III	Submental Submaxillary	1st, 2nd branchial arch	Sequestration during union of arch with its fellow.	23-42%
IV	Suprasternal Suboccipital Thyroidal Lower lip Palate	Midventral & Middorsal line	Formed during fusion of midlines.	5-15%

embryonic germinal epithelium. Depending on the dormant germinal layer, they contain skin, hair, or teeth, and are surrounded by a thick wall. They are almost always limited to the ovaries and testes. 2. Acquired dermoid cysts: These are inclusion cysts as a result of traumatically implanted skin in deeper layers. They occur on the hands and other exposed parts of the body. 3. Congenital inclusion dermoid cysts: These develop from inclusions of displaced dermal cells along the lines of embryologic fusion. This category is of interest to the head and neck surgeon. This last category is subdivided into four types according to their anatomic location and embryogenesis. 1) cysts about the eyes and orbits, originating along the nasooptic groove; 2) those about the nose, resulting from intrusion of the frontonasal plate; 3) those about the floor of the mouth and in the submental and submaxillary regions, originating from the upper branchial arches; 4) a miscellaneous group, most of which occur at the midventral or middorsal lines of the body (Table. 1).

A dermoid cyst of the parotid gland is difficult to classify. It is not located in the midline of the body, so group IV is not suitable for explanation of its pathogenesis. Group III may be applied, but submental and submaxillary regions result from the sequestration of branchial arches during union with their fellows of the opposite side, and this is not the case. A possible explanation may be the inclusion of ectoderm during the development of the branchial arch.

Clinically it is often difficult to make a definitive diagnosis of this parotid dermoid cyst. On physical examination, it has no characteristic findings. It is often impossible to differentiate this cyst from congenital cystic lesions of the parotid gland, such as a branchial cleft cyst, a branchial pouch cyst, a congenital ductal cyst and an aquired cyst of the parotid gland. A dermoid cyst of the parotid gland can occur as an isolated mass. The mass may appear near the surface or be deep within the gland. In our cases, both were located near the surface. In each instance, the dense fascial layers made it difficult to diagnose. Sialography might reveal a normal ductal system or a mild compression of it. Ultrasonography showed echogenic density and an inhomogeneous mass which gave the impression of lipoma and dermoid cyst was seen. So it might be worth while to using ultrasound on a parotid mass to suspect this rare lesion.

Histologically, a dermoid cyst of the parotid gland shows keratinization of the squamous epithelium associated with skin appendages, such as hair follicles, sweat glands, and sebaceous glands as seen in other head and neck regions. A dermoid cyst of the parotid gland is relatively well encapsulated, so dissection is not so difficult as in other head and neck dermoid cysts such as nasal and orbital lesions. But simple excison may produce microscopic residual tissue which results in recurrence later.

In the treatment of this cyst, more careful surgery is needed. There are two problems encountered in the surgery of a parotid dermoid cyst. One is that surgery is usually performed before a definite diagnosis has been mode. The other is; even though a dermoid cyst of the parotid is well encapsulated, complete extirpation of the cyst wall is not suffice to cure it. So it is mandatory to perform careful excision of the cyst and parotid gland where the cyst exists.

REFERENCES

Batsakis JG: *Tumor of the head and neck, clinical and pathological consideration,* 2nd edition, *1979, 226*

Hawkins DB, Park R: Teratoma of the pharynx and neck. *Ann Otol 81: 848, 1972*

Katz AD: Midline dermoid tumors of the neck. *Arch Surg 109: 822, 1974*

McAvoy JM, Zuckerbraun L: Dermoid cysts of the head and neck in children. *Arch Otolaryngol 102:529, 1976*

New GB, Erich JB: Dermoid cysts of the head and neck. *Surg Gynecol Obstet 65: 48, 1937*

Taylor BW, Erich JB: Dermoid cysts of the nose. *Mayo Clin Proc 42: 488, 1967*

Work WP: Cysts and congenital lesions of the parotid gland. *Otolaryngol Clin N Am 10: 339, 1977*

Work WP, Hecht DW: Non-neoplastic lesions of the parotid gland. *Otolaryngol Clin N Am 10: 462, 1977*