Dermoid Cyst of the Parotid Gland

Eun-Chang Choi¹, Jong-Boo Jin¹, Jin-Yong Kim¹, Won-Pyo Hong², Myoung-Joon Kim³ and Yong-Koo Park⁴

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 ultrasonor 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 dysontogenic 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.

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. Ultrasoundography 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 superficial 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 revealed a similar fatty echogenic mass, and mild compression of the ductal system. A large cystic mass was noted in the inferior portion of the superficial 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 unilocular 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 rarity, these cysts have received 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>
<thead>
<tr>
<th>Group</th>
<th>Region</th>
<th>Origin</th>
<th>Pathogenesis</th>
<th>Frequency</th>
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</thead>
<tbody>
<tr>
<td>I</td>
<td>Periorbital</td>
<td>Naso-optic groove</td>
<td>Inclusion between maxillary and mandibular process.</td>
<td>47-70%</td>
</tr>
<tr>
<td>II</td>
<td>Nasal</td>
<td>Fronto-nasal plate</td>
<td>Inclusion of plate between</td>
<td>8-12%</td>
</tr>
<tr>
<td>III</td>
<td>Submental</td>
<td>1st, 2nd branchial</td>
<td>Sequestration during union of arch with its fellow.</td>
<td>23-42%</td>
</tr>
<tr>
<td>IV</td>
<td>Supraesophageal</td>
<td>Midventral &amp;</td>
<td>Formed during fusion of midlines.</td>
<td>5-15%</td>
</tr>
</tbody>
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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. Ac-
quired 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 naso-
optic 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 submax-
illary 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 sequestra-
tion of branchial arches during union with their fellows
of the opposite side, and this is not the case. A possi-
ble explanation may be the inclusion of ectoderm dur-
ing 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 acquired cyst of the parotid gland. A der-
moid 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 ex-
cision 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 made. The other is; even though a dermoid
cyst of the parotid is well encapsulated, complete ex-
tirpation 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.

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