Case Report

A Case of Cystadenoma Arising in the Upper Lip

**Takeshi Onda¹⁾, Kamichika Hayashi¹⁾, Nobuo Takano²⁾,
Kenichi Matsuzaka³⁾ and Takahiko Shibahara^{1,2)}**

¹⁾ *Department of Oral and Maxillofacial Surgery, Tokyo Dental College,
1-2-2 Masago, Mihama-ku, Chiba 261-8502, Japan*

²⁾ *Oral Cancer Center, Tokyo Dental College,
5-11-13 Sugano, Ichikawa, Chiba 272-8513, Japan*

³⁾ *Department of Clinical Pathophysiology, Tokyo Dental College,
1-2-2 Masago, Mihama-ku, Chiba 261-8502, Japan*

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Abstract

Cystadenoma, a common benign tumor derived from glandular tissue, generally occurs in the appendix, ovaries, kidney, or pancreas. While rare in the oral and maxillofacial region, they do sometimes occur in the parotid or minor salivary glands. We report a case of cystadenoma arising in the upper lip region. The patient was a 37-year-old woman referred to our hospital with a painless mass on the left upper lip initially found during treatment at a local dental clinic. The medical history was non-contributory. The 7×5-mm mass was well-defined, elastic, and flexible. The surface of the mucosa appeared healthy. The mass was clinically diagnosed as a benign tumor of the left upper lip. Because the tumor was painless and slow-growing, and magnetic resonance imaging suggested that it was benign, resection was performed under local anesthesia without biopsy. Histopathologically, cystadenoma was diagnosed. No signs of recurrence or metastasis have been seen as of 24 months postoperatively and the progress of the patient has been satisfactory.

Key words: Cystadenoma—Salivary gland tumor—Minor salivary gland—Upper lip

Introduction

Cystadenoma is a rare benign tumor formed by cystic dilation and proliferation of a gland. This pathology tends to arise in the ovaries or pancreas. In the head and neck region, cystadenoma is occasionally seen in the parotid or minor salivary glands^{25,31)}, but is extremely uncommon, accounting for less than 1% of all salivary gland tumors^{13,21)}.

We report the case of a patient with cystadenoma of the upper lip.

Case Report

Patient: A 37-year-old woman.

Principal complaint: Swelling on the upper lip.

Previous medical history: Nothing of note.

Family history: Nothing of note.

History of current condition: The patient had noticed swelling on the upper lip approximately 4 years earlier, and had been examined at a local dental clinic. As the mass was painless and no other symptoms were present, she was kept under observation without any particular tests or treatment. The lesion was subsequently left untreated, but as the swelling started to gradually increase in size after 3 years, further evaluation was recommended and the patient was referred to our department.

General physical examination: Nothing of note.

Facial examination: Bilaterally symmetrical.

Oral examination: No tooth was identified as potentially causing the swelling on oral tests or panoramic X-rays. Examination with two fingers at right angles to each other revealed a palpable, *adzuki*-bean-sized, mobile, elastic, and hard mass somewhat to the left of the midline of the upper lip. The color of the labial mucosa was normal (Fig. 1). Neither spontaneous nor induced pain was apparent. No sensory or motor nerve abnormalities were identified.

Blood tests: Nothing of note.

Magnetic resonance imaging (MRI): A clearly defined mass lesion 7×5 mm in size with regular margins was evident on the left side of the upper lip. The lesion appeared hypointense on T1-weighted imaging (Figs. 2a, b) and hyperintense on fat-suppressed T2-weighted imaging (Figs. 2c, d). No findings in the surrounding tissue were suggestive of inflammatory changes.

Clinical diagnosis: Benign tumor of the left upper lip.

Treatment and course: Based on the above diagnosis, total resection with an adequate safety margin was performed under local anesthesia at the outpatient clinic of the Department of Oral Surgery. As the lesion was comparatively small, superficial, and localized, a spindle-shaped incision was made along the line of the upper lip. The lesion was encapsulated, and was excised *en bloc* together with the labial glands and soft tissue around

Fig. 1 Mass occurred on left side upper lip
Size: 7×5 mm; hard elasticity; painless growth; Uneven and irregular in sharp; mucosa showed healthy coloring.

the capsule. The mass showed no adhesion to surrounding tissue, and was easily removed. After submucosal undermining, the wound was sutured closed. The excised lesion was elastic, hard, and solid, and contained no obvious accumulation of salivary components. No signs of recurrence have been seen to date, as of 24 months postoperatively, and the postoperative course has been uneventful.

Histopathology: The mass consisted of tumor tissue enclosed in a fibrous capsule. The tumor was clearly defined, with some degree of cyst formation. The epithelium covering the cyst comprised two layers of round or cubic cells that included a few atypical cells, with scattered mucin-producing cells (Figs. 3a–c). Mucin was present inside the cyst. Scattered areas of proliferation were also evident, extending into the cyst lumen in papillary form. No germinal centers were present. The mucin within the cyst lumen and the surfaces of the mucin-producing cells tested positive on mucicarmine staining (Fig. 3d).

Histopathological diagnosis: Cystadenoma.

Discussion

Cystadenoma is a type of benign tumor

Fig. 2 MRI findings revealed clearly defined mass, producing low signal on T1-weighted and high signal on T2-weighted images

a: Coronal section (T1-weighted image), b: Horizontal section (T1-weighted image), c: Coronal section (T2-weighted image), d: Horizontal section (T2-weighted image).

derived from glandular tissue²¹⁾. This pathology occurs more frequently in women, most often in those aged in their 50s^{2,13)}, and is often found in the ovaries^{11,14,24,29)}. In the head and neck region, it tends to occur in the parotid glands¹²⁾, and is an extremely rare salivary gland tumor, accounting for less than 1% of all such tumors^{13,21)}. It also accounts for only 7% of benign minor salivary gland tumors²⁾. According to a World Health Organization (WHO) report, 30% of cystadenomas of the

minor salivary glands occur in the lips, 23% in the buccal mucosa, 20% in the palate, and 26% elsewhere²⁾.

According to the 1972 WHO classification³²⁾, papillary cystadenoma is included in the "Other adenoma" category of monomorphic adenomas. In the field of oral surgery, it was first recognized as a salivary gland tumor in the 1991 WHO classification²⁶⁾, and categorized into subtypes of papillary cystadenoma and mucinous cystadenoma according to its

Fig. 3 Histopathological findings of cystadenoma

The tumor consisted of a fibrous capsule with multiple cystic cavities of various sizes.

a: Hematoxylin-eosin staining (original magnification $\times 40$), b: Hematoxylin-eosin staining (original magnification $\times 200$), c: Hematoxylin-eosin staining (original magnification $\times 400$), d: Mucicarmine staining (original magnification $\times 40$).

Table 1 Previous case reports of cystadenoma (published since 2005)

Authors	Year	Age	Sex	Location	Histopathological Diagnosis
Toida <i>et al.</i> ³³⁾	2005	66	Female	Lip	Papillary cystadenoma
Tange <i>et al.</i> ³¹⁾	2006	65	Female	Palate	Mucinous cystadenoma
Gallego <i>et al.</i> ⁶⁾	2008	74	Male	Lip	Papillary cystadenoma
Kusafuka <i>et al.</i> ¹⁵⁾	2008	51	Male	Palate	Cystadenoma
Lim <i>et al.</i> ¹⁶⁾	2008	91	Male	Palate	Papillary cystadenoma
Takahashi <i>et al.</i> ³⁰⁾	2008	43	Male	Gingiva	Cystadenoma
Halbritter <i>et al.</i> ⁷⁾	2009	46	Male	Lip	Papillary cystadenoma
Iguchi <i>et al.</i> ⁸⁾	2011	73	Female	Gingiva	Mucinous cystadenoma
Nakano <i>et al.</i> ²²⁾	2012	40	Female	Palate	Cystadenoma
Rai <i>et al.</i> ²⁵⁾	2013	60	Female	Palate	Mucinous cystadenoma
Stathopoulos <i>et al.</i> ²⁸⁾	2013	58	Female	Lip	Papillary cystadenoma
Yamada <i>et al.</i> ³⁴⁾	2013	57	Male	Lip	Mucinous cystadenoma
Yamada <i>et al.</i> ³⁴⁾	2013	42	Female	Lip	Mucinous cystadenoma
Present case	2014	37	Female	Lip	Cystadenoma

histopathological characteristics^{26,31}. In the 2005 classification, however, these subtypes were eliminated, and cystadenoma was classified as a form of benign epithelial tumor²⁾. As far as we have been able to establish, only 14 cases of cystadenoma derived from a minor salivary gland have been reported in the world, including the present case, since the 2005 revisions to the classification (Table 1)^{6-8,15,22,23,28,30,31,33,34}.

Cystadenoma is formed by cystic dilation and proliferation of a gland, has a fibrous covering, and frequently consists of numerous cystic alveoli of varying sizes including acidophilic secretions, although it may also form a single cyst; in both cases, the tumor is clearly defined and encapsulated^{4,9,31}.

The differences between a papillary and mucinous cystadenoma mainly concern its histological structure. In papillary cystadenoma, cubic or cylindrical tumor cells form papillary projections into the lumen. The epithelial structure is similar to that of Warthin's tumor, but characterized by the absence of lymphatic tissue. Mucinous cystadenoma forms a cyst-like lumen backed by multiple layers of mucin-producing cells, many of which are morphologically cubic or scyphiform, but squamous areas are also present, and the epithelium does not form papillary protrusions^{8,31}. Those diseases that are difficult to differentiate histopathologically from cystadenoma include Warthin's tumor, cystadenocarcinoma, mucinous adenocarcinoma, and mucous retention cyst^{4,5,16,18-20,27}. In the present case, the tumor tissue was covered by a fibrous capsule, with multiple cysts of various sizes formed within the tumor. An epithelial covering consisting of two layers also projected into the lumen in some areas, all findings not inconsistent with cystadenoma.

This tumor develops slowly^{4,17}, is elastic and painless, and does not normally grow larger than the size of a normal chicken egg¹²⁾. In the case reported here, the patient had noticed the tumor 4 years earlier, when it was still the size of an *adzuki* bean, indicating that development had been slow. The fact that it was elastic on palpation was also similar to

other reported cases.

Salivary gland tumors are categorized into numerous tumor types, and as each type can also exhibit complex histological profiles, diagnosis is frequently difficult²²⁾. Although some cases have been diagnosed preoperatively by biopsy¹⁰⁾, postoperative diagnosis has also been known to change for patients preoperatively diagnosed with monomorphic adenoma³⁰⁾ or poorly differentiated adenocarcinoma¹⁾; and as salivary gland tumors themselves exhibit a diverse range of histological profiles, preoperative diagnosis from biopsy by partial resection may be difficult¹²⁾.

In the present case, preoperative MRI suggested a benign tumor, but identification of a diagnosis of cystadenoma preoperatively would have been difficult. Many other reported cases^{8,15,22,30,31,33)} were also clinically diagnosed as salivary gland tumor or benign tumor.

Resection was performed in all cases, with good prognosis. The recommended treatment for this disease is resection, and recurrence and malignant transformation are regarded as rare³⁾. Nevertheless, as some reports have described malignant transformation with cellular atypism^{26,31)} and others have shown low-grade malignant tumors^{22,25,31)}, the mucosal covering and periosteum should also be resected attached to the tumor, and long-term postoperative monitoring is important. Long-term postoperative monitoring is important. In the present case, we allowed a safety margin when resecting the tumor, and no signs of recurrence have been seen as of 24 months postoperatively.

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Reprint requests to:

Dr. Takeshi Onda
Department of Oral and
Maxillofacial Surgery,
Tokyo Dental College,
1-2-2 Masago, Mihama-ku,
Chiba 261-8502, Japan
E-mail: ondatake@tdc.ac.jp