A Case of Fibrolipoma of the Hard Palate

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Abstract

An extremely rare case of fibrolipoma in the hard palate is presented and discussed with reference to the literature. An 85-year-old woman visited the Tokyo Dental College Chiba hospital in September 2016 with the chief complaint of a mass in the hard palate. The patient had first become aware of this mass several years earlier. An examination at another hospital in June 2009 resulted in a clinical diagnosis of lipoma. Regular examinations followed every 6 months until September 2014, at which time she stopped attending these appointments because there was no change. In August 2016, however, the patient realized that the tumor was increasing in size. Although there was no pain, awareness of a foreign body in the oral cavity when eating or talking was increasing, so she decided to visit our clinic for detailed examination and treatment. At this point, the mass extended from the center to the left side of the hard palate. It measured 15 mm along the major axis, and had a clear border; nearly spherical, its surface was smooth and glossy, and was of a slightly yellowish color. The mass was painless, elastic, and soft. Computed tomography and magnetic resonance imaging revealed a tumorous lesion. Based on a clinical diagnosis of lipoma, it was subsequently excised under general anesthesia in January 2017. The tumor lay under the palatal mucosa, extending from the center to the left side of the hard palate. It was surrounded by a single-layered membranous structure, and had not adhered to the surrounding tissues. Healthy palatal mucosa and periosteum were also removed en bloc with the tumor within a safety margin of approximately 5 mm. No pressure absorption of palatine bone was seen. Histopathologically, proliferation of mature adipose tissue was observed. This was surrounded by a thin, single-layer membrane within the subepithelial connective tissue, which was covered by stratified squamous epithelium. Proliferation of fibrotic connective tissue was seen between the adipocytes. The final diagnosis was fibrolipoma. To date, at 18 months postoperatively, no recurrence has been observed and progress has been satisfactory.

Key words: Lipoma — Fibrolipoma — Palate — Hard palate — Oral tumor

Fig. 1 Intraoral photograph at first examination

Mass extended from center to left side of hard palate; it was nearly spherical, and measured 15 mm along major axis. It had clear border and smooth and glossy surface; it was painless, elastic, soft, and slightly yellowish in color.

Introduction

A lipoma is a benign, non-epithelial tumor composed of adipose tissue that shows localized growth. A fibrolipoma is a form of lipoma in which the tumor is accompanied by growth of fibrous tissue. Lipomas can occur anywhere where there is adipose tissue present, and account for 4–5% of benign tumors arising anywhere in the entire body¹⁹⁾. Clinical statistics show that lipomas have been reported in the craniocervical or oral-maxillofacial regions in Japan, but that there are only ≤ 2 cases per year in any type of facility, on average. This means that the likelihood of one being treated by a dentist is rather low^{16,19,23)}. In the oral region, the frequency of occurrence is reported to correspond to 2–5% of all benign oral tumors^{6,9,13,14–16,18,19,21–25,27)}, and occurrence in the hard palate, in particular, is considered extremely rare^{3,11,17,20,26)}.

A case of fibrolipoma of the hard palate is presented and discussed with reference to the literature.

Case Presentation

Fully informed consent for publication of

clinical information relating to this case was obtained from the patient.

The patient was an 85-year-old woman who first presented at our clinic in September 2016 with the chief complaint of a mass in the hard palate. There was nothing of note in her medical or family histories.

1. History of present illness

The patient had first become aware of a mass in the hard palate in June 2009, at which time she was seen at the dental department of another general hospital. The diagnosis was lipoma based on clinical findings. This was followed by regular examinations every 6 months until September 2014, at which time she stopped attending the hospital of her own accord because there was no change.

In August 2016, however, the patient realized that the tumor was increasing in size. Although there was no pain, awareness of the presence of a foreign body in the oral cavity when eating or talking was increasing at this point, so she visited our clinic for detailed examination and treatment.

2. Manifestations

Oral findings (Fig. 1): a mass was observed extending from the center to the left of the hard palate; it measured 15 mm along the major axis, and had a clear border; nearly spherical, it had a smooth and glossy surface and was of a slightly yellowish color. The mass was painless, elastic, and soft.

The patient had been using a removable partial denture for teeth #3, 4, and 5. The denture in use was not in contact with the tumor.

The patient's height was 143 cm and weight 41 kg. The results of blood and urine tests revealed no abnormalities.

3. Imaging findings

Computed tomography (CT) images (Fig. 2): a lesion was observed extending from the center to left of the hard palate; it measured approximately 16 mm $\times$ 14 mm $\times$ 9 mm; it had a clear border, a regular margin, and lower density than muscle tissue. No absorp-

Fig. 2 Plain CT images

a: Frontal section

b: Horizontal section

Lesion extended from center to left side of hard palate; it measured approximately 16 mm×9 mm×14 mm; it had clear border, regular margin, and lower density than muscle tissue. No absorption of palatine bone or elevation of base of nasal cavity was observed.

tion of palatine bone was noted, and no elevation of the base of the nasal cavity.

Magnetic resonance images (MRI) (Fig. 3): a lesion was observed extending from the center to the left of the hard palate; it measured approximately 16 mm×16 mm×10 mm; it had a clear border, a somewhat heterogeneous interior, a regular margin, high signal intensity on T1W1, and low signal intensity on T2W1. The membranous structure surrounding the lesion showed low signal intensity on T1W1 and high signal intensity on T2W1, with no continuity with the palatine bone. No inflammatory changes were observed in the surrounding area.

The clinical diagnosis was lipoma.

4. Clinical procedures and outcomes

The tumor was excised under general anesthesia in January 2017. It was situated under the palatal mucosa and extended from the center to the left side of the hard palate. It was surrounded by a single-layered membranous structure, and it had not adhered to the surrounding tissues. In order to ensure that no tumor cells remained, a safety margin of approximately 5 mm was set around the tumor and healthy palatal mucosa and periosteum removed together with the tumor en bloc. The tumor had a membrane, and was nearly spherical, yellow, and solid (Fig. 4). No

pressure absorption of palatine bone was seen.

After confirmation that bleeding from the surface of the wound had stopped, the wound was covered with a dressing (Terudermis®, Olympus Terumo Biomaterials Corp., Tokyo, Japan) which was slightly larger than the wound itself. A protector was put in place to complete the treatment (Fig. 5).

To date, at 18 months postoperatively, no recurrence has been observed, and progress has been satisfactory (Fig. 6).

5. Histopathological findings (Fig. 7)

The tumor was situated under normal stratified squamous epithelium. It comprised mature adipose tissue, and was surrounded by a membranous layer. Growth of fibrotic connective tissue that separated the adipocytes into nodules was observed between the mature adipocytes. There was little atypicality of adipocytes. The pathological diagnosis was fibrolipoma.

Discussion

A lipoma is a non-epithelial benign tumor of adipose tissue that is regarded as a localized mass of adipocytes. It is frequently solitary, and often found within subcutaneous tissue

Fig. 3 Plain MR images

- a: T1W1 frontal section
- b: T1W1 horizontal section
- c: T2W1 frontal section
- d: T2W1 horizontal section

Lesion extended from center to left side of hard palate; it measured approximately 16 mm × 16 mm × 10 mm; it had clear border, somewhat heterogeneous interior, regular margin, high signal intensity on T1W1, and low signal intensity on T2W1. Membranous structure surrounding lesion had low signal intensity on T1W1 and high signal intensity on T2W1, and no continuity with palatine bone. No inflammatory changes were found in surrounding area.

Fig. 4 Resected material

- a: Periosteal surface
- b: Surface of the left side

Tumor had membrane and was nearly spherical, yellow, and solid.

Fig. 5 Intraoperative photographs

a: After resection

b: After protector fitted

Tumor was resected en bloc together with surrounding lining mucosa and periosteum, which were healthy tissues. No pressure absorption of palatine bone was found. Wound was dressed with Terudermis® (Olympus Terumo Biomaterials Corp., Tokyo Japan), after which protector was put in place. Protector was made from 2-mm hard EVA Sheet® (Erkodent Erich Kopp, GmbH, Pfalzgrafenweile, Germany) and fixed to #2, 6, 12, and 14 by ligation with 0.4-mm-diameter metal wire.

Fig. 6 Intraoral photograph at 1 year postoperatively
At 1 year postoperatively, no recurrence was found, surface of wound had epithelialized by transformation to surrounding lining mucosa, and there was no formation of scar tissue.

in the back, neck, chest, face, and thighs. Lipomas account for 4–5% of all benign tumors arising throughout the entire body, while those occurring in the oral region account for 0.7–2.2% of all lipomas¹⁹⁾. Of all the benign tumors that occur in the oral region, 2–5% are lipomas^{6,9,13,14,18,19,21–27)}. Histopathologically, they are classified as simple lipoma, fibrolipoma, spindle-cell lipoma, angiolipoma, intramuscular lipoma, myxolipoma, ossifying lipoma, or pleomorphic

lipoma. In histological reports of occurrence in the oral region, the most common type is simple lipoma (46–91%), followed by fibrolipoma (8–38%), with these two tissue types, therefore, accounting for most cases of lipoma. The other types each account for $\leq 7\%$ ^{5,7,10,12,14,16,23,24)}. While classification of tissue type is difficult by clinical observation alone, it has been reported that fibrolipomas generally tend to feel harder than simple lipomas on palpation^{16,18,25)}.

There are reports that lipomas are more common among men^{16,23,24)}, that they are more common among women^{4,14)}, and that there are no sex-based differences¹²⁾. Thus, no definite trend has been identified.

There are many reports that the most susceptible age group for lipomas is people in their 60s^{7,16,23)}, and in Japan, patients aged between their 50s and 80s account for 61–91% of all cases^{14,16,23,24)}. With regard to age of onset, the lowest age is a report of congenital lipoma found at birth¹⁴⁾, and onset in infants is not rare; therefore, onset at any age appears possible. The development of lipomas is generally extremely slow, and since the condition is painless and does not tend to cause dysfunction, the patient is often not examined at a medical institution for a relatively long time

Fig. 7 Histopathological images

a: Hematoxylin and eosin staining (low power field)

b: Hematoxylin and eosin staining (high power field)

Proliferation of mature adipose tissue surrounded by thin, single-layer membrane was found within subepithelial connective tissue, which was covered by stratified squamous epithelium. Proliferation of fibrotic connective tissue was seen between adipocytes. There was little atypicality of adipocytes. Mucous gland that was probably palatal gland was found surrounding tumor, and no part of tumor had penetrated gland tissue.

after becoming aware of symptoms²⁴). In the oral region, patients tend to be afflicted by the disease for an extended period before seeking a medical examination, only doing so on becoming aware of problems with articulation or mastication, or on having some esthetic concern. It is not uncommon for a patient to be affected by the disease for ≥ 10 years before seeking consultation, and there are cases in which the precise time of onset is unknown^{13,16,18,22,25,27}). In the present case, the patient visited our clinic for medical treatment as she had become intensely aware of a foreign body in the oral cavity when eating and talking. This meant that it was still approximately 7 years after first becoming aware of the tumor on the hard palate, however, that she was surgically treated for it. We believe that this was because the tumor was painless and developed slowly, and therefore had not adversely affected quality of life.

With regard to frequency by site of occurrence, lipomas are most commonly reported as arising under the buccal mucosa; this is followed by under the mucosa of the tongue, gums, and labia and oral vestibule, at roughly the same frequency; the palate, however, shows the lowest frequency^{4,5,7,12,14,16,23,24}). Occurrence in the hard palate is considered to be particularly uncommon^{3,11,17,20,26}). Few reports differentiate strictly between the hard and

soft palate, however, and in studies published to date, the proportion of onset in the hard palate was less than 3%, while that in the soft palate was 3–9%^{4,6,9,22,24,27}). In the hard palate, the amount of adipose tissue under the mucosa is small: the nearer to the central line (palatine raphe), the less adipose tissue there is. Adipose tissue is present only in small quantities in the anterolateral and posterolateral areas of the hard palate, between the periosteum and the lamina propria of the mucosa. In the present case, the lipoma probably arose in the posterolateral area of the hard palate¹⁰).

A number of theories have been proposed regarding the mechanism underlying the onset of lipomas. These include the heterotopia theory, in which lipomas develop as a result of tissue malformation, and the hyperplasia theory, which posits development due to hyperplasia of normal tissue^{18,19}). Physical trauma or weak, chronic irritation has also been suggested to trigger the proliferation of adipose tissue, as has the involvement of genetic factors, endocrine disorders, lipid metabolism disorders, and peripheral neuropathy. Therefore, the details of the mechanism of onset remain unclear^{19,24}). In the present case, onset is believed to have occurred in the posterolateral area of the palate, where adipose tissue is present. This suggests that it arose as a result of hyperplasia of normal tis-

sue. It may be conjectured that long-term external irritation, such as by eating, was involved in the proliferation of adipocytes.

Differentiation of lipoma from other diseases depends greatly on the site of onset. In the case of a superficial site, just under the mucosa, a clinical diagnosis is relatively easy if there is a mass with a clear border and a yellowish color that feels elastic and soft on palpation. Where the site of onset is deeper, however, clinical diagnosis can be more difficult if there are few symptoms and the lesion comprises a painless, diffuse swelling. In cases such as the present one, with a tumor in the palatal region, differential diagnosis may include salivary gland tumor, osteoma, or fibroma. Computed tomography or MRI is extremely useful in the diagnosis of lipoma. With CT, -100 Hounsfield units is specific to adipose tissue. With MRI, adipose tissue has high signal intensity on T1W1 and low signal intensity on T2W1, and a membranous structure with low signal intensity on T1W1 and high signal intensity on T2W1 is found surrounding the tumor^{2,3,24}. Furthermore, there are a number of diseases that may be hard to distinguish from lipoma based on imaging alone. These include lipomatosis, sialolipoma, and lipoadenoma. Histopathological examination may, therefore, be required to differentiate them^{8,25}. A lipoma comprises a proliferation of tumoral adipocytes with a membranous structure, whereas lipomatosis is a proliferation of mature adipocytes with no membranous structure. In sialolipoma, non-neoplastic acinous cells and ducts with a membranous structure are found together with tumorous adipocytes. In lipoadenoma, tumoral adipocytes with a membranous structure are found together with glandular epithelium. In the present case, the diagnosis was fibrolipoma due to proliferation of mature adipocytes with a membranous structure and proliferation of fibrous connective tissue between the adipocytes, with little atypicality of the cells.

Lipoma is generally treated by resection, which is considered to result in an extremely good prognosis, although there are rare

reports of recurrence or malignant transformation of residual tumor^{1,26}. There will be no recurrence, however, if the resection includes the peritumoral membrane. If there is inflammation and the tumor has adhered to the peritumoral tissue, however, or if it is too large to resect en bloc, there is the risk that tumorous tissue may be left behind, necessitating particularly careful follow-up. In the present case, however, it was possible to excise the tumor en bloc together with the surrounding membrane. The outcome has been good, with no findings of recurrence or malignant transformation at 18 months postoperatively.

Conclusion

The frequency of lipoma is low, and is especially rare in the hard palate. A case of fibrolipoma arising in the hard palate in a very elderly patient was reported.

Conflicts of Interest

The authors wish to report no conflict of interest with regard to this paper.

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