Fibrolipoma (FL), a histological subtype of lipoma, is characterized by a fibrous component mixed with adipose tissue lobules. Its consistency depends on the amount and distribution of fibrous tissue and the tumor depth, varying from soft to firm. The etiopathogenesis of lipoma and fibrolipoma remains unknown, but several factors have been implicated: congenital lesion due to a lack of endocrinal balance, degeneration of a fibromatous tumor, or maturation of lipoblastomatosis. Mild trauma can cause adipose tissue proliferation, and fibrolipoma can form beneath a complete denture. MRI may help in diagnosing types of oral cavity lesions arising from adipose tissue, while immunohistochemistry evaluates the expression rate of Ki-67 and proliferating cell nuclear antigen (PCNA) to differentiate fibrolipoma from malignant lesions. Surgical excision remains the gold standard for treatment.
Fibrolipoma can show higher Ki-67 expression than classical lipoma and other variants of lipoma. Surgical excision must be operated to treat fibrolipoma. The prognosis of this type of lesion is generally favorable; if the surgery is performed well, it is not likely for this lesion to return. A follow-up must be considered. It can appear in all ages, although it is mostly diagnosed in 40–60 years old patients. These lesions have a mean diameter of 2 centimeters (cm) in the oral cavity.Among all benign oral lesions, oral lipoma has a prevalence rate of approximately 0.0002%. The review of English literature demonstrated a variable distribution of oral lipomas; however, about 50% of them were on the buccal mucosa. Other 50% of the oral lipomas were diagnosed in the tongue, floor of the mouth, lips, palate, and gingiva. FL is a highly uncommon variation of lipoma and contains about 1.6% of all facial lipomas. FL of the oral cavity has been infrequently reported. To the best of our knowledge, the review of the literature revealed a total of 43 cases of intraoral FL till now. Several reported cases of this condition are shown in Figure 1.

As this lesion does not have any pain and grows slowly in the oral cavity, it is hard to clinically evaluate its true incidence rate. Patients report the lesion to the dentist only when it turns asymptomatic, for esthetics, or oral function. Different studies were explaining their cases due to their rarity: Pereira reported a rare histologic variant of FL on the lingual marginal gingiva of the mandibular left third molar of a 35-year-old female patient in 2014 in India. Iaconetta also reported a rare FL of the tongue on the ventral surface of the tongue of a 71-year-old female patient in 2015 in Italy. Furthermore, Castellani reported a rare case of intraosseous fibrolipoma of the mandible in a 25-year-old female patient in 2015 in Italy. All these three cases were important to be reported because of the rarity of FL in the oral cavity and the site of FL in each of these presented cases.

As mentioned above, FL in the oral cavity is a rare case. In this paper, a case of gingival FL will be analyzed and its clinic and pathological features along with the patient management and follow-up will be discussed.

## 2 | CASE DESCRIPTION AND RESULTS

A 26-year-old woman, without any history of drug usage, was referred to Shiraz Oral and Maxillofacial Medicine department from the Periodontal department with a chief complaint of left lower attached gingiva swelling. Written informed consent was obtained from the patient to publish this report in accordance with the journal’s patient consent policy. The swelling had first been noticed two years earlier and had subsequently exhibited gradual, continuous enlargement. There was no pain or bleeding. The exophytic lesion was a dome-shaped base, smooth surface, non-homogenous color (pale pink-red and somewhere yellow), homogenous texture, soft in palpation but not fluctuant or mobile on the left lower gingiva next to the first and second mandibular molars (Figure 2). Its total measuring was $1.5 \times 1 \times 0.7$ cm. She had no medical problems and no familial history due to similar lesions. We asked our patient several clinical questions about the lesion’s pattern of growth, general pain, bleeding, time of lesion existence, trauma, and fever; as already mentioned, it appeared two years ago and had a gradual enlargement, there was no evidence of pain, bleeding, trauma, or fever. We operated some clinical and paraclinical examinations such as palpation, examination of other parts of her mouth, lymphadenopathy, aspiration, vitality test, probing, and periapical radiography. There was no other lesion in her mouth similar to our studied lesion, the aspiration was negative, teeth adjacent to the lesion were vital and did not have any periodontal problems. Regarding the differential diagnosis, the exophytic lesion could be reactive or tumoral; a reactive lesion was ruled out as there was no trauma or stimulating factor based on the patient’s history; also, teeth adjacent to the lesion were vital. Therefore, the

### Table

| Author       | Age /Sex* | Site               | Duration | No. of Cases | Recurrence   |
|--------------|-----------|--------------------|----------|--------------|--------------|
| Saitoh et al 1995 12 | 3/F       | Parotid           | NA       | 1            | NED 3 years  |
| Dattilo et al 1996 14 | 45/M      | Tongue            | 10 years | 1            | NA           |
| Epivatianos et al 2000 13 | NA        | Tongue            | NA       | 2            | NA           |
| Fregiani et al 2003 1   | NA        | Buccal Mucosa     | NA       | 18           | NED 26,5 months |
| Furlong MA et al 2004 7 | NA        | Parotid Buccal mucosa | NA   | 2            | NA           |
| Bandeira MC 2007 23     | 42/M      | Lower lip         | NA       | 1            | NED 60 months |
| Copodifero et al 2008 18 | 43/M      | Labial mucosa     | 8 months | 1            | NED 10 months |
| Freitas et al 2009 7    | 56/F      | Buccal mucosa     | NA       | 7            | NA           |

*Age—#in years, M—Male, F—Female, NED—no evidence of disease, NA—not available

![Figure 1](Summary of pervious reported cases of oral fibrolipoma (6))
The lesion could be tumoral: due to its continuous enlargement and lack of any stimulating factor. As its growth progress was slow, the tumoral lesion could be benign and as its consistency was soft, it could be a lipoma, neurofibroma, or pyoderma gangrenosum. For patient management, after signing the written consent form, we did an excisional biopsy and considered a follow-up. The tumor was excised under local anesthesia (by long buccal anesthesia or anesthetizing all around the lesion, the lesion was removed from its base with a blade); then, the specimen was placed in a formalin solution, and it was sent for a histopathological examination to the Pathology department. In the microscopic examination, sections showed a piece of oral mucosa covered by parakeratotic stratified squamous epithelium. The underlying connective tissue demonstrated abundant collagen fibers intermixed with lobules of fat cells (Figure 3). Therefore, a fibrolipoma was finally diagnosed. Patient was followed up to 3 months after excision, and no recurrence was reported.

3 | DISCUSSION

FL, an uncommon variant of lipoma, is particularly rare in the oral cavity (a prevalence rate of only 1/5000 adults in the oral and oropharyngeal region).

As an example, FL’s difference from conventional lipoma is in the way that the mature adipose tissue is interspersed by connective tissue bands. FL has been reported to occur in the buccal mucosa, buccal vestibule, and tongue more frequently. The reason for reporting our case is the rareness of the fibrolipoma in the mouth, especially in the gingival part of the oral cavity, and the importance of its differential diagnosis. The lesion of our patient is located in the gingiva and is in differential diagnosis with reactive lesions; therefore, its clinical diagnosis is more difficult. Moreover, its treatment (surgical procedure) can cause a gingival recession and esthetic problems in the gingiva for the patient; thus, the surgical procedure is challenging and must be done with extreme attention. The lesion of our patient was excised, and the patient was followed; no periodontal or esthetical issue was observed.

Lipomas and FL are painless and freely mobile. Because of their thin overlying epithelium, they usually grow at a
low rate and can be clinically seen in a semi-lucent yellow color; the presence and degree of the yellow hue depend on the degree and depth of fibrosis. Its consistency varies from soft to firm. This varies because of the depth of the tumor and the distribution and amount of fibrous tissue. Several cases have shown some grades of fluctuation as well. Lipoma and FL both usually have a thin capsule.9

Regarding histology, FL consists of mature fat cells, which are divided into lobules by fibrous shoots. This lesion is generally oval-shaped.8

Several cases of FL have been reported until this day. We reviewed 6 cases as described in Table 1. They aged from 25 to 75 years, and 50% of them, similar to our case, were females.

In common with Iaconetta, Kiehl, and Manjuantha, the lesion of our patient was yellow, capsulated, and movable. Its consistency, other than one case of Manjuantha, which was firm, was similar to our reviewed cases: soft.

In contrast to the other cases present in the literature described by Iaconetta, Kiehl, and Manjuantha, the FL of our patient did not show any mobility. Unlike our case, which was colored pink-red, the lesions described by Iaconetta and Kiehl were yellow.

The size of the lesions of the cases we reviewed was from 1 to 4 cm; similarly, the lesion of our patient measured 1.5 cm. Like Kiehl and Iaconettas, our case did not show any pain.

For the management of our patient and all cases we reviewed (Castellani, Iaconetta, Kiehl, Manjuantha), the lesions were removed under local anesthesia and sent to the Pathology department for further study about their microscopic characteristics.4,8,10,11

To diagnose accurately, clinical features and microscopic (histological) findings must be considered. FL is a rare benign tumor in the oral cavity with an increased growth potential compared to classical lipoma. It has a low chance of recurrence. This exophytic lesion can also be mistaken with reactive or other tumoral lesions: Due to its adhesion to the surrounding tissues and pseudo-infiltrating characteristics of this lesion because of the abundance of collagen and connective tissue, it can cause doubts of differential diagnosis with malignant infiltrating lesions.11,12 As a result of the lesion’s adherence to the structures that surround it and its pseudo-infiltrating characteristics, a histological examination is necessary to clarify the nature of the neoformation and to resolve any doubt.8 Therefore, it is mandatory to perform a biopsy and differential diagnosis and eventually diagnose FL carefully. Another importance of diagnosing FL is that this lesion is one kind of tumor; as a result, it has an increased growth potential. FL almost always grows slowly, but diagnosing it soon and performing the necessary management is essential for a better prognosis and patient’s comfort.

| Author | Age/Sex | Site of the lesion | Characteristics | Symptoms | Consistency |
|--------|---------|--------------------|----------------|----------|-------------|
| Castellani et al. 201514 | 25/F | Intraosseous of right mandibular ramus | Radiolucency in the right mandibular ramus in OPG radiograph | None | Soft |
| Iaconetta et al. 201513 | 71/F | Ventral surface of the tongue | Curvy shaped movable covered by mucosa | Dysfunction of phonation and swallowing, and a sensation of ‘obstruction’ of the oropharynx | Soft |
| Manjuantha et al. 20106 | 75/M | Right buccal mucosa | Pedunculated | None | Soft |
| Manjuantha et al. 20106 | 55/M | Right buccal mucosa | Sessile | None | Soft |
| Manjuantha et al. 20106 | 70/M | Soft palate | Sessile | None | Soft |
| Kiehl 198015 | 65/F | Beneath a mandibular complete denture | Freely movable yellow encapsulated covered by thin epithelium | None | Soft |

Abbreviations: F, female; M, male; OPG, Orthopantomography.
The treatment for this kind of lipoma in the oral cavity is a surgical incision under local anesthesia. Although commonly a good result can be observed after surgery, follow-up must be performed once in several months (depending on the lesion and patient’s condition) due to its low recurrence rate.

Lesions that look clinically similar to each other may demonstrate different and similar histopathological characteristics; they, therefore, can raise a diagnostic dilemma for a general dentist. Surgical excision may be an elective treatment for FL, but the examination of excised tissue along with consultation with an oral pathologist for an accurate diagnosis and careful follow-up is mandatory to provide a successful treatment and prevent any malignant transformation.

Our case adds to the few cases of gingival FL which have been reported in the English literature which are presented in Figure 1 and Table 1.

Our study limitations included lack of genetic evaluation and short follow-up duration.

It is essential to document new cases of FL in the English literature so that better and more accurate treatments can be introduced to prevent any malignancy and further damage they may cause.

AUTHOR CONTRIBUTIONS
Not applicable.

ACKNOWLEDGMENTS
The authors thank the Vice-Chancellor of Shiraz University of Medical Science for supporting this research. All authors contributed to the study conception and design. Material preparation, data collection, and analysis were performed by Dr. Fahimeh Rezazadeh, Dr. Zohreh Jaafari, Aylar Afshari, and Dr. Armaghan Tarjan. The first draft of the manuscript was written by Aylar Afshari, and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

CONFLICT OF INTEREST
The authors have no conflicts of interest to declare that are relevant to the content of this article.

DATA AVAILABILITY STATEMENT
Not applicable.

CONSENT
Written informed consent was obtained from the patient to publish this report in accordance with the journal’s patient consent policy.

REFERENCES
1. Girish KL, Joseph TI, Sathyan P, Akhil S. Oral fibrolipoma: a rare histological variant. *Oral Maxillofac Pathol J*. 2017;8(1):56-59.
2. de Visscher JGAM. Lipomas and fibrolipomas of the oral cavity. *J Maxillofac Surg*. 1982;10(C):177-181.
3. Khubchandani M, Thosar NR, Bahadure RN, Baliga MS, Gaikwad RN. Fibrolipoma of buccal mucosa. *Contemp Clin Dent*. 2012;3(suppl 1):S112.
4. Iwase M, Saida N, Tanaka Y. Fibrolipoma of the buccal mucosa: a case report and review of the literature. *Case Rep Pathol*. 2016;2016:5060964.
5. Wu Y-H, Kuo Y-S, Lin P-Y, Chiang C-P. Oral fibrolipoma--Case report. *J Dent Sci*. 2020;15(2):227-229.
6. Manjunatha B, Pateel G. Oral fibrolipoma-a rare histological entity: report of 3 cases and review of literature. *J Dent (Tehran)*. 2010;7(4):226-231.
7. Rajeev R, Beena VT, Indu G, Choudhary K, Devu A. Fibrolipoma of floor of the mouth of 20 years of duration. *Clin Cancer Investig J*. 2014;3(5):394.
8. Pereira SS, Sapdhare S, Tamgadge A. Oral fibrolipoma: A rare histological variant. *Indian J Dent Res*. 2014;25(5):672.
9. Phulari R, Soni V, Talegaon T, Bakutra G. Oral fibrolipoma: a report of two cases and review of literature. *Indian J Dent Res*. 2018;29:513-516.
10. Greer R, Surgery JR-O, Medicine O, Pathology O. The nature of lipomas and their significance in the oral cavity: a review and report of cases. *Oral Surg Oral Med Oral Pathol*. 1973;36(4):551-557.
11. Devi A, Sowbhagya M, Balaji P. An uncommon case of fibrolipoma. *Indian J Dent Res*. 2017;28(6):699-701.
12. Fregnani ER, Pires FR, Falzoni R, Lopes MA, Vargas PA. Lipomas of the oral cavity: clinical findings, histological classification and proliferative activity of 46 cases. *Int J Oral Maxillofac Surg*. 2003;32:49-53.
13. Iaconetta G, Friscia M, Cecere A, Romano A, Orabona GDA, Califano L. Rare fibrolipoma of the tongue: a case report. *J Med Case Reports*. 2015;9(1):177.
14. Castellani A, Bocchialini G, Ferrari L. A rare case of intraosseous fibrolipoma of the mandible: diagnosis and treatment. *Case Rep Dent*. 2015;2015:1-4.
15. Kiehl RL. Oral fibrolipoma beneath complete mandibular denture. *J Am Dent Assoc [Internet]*. 1980;100(4):561-562.

How to cite this article: Rezazadeh F, Jaafar-Ashkavandi Z, Afshari A, Tarjan A. Rare fibrolipoma of attached gingiva: A case report and review of the literature. *Clin Case Rep*. 2022;10:e06643. doi:10.1002/ccr3.6643

**ORCID**
Fahimeh Rezazadeh 🐒 https://orcid.org/0000-0002-9466-8321
Aylar Afshari 🐒 https://orcid.org/0000-0002-2079-4317