Case Report

DOI: 10.7860/JCDR/2026/87299.23269

Triple Maxillary Labial Frenal Attachment: A Rare Case Report

Dentistry Section

PRIYADARSHINI SUBRAMANIAM KEDARNATH[1], S JEELANI[2], P ARULRAJ[3], M SENTHIL KUMARAN[4], M SIVAGAMI[5]

ABSTRACT

Labial frenum is a dynamic, often variable structure which is subject to variation in shape, size and position during the stages of growth and development. The maxillary labial frenum gives support to the upper lip and any discrepancy can lead to various consequences such as diastema, improper position of the maxillary central incisors, orthodontic treatment relapse and periodontal problems including gingival recession, bone loss caused by the muscle pull, food impaction, dental caries, aesthetic problems and restriction in lip mobility during speech and smile. Early identification and understanding of morphologic variations in the maxillary labial frenum, as well as distinguishing them from pathology, are essential for effective treatment and prevention of dental complications. The present case report describes a rare case involving a 26-year-old male who presented with deposits on both upper and lower teeth and was found to have three maxillary labial frenal attachments, which were attached to the gingiva at different levels, respectively. The case highlights the unique and uncommon presentation of labial frenal attachment. The triple labial frenum attachment did not affect the patient's daily activities; therefore, the patient declined treatment. In the advanced digital era of dentistry, there is a great scope of overwhelming outcomes, including the field of periodontal surgery. Treatment options depend on the severity and type of the abnormality, like classical frenectomy, Miller's technique, Z-plasty, V-Y plasty, electrosurgery and laser surgery. Oral health education is important for raising awareness of these variations, which may be asymptomatic but can have long-term negative effects.

Keywords: Abnormal labial frenum, Labial frenum variation, Maxillary labial frenum, Orthodontic treatment

CASE REPORT

A 26-year-old male patient reported to the Department of Oral Medicine and Radiology with a chief complaint of noticing deposits in upper and lower teeth for the past one year. His medical history and general examination were non-contributory.

On intraoral examination three separate maxillary labial frenal attachment was noted [Table/Fig-1a]. On inquiring into the past history of noticing the unusual frenal attachments, it was found that the patient had noticed it the same way since his childhood and did not have any speech difficulties or discomfort. The three labial frenal attachments were distinct from each other and placed around 0.5 cm to 1 cm away from the other. Apart from the frenal attachment in the midline the other two were noted in relation to the labial aspect of 11 and 22, respectively. The labial frenum, including the one in the midline, was attached to the gingiva at different levels. The labial frenum in relation to 11 was thick and fibrous and attached close to the marginal gingiva of 11 [Table/Fig-1b]. Gingival recession with supragingival calculus formation was noted in 11. However, there was no mobility or periodontal pocket formation in 11. The labial frenum in relation to 22 showed gingival attachment at the mid-level. An intra-oral periapical radiograph revealed calculus deposits in the interproximal surfaces of 11, 12 and 21 without significant alveolar bone loss [Table/Fig-2]. Patient denied a similar type of frenal attachment in family members.

The patient was informed of the morphological variation of the frenal attachment and the consequences, such as worsening of the loss of attachment leading to mobility of the anterior tooth. The patient was not willing for a frenectomy procedure since it was not affecting his daily activities, and underwent oral prophylaxis. The importance of proper brushing techniques and regular follow-up every three months to check for worsening of the gingival recession was explained to the patient.

[Table/Fig-1]: Shows trifid frenal attachment in the maxillary anterior region in relation to 11, 21, and 22.

[Table/Fig-2]: Angular radiopaque calculus deposits are seen between the interproximal surfaces of 11, 12 and 11, 21.

DISCUSSION

The maxillary labial frenum typically in the midline is also referred to as the median maxillary labial frenum or frenulum labii superioris and attaches the upper lip to the attached gingiva thereby giving support to the upper lip [1]. The labial frenum is subject to variation in shape, size and position during the stage of growth and development [2]. The upper labial frenum is said to arise from the vestibular lamina and also considered to be a post-eruptive remnant of the tectolabial band which is an embryonic structure connecting the upper lip tubercle to the palatine papilla in a developing foetus [3,4].

Existing classification categorises the labial frenum based on the site of attachment. According to Mirko P et al., labial frenum can be classified into mucosal attachment when the frenum is attached to mucogingival junction, gingival attachment when the frenum is inserted into the attached gingiva, papillary attachment when the frenal fibres extend into the interdental papilla and papillary penetrating attachment when the frenal fibres cross the alveolar process and extend up to the palatine papilla [5]. Labial frenum is also classified based on the morphology according to Sewerin I classification, namely, persistent tectolabial, simple frenum with appendix, simple frenum with nodule, simple frenum with nichum, bifid frenum, double frenum and wider frenum [6]. At present, there is no universally accepted classification that specifically addresses triple labial frenal attachments; however, variations in maxillary labial frenum have been addressed in a proposed classification by Mohan R et al., [1].

Abnormal frenal attachment is noted in a few syndromes such as Ehlers-Danlos syndrome, infantile hypertrophic pyloric stenosis, Holoprosencephaly, Ellis-van Creveld syndrome, and Oro-facial-digital syndrome in which frenal abnormalities vary from multiple, hyperplastic, hypoplastic and absence of frenum [7]. Multiple labial frenula with abnormal attachment is associated with Ellis-van Creveld syndrome [8,9]. Disruption in the development of the vestibular lamina which forms the space between the lips or the cheeks and the teeth is considered the reason behind multiple labial frenal attachments. Incomplete or aberrant separation can result in persistent fibromuscular bands [10].

In the present case, the multiple labial frenal attachments were classified individually according to the Placek classification. In this case, the patient's extraoral examination was non-contributory ruling out the possibility of syndromes. On intraoral examination, a triple labial frenal attachment was noted with unusual appearance. All the three maxillary labial frenum showed gingival type of attachment and the frenum in relation to 11 region was thick, attaching close to the marginal gingiva of 11. Frenal attachments encroaching the marginal gingiva tend to distend the gingival sulcus [5], leading to the accumulation of plaque and calculus, eventually leading to the progression of gingival recession and periodontitis. Other consequences of abnormal frenal attachment include diastema, improper position of the maxillary central incisors, orthodontic treatment relapse, periodontal problems such as gingival recession and bone loss caused by muscle pull, food impaction, dental caries, aesthetic problems, and restriction in lip mobility during speech and smiling [11-13]. In the current case, the patient had gingival recession in relation to 11 and was unaware of it, and did not have any other discomfort.

A recent study by Alfakih A et al., concluded that the gingival attachment was the most common, followed by the mucosal type. The papillary penetrating type and the papillary type were the least prevalent. A new variant of triple simple frenum was observed in this study [14]. A previous case report by Gupta M et al., has documented a triple maxillary labial frenum in association with a double upper lip [15]. Triple maxillary labial frenum is an extremely rare developmental anomaly, and its prevalence in the general population has not been established.

CONCLUSION(S)

A frenum is a normal anatomical structure present in the oral cavity connecting lips, tongue or cheeks to the gingiva, alveolar mucosa and underlying periosteum. Abnormal frenum attachment can injure the teeth and the periodontium. Several treatment options are available depending on the severity and type of the abnormality. Awareness of such problems is still lagging in rural and emerging urban populations with a lower socioeconomic background, because of which patient denies treatment. Identification of frenal abnormalities and education of patients and their families at an early age can alter the mindset of this population toward dental treatment and help them recognise the importance of oral health.

REFERENCES

[1] Mohan R, Soni PK, Krishna MK, Gundappa M. Proposed classification of medial maxillary labial frenum based on morphology. Dent Hypotheses. 2014;5(1):16-20.
[2] Ceremello PJ. The superior labial frenum and the midline diastema and their relation to growth and development of the oral structures. Am J Orthod. 1953;39(2):120-39.
[3] Dewel BF. The normal and the abnormal labial frenum: Clinical differentiation. J Am Dent Assoc. 1946;33:318-29.
[4] Priyanka M, Sruthi R, Ramakrishnan T, Emmadi P, Ambalavanan N. An overview of frenal attachments. J Indian Soc Periodontol. 2013;17(1):12-15.
[5] Mirko P, Miroslav S, Lubor M. Significance of the labial frenum attachment in periodontal disease in man. Part I. Classification and epidemiology of the labial frenum attachment. J Periodontol. 1974;45(12):891-94. Doi: 10.1902/jop.1974.45.12.891.
[6] Sewerin I. Prevalence of variations and anomalies of the upper labial frenum. Acta Odontol Scand. 1971;29(4):487-96.
[7] Biradar SM, Patil AY, Kotnoor SS, Bacha S, Bijjaragi SC, Kattimani PT. Assessment of diverse frenal morphology in primary, mixed, and permanent dentition: A prevalence study. J Contemp Dent Pract. 2020;21(5):562-67.
[8] Hanemann JA, de Carvalho BC, Franco EC. Oral manifestations in Ellis-van Creveld syndrome: Report of a case and review of the literature. J Oral Maxillofac Surg. 2010;68(2):456-60.
[9] Hattab FN, Yassin OM, Sasa IS. Oral manifestations of Ellis-van Creveld syndrome: Report of two siblings with unusual dental anomalies. J Clin Pediatr Dent. 1998;22(2):159-65.
[10] Qiu T, Teshima THN, Hovorakova M, Tucker AS. Development of the vestibular lamina in human embryos: Morphogenesis and vestibule formation. Front Physiol. 2020;11:753.
[11] Seraj B, Shahrabi M, Masoumi S, Jabbarian R, Manesh AA, Fini MB. Studying maxillary labial frenulum types and their effect on median diastema in 3-6-year-old children in Tehran kindergartens. World J Dent. 2019;10(2):93-97.
[12] Madi M, Alamri A, Aleisa D, Almusallam MO, AlQahtani SS, Al-Aql ZS, et al. Associations between maxillary labial frenum morphology, attachment, and patient-related clinical factors in Saudi Arabian adults: Cross-sectional study. Saudi Dent J. 2024;36(4):615-20.
[13] Rajani ER, Biswas PP, Emmatty R. Prevalence of variations in morphology and attachment of maxillary labial frenum in various skeletal patterns: A cross-sectional study. J Indian Soc Periodontol. 2018;22(3):257-62.
[14] Alfakih A, Elbattawy W, Shemais N. The prevalence of variations in attachment and morphology of maxillary labial frenum on a sample of adult Egyptian population: A cross-sectional study. Egypt Dent J. 2025;71(2):1417-31. Doi: 10.21608/edj.2025.364982.3408.
[15] Gupta M, Vig H, Kumar Y, Rizvi A. Non-syndromic double upper lip with triple frena: Cosmetic cheiloplasty. BMJ Case Rep. 2021;14(9):e243156. Doi: 10.1136/bcr-2021-243156.

PARTICULARS OF CONTRIBUTORS:
1. Associate Professor, Department of Oral Medicine and Radiology, Dhanalakshmi Srinivasan Dental College, Perambalur, Tamil Nadu, India.
2. Professor and Head, Department of Oral Medicine and Radiology, Dhanalakshmi Srinivasan Dental College, Perambalur, Tamil Nadu, India.
3. Associate Professor, Department of Oral Medicine and Radiology, Dhanalakshmi Srinivasan Dental College, Perambalur, Tamil Nadu, India.
4. Associate Professor, Department of Periodontics, Dhanalakshmi Srinivasan Dental College, Perambalur, Tamil Nadu, India.
5. Associate Professor, Department of Oral Pathology, Dhanalakshmi Srinivasan Dental College, Perambalur, Tamil Nadu, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Priyadarshini Subramaniam Kedarnath,
Associate Professor, Department of Oral Medicine and Radiology, Dhanalakshmi Srinivasan Dental College, Trichy-Chennai NH, Siruvachur, Perambalur-621113, Tamil Nadu, India.
E-mail: priyakedar183@gmail.com

PLAGIARISM CHECKING METHODS: [Jain H et al.]
- Plagiarism X-checker: Jan 13, 2026
- Manual Googling: Feb 10, 2026
- iThenticate Software: Feb 13, 2026 (9%)

ETYMOLOGY: Author Origin

EMENDATIONS: 5

AUTHOR DECLARATION:
- Financial or Other Competing Interests: None
- Was informed consent obtained from the subjects involved in the study? Yes
- For any images presented appropriate consent has been obtained from the subjects. Yes

Date of Submission: **Jan 12, 2026**
Date of Peer Review: **Feb 01, 2026**
Date of Acceptance: **Feb 16, 2026**
Date of Publishing: **May 01, 2026**