

Frenectomy- A Brief Review

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ABSTRACT

The frenum is a mucous membrane fold that attaches the lip and the cheek to the alveolar mucosa, the gingiva, and the underlying periosteum. The frenum may jeopardize the gingival health when they are attached too closely to the gingival margin, either due to interference in the plaque control or due to a muscle pull. In addition to this, the maxillary frenum may present aesthetic problems or compromise the orthodontic result in the midline diastema cases, thus causing a recurrence after the treatment. The management of such an aberrant frenum is accomplished by performing a frenectomy. The present article is a compilation of a brief overview about the frenum, with a focus on the frenal attachments and their association with various syndromes; indications, contraindications, advantages and the disadvantages of various frenectomy techniques, like Miller's technique, V-Y plasty, Z-plasty, modified frenectomy technique by Bagga et al, frenectomy by using electrocautery and LASERS.

Key Words: Frenum, Frenal attachments, Frenectomy, Syndromes, Mucogingival techniques

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Introduction:

Aesthetic concerns have led to an increasing importance in seeking dental treatment, with the purpose of achieving perfect smile. The continuing presence of a diastema between the maxillary central incisors in adults has often been considered as an aesthetic problem. The presence of an aberrant frenum being one of the etiological factors for the persistence of a midline diastema, the focus on the frenum has become essential.

A frenum is a fold of mucous membrane, usually with enclosed muscle fibers, that attaches the lips and cheeks to the alveolar mucosa and/or gingiva and underlying periosteum¹. The superior labial frenum is triangular in shape. The frenum is a dynamic and changeable structure and is subject to variations in shape, size, and position during the different stages of growth and development². During growth, it tends to diminish in size and importance. In young children, the frenum is generally wide and thick, becoming thinner and smaller during growth.

Taylor has observed that a midline diastema is normal in about 98% children between 6 and 7 years of age but the incidence decreases to only 7 % in persons 12-18 years old³. But in some instances the infantile arrangement is retained. This high coronal attachment is generally associated

with a hypertrophy of the frenum.

Even sometimes this normal structure is present as a thick, broad fibrous attachment and thus interferes with normal function of the upper lip and oral hygiene and causes compromised esthetics and diastema formation. The frena may also jeopardize the gingival health by causing a gingival recession when they are attached too closely to the gingival margin, either because of an interference with the proper placement of a toothbrush or through the opening of the gingival crevice because of a muscle pull⁴.

The Muscular Anatomy of the Frenum

A frenum is a mucous membrane fold which contains muscle and connective tissue fibers that attach the lip and the cheek to the alveolar mucosa, the gingiva and the underlying periosteum.

Knox and Young histologically studied the frenulum, and they have reported both elastic and muscle fibres (Orbicularis oris - horizontal bands and oblique fibres)⁴. However, Henry, Levin and Tsaknis have found considerably dense collagenous tissue and elastic fibres but no muscle fibres in the frenulum.

Functions of Frenum

The primary function of frenum is to provide stability of the upper and lower lip and tongue. The extent of their

involvement in mastication is in dispute.

Etiology

The maxillary labial frenum develops as a post-eruptive remnant of the ectolabial bands which connect the tubercle of the upper lip to the palatine papilla. When the two central incisors erupt widely separated, no bone is deposited inferior to the frenum. A V-shaped bony cleft between the two central incisors and an abnormal frenum attachment results. The mandibular frenum is considered as aberrant when it is associated with a decreased vestibular depth and an inadequate width of the attached gingiva^{4,5}.

Diagnosis

The abnormal frena are detected visually by applying tension over the frenum to see the movement of the papillary tip or the blanch which is produced due to ischemia in the region. The frenum is characterized as pathogenic when it is unusually wide or when there is no apparent zone of the attached gingiva along the midline or the interdental papilla shifts when the frenum is extended.

Midline diastema is diagnosed clinically by blanching test which could be due to high frenal attachment, pathological migration caused by periodontitis and tooth size discrepancy (Golden proportion of upper teeth should be checked).Radiographically, IOPAR's and

occlusal radiographs should be done to rule out mesiodens or other pathologies causing midline diastema. U-V shape of interproximal bone indicates midline diastema.

Classification of Frenal Attachments

1. Classification of frenal attachments by Sewerin (1971)⁶

- Normal frenum
- Simple frenum with anodule
- Simple frenum with appendix
- Simple frenum with nichum
- Bifid frenum
- Persistent tectolabial frenum
- Double frenum
- Wider frenum

2. Classification of frenal attachments by Mirko et al (1974)⁷(Table I)

- **Mucosal** – when the frenal fibres are attached up to the mucogingival junction.
- **Gingival** – when the fibres are inserted within the attached gingiva.
- **Papillary** – when the fibres are extending into the interdental papilla.
- **Papilla penetrating** – when the frenal fibres cross the alveolar process and extend up to the palatine papilla.

Pathogenic Frenum-

- Clinically, papillary and papilla penetrating frena are considered as pathological and have been found to be associated with loss of papilla, recession, diastema, difficulty in brushing, mal-alignment of teeth and it may also prejudice the denture fit or retention leading to psychological disturbances to the individual.
- A frenum can become a significant problem if tension from lip movement pulls the gingival margin away from the tooth or if the tissue inhibits the closure of diastema during orthodontic treatment.
- Frenal attachment that encroach on the marginal gingiva distend the gingival sulcus, fastening plaque accumulation increasing the rate of progression of periodontal recession and thereby leading to reoccurrence after treatment.

Syndromes Associated With Frenal Attachments (Table II)

- I. Ehlers-Danlos Syndrome
- II. Infantile hypertrophic pyloric stenosis
- III. Holoprosencephaly
- IV. Ellis-van Creveld Syndrome
- V. Oro-facial Digital syndrome
- VI. Pallister-hall Syndrome

VII. Opitz C syndrome

VIII. Turners Syndrome

Each syndrome exhibits relatively specific frenal abnormalities, ranging from multiple, hyperplastic, hypoplastic, or an absence of frena.

Ehlers-Danlos Syndrome- It is a genetic disorder characterized by hyper extensive skin and hyper mobile joints with no gender predilection. Absence of the inferior labial and lingual frena has been described in this disorder.

Infantile hypertrophic pyloric stenosis- occurs commonly in males at a ratio of 4.5 to 1 with an unknown etiology. There is a disturbance in the frenum formation. The absence or hypoplasia of mandibular frenum represents an important diagnostic tool in detection of this disease.

Holoprosencephaly- It is an autosomal dominant condition characterized by a brain malformation due to defects in prosencephalon. It is characterized by defects including cyclopia, single nostril, single central incisor, premaxillary agenesis and absence of labial maxillary frenum.

Ellis-van Creveld Syndrome- Ellis-van Creveld (EvC) Syndrome is an autosomal recessive disorder, mainly affecting the ectodermal components such as enamel, nail and hair. The gene for EvC syndrome is located on chromosome 4p16. Patients with EvC syndrome characteristically

presents with congenitally missing teeth, abnormal frenal attachment, microdontia and hexadactyly.

Oro-facial Digital syndrome- It arises as the result of a single gene malformation showing X-linked dominant inheritance. It includes abnormal supernumerary frenula, cleft in soft palate, malpositioned teeth, enamel hypoplasia, hypertrophied lingual frenum which is incompletely differentiated from the floor of the mouth, tongue lobulated with hamartomata between lobules and pseudocleft or midline notch in the upper lip.

Pallister-hall Syndrome- Inherited as an autosomal dominant pattern. The gene responsible for this disorder has been mapped to 7p13 and is identified as GL13. Clinical features include short mid face

and nose with a flat nasal bridge and anteverted nostrils. Oral manifestations include micrognathia, microglossia and abnormal supernumerary frena extending from the buccal mucosa to the alveolar ridge.

Opitz C syndrome- exhibits abnormal supernumerary frena extending from the buccal mucosa to the alveolar ridge.

Turners Syndrome- Turner syndrome is a sex chromosomal disorder associated with a female phenotype. The classical abnormalities of Turner syndrome include many somatic anomalies, such as short stature, infantile external genitalia, webbed neck, cubitus valgus, low hairline, shield-like chest, anomalies in the structure of some internal organs & numerous abnormalities within abnormal frenal

Table: I Phenotype of Maxillary midline frena according to Merko’s Classification

Frenum Type	Mirko et al ⁷	Lindsey ⁸	Addy et al ⁹	Kaimenyl ¹⁰	Boutsi & Tatakis ¹¹	Janczulk & Banach ¹²
Mucosal	46.5%	-	19.5%	26%	10.2%	39%
Gingival	34.3%	-	76.6%	76.6%	41.6%	36%
Papillary	3.1%	-	3.9%	-	22.1%	-
Papillary Penetrating	16.1%	43% (infants) 14% (children with 6 permanent anterior teeth) ≥7% (adults with all maxillary permanent teeth)	-	24%	26.1%	5%

Table:II Syndromes that characteristically exhibit variations of the norm in maxillary midline frenum phenotype

Syndromes	Type of maxillary frenum	Clinical Importance
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Ehlers-Danlos ¹³	Absent	Indication to identify newborns at risk
Holoprosencephaly ¹⁴	Absent	Part of the standard craniofacial examination
Turner ¹⁵	Gingival, papillary, or penetrating frenum attachment	-
False median cleft of the upper lip ¹⁶	Absent	Helps to differentiate true, false, or intermediate cleft
Orofacial-digital ¹⁷	Hyperplastic	Minimum diagnostic criterion
Ellis van Creveld ¹⁸	Hyperplastic	The most prominent oral finding

Table: III Surgical techniques for frenectomy

Type of technique	Advantages	Disadvantages
V-Shaped/ Archer incision/ diamond incision ²⁶	Easy to perform	Scar tissue formation Loss of papilla High relapse rate
Z-plasty ²⁶	Less scar formation	Surgically demanding More aggressive/morbidity
Vestibular sulcus extension ²⁶	-	High relapse rate
Morselli et al ²⁷	Less tissue contracture Less scar formation Less healing time	Surgically demanding
Bagga et al ²⁵	Advanced healing results Minimal scar tissue formation	Performed only in cases of adequate attached gingiva

attachment of lips and enamel defects in oral cavity.

Indications for frenal removal

The frenum is indicated for removal when

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1. An aberrant frenal attachment is present, which causes a midline diastema.

2. A flattened papilla with the frenum closely attached to the gingival margin is present, which causes a
3. gingival recession and a hindrance in maintaining the oral hygiene.
4. An aberrant frenum with an inadequately attached gingiva and a

shallow vestibule is seen.

5. A frenum, which is unsightly, being visible as a pendulous piece of tissue in the midline of the upper lip.
6. When oral hygiene is hindered by shallow vestibule caused by high frenum attachment.
7. When lingual frenum interferes with speech.

Treatment modalities for frenal removal (Given in table III)

The aberrant frena can be treated by frenectomy or by frenotomy procedures. Frenectomy is the complete removal of the frenum, including its attachment to the underlying bone, and may be required in the correction of an abnormal diastema between maxillary central incisors. Frenotomy is the incision and the relocation of the frenal attachment¹⁹.

Both procedures are used, but frenotomy generally suffices for periodontal purpose, that is relocating the frenal attachment so as to create a zone of attached gingiva between the gingival margin and the frenum. Frenectomy and frenotomy are usually performed in conjunction with other periodontal treatment procedures but occasionally are done as separate operations. Frenal problems occur most often on the facial surface between the maxillary and mandibular central incisors

and in the canine and premolar areas. They occur less often on the lingual surface of the mandible.

Frenectomy can be accomplished either by the routine scalpel technique,

electrosurgery or by using lasers. The conventional technique involves excision of the frenum by using a scalpel. However, it carries the routine risks of surgery like bleeding and patient compliance.

The use of electro surgery and lasers has also been proposed for frenectomy^{19,20}. Researchers have advocated the use of an electrocautery probe due to its efficacy and due to the safety of the procedure, the mild bleeding and the absence of postoperative complications. However, it is associated with certain complications which include burns, the risk of an explosion if combustible gases are used, interference with pacemakers and the production of surgical smoke. These complications have not been reported with the new improvement in the electro surgical techniques, like the Argon Beam Coagulation (ABC)^{19,20}.

Recently, the use of a CO₂ laser in lingual frenectomies has been reported as a safe and effective procedure with the advantages of a shorter duration of the surgery, simplicity of the procedure, the absence of postoperative infections, lesser pain, swelling and the presence of a small

or no scar. A delayed healing as compared to that in the conventional scalpel techniques, a reduced surgical precision which results in an inadvertent laser-induced thermal necrosis and/or a photo acoustic injury, are some of the complications which are associated with lasers. The application of diode and Er:YAG lasers in labial frenectomies in infants and Er,Cr:YSGG lasers in labial frenectomies in the adolescent and the pre-pubescent populations have also been reported.

Since the conventional procedure of frenectomy was first proposed, a number of modifications of the various surgical techniques like the Miller's technique, V-Y plasty and Z-plasty have been developed to solve the problems which are caused by an abnormal labial frenum²².

The various techniques used for frenectomy are:

- I. Conventional (Classical) frenectomy
- II. Miller's technique
- III. V-Y Plasty
- IV. Z Plasty
- V. Modified Frenectomy technique by Bagga et al,2006
- VI. Frenectomy which was done by using electrocautery
- VII. Frenectomy which was done by using LASERS

Classical Technique

The classical technique was introduced by Archer (1961) and Kruger (1964). This technique is an excision type frenectomy which includes the interdental tissues and the palatine papilla along with the frenulum.

Indications-This approach is advocated in the midline diastema cases with an aberrant frenum to ensure the removal of the muscle fibres which were supposedly connecting the orbicularis oris with the palatine papilla⁴.

Armamentarium – Haemostat/ Mosquito forceps, Surgical handle Bard Parker no 3 with detachable and replaceable surgical blade no.15, gauze sponges, 4-0 black silk sutures, suture pliers, scissors, and a periodontal dressing (Coe-pak).

Procedure²³ - Local infiltration is given to anesthetise the selected site by using 2% lignocaine with 1:80000 adrenaline. The lip is extended and the frenum was engaged with a haemostat to the depth of the vestibule. Incisions are placed on the upper and the under surface of the haemostat, triangular frenum tissue is removed. Underlying fibrous attachment to the bone is exposed. Horizontal incision is given onto these fibers separating and dissecting from the bone. The edges of the diamond shaped wound are undermined slightly and approximated without creating

tension and suture only the mucosal extent of incision by using 4-0 black silk with interrupted sutures. The gingival extent is not closed and allowed to heal by secondary intention. Cover the area with dry aluminium foil and periodontal pack is placed.

Postoperative Instructions- The most important postoperative instruction is to ask the patient not to stretch the lip again and again thus, avoiding vigorous lip movements after the frenectomy procedure. Analgesics and chlorhexidine mouthwash are advised. Sutures are removed after seven days.

Advantages- Easy to perform.

Disadvantages- Scar tissue formation, loss of papilla and high relapse rate.

Miller's Technique

The Miller's technique was advocated by Miller PD in 1985.

Indications- This technique was proposed for the post-orthodontic diastema cases. The ideal time for performing this surgery is after the orthodontic movement is complete and about 6 weeks before the appliances are removed. This not only allows healing and tissue maturation, but it also permits the surgeon to use orthodontic appliances as a means of retaining a periodontal dressing.

Armamentarium - Haemostat/ Mosquito forceps, Surgical handle Bard Parker no 3

with detachable and replaceable surgical blade no.15, gauze sponges, 5-0 black silk sutures, suture pliers, scissors, and a periodontal dressing (Coe-pak).

Procedure²⁴- An attached type of frenal attachment is treated after the area is anaesthetized with a local infiltration by using 2% lignocaine with 1:80000 adrenaline. The procedure begins with an incision (made with a # 15 BP surgical blade), starting slightly coronal to the mucogingival junction. A sharp dissection in an apical direction is carried along the maxillary alveolar process keeping constant tension on the lip. Care must be taken to fully dissect out all the freely movable connective tissue to give a firmly attached periosteal bed and assure complete dissection of the frenum. A triangular shaped free gingival graft of an adjacent papilla approximately 1.25 mm thick is taken. A donor area of adequate thickness and width must be selected so that no residual post-operative defect will be created. The graft is sutured in place to the prepared bed utilizing one or two interrupted 5-0 sutures with the apex of the triangular graft positioned coronally. The labial mucosa where the frenum was elevated is also sutured as needed. Pressure is applied to the graft to ensure adequate fibrin clot formation. Then a periodontal dressing is applied. The

sutures are removed in one week and oral hygiene instructions are reviewed.

Advantage-

- It is aesthetic and requires a minimum of surgical intervention.
- Post-operatively, on healing, there is a continuous collagenous band of gingiva across the midline, that gives a bracing effect than the “scar” tissue, thus preventing an orthodontic relapse.
- The transseptal fibres are not disrupted surgically and so, there is no loss of the interdental papilla.
- Obtaining an orthodontic stability without an aesthetic sacrifice.
- Healing takes place by primary intention.

V-Y Plasty

V-Y plasty can be used for lengthening the localized area, like the broad frena in the premolar-molar area.

Indications- papilla type of frenal attachment

Armamentarium: - Haemostat/ Mosquito forceps, Surgical handle Bard Parker no 3 with detachable and replaceable surgical blade no.15, gauze sponges, 4-0 black silk sutures, suture pliers, scissors, and a periodontal dressing (Coe-pak).

Local infiltration is given to anesthetize the selected site by using 2% lignocaine with 1:80000 adrenaline. The lip is

extended, the frenum is engaged with a hemostat and an incision is made in the form of V on the under-surface of the frenal attachment. The frenum is relocated at an apical position and the V shaped

incision is converted into a Y, while it is sutured with 4-0 silk sutures. Cover the area with dry aluminium foil and periodontal pack is placed. The periodontal pack and the sutures are removed at 1 week of follow-up.

Disadvantages-It fails to provide satisfactory aesthetic results in case of a thick hypertrophied frenum.

Z Plasty

Indications- This technique is indicated when there is hypertrophy of the frenum with a low insertion, which is associated with an inter-incisor diastema, and when the lateral incisors have appeared without causing the diastema to disappear and also in cases of a short vestibule. It is indicated in hypertrophic attached type of frenal attachment

Armamentarium - Haemostat/ Mosquito forceps, surgical handle Bard Parker no 3 with detachable and replaceable surgical blade no.15, gauze sponges, tissue forceps, 5-0 vicryl sutures, suture pliers, scissors, and a periodontal dressing (Coe-pak).

Procedure- Local infiltration is given to anesthetize the selected site by using 2%

lignocaine with 1:80000 adrenaline. The length of the frenum is incised with the scalpel and at each end; limbs at between 60° and 90° angulation and incisions are made in equal length to that of the band. By using fine tissue forceps, with care not to damage the apices of the flaps, the submucosal tissues should be dissected beyond the base of each flap, into the loose non-attached tissue planes. Thus, double rotation flaps which are at least 1 cm long are obtained. The resultant flaps which are created are mobilized and transposed through 90° to close the vertical incisions horizontally. The edges of the wound are undermined slightly and approximated with absorbable 5-0 vicryl sutures, first through the apices of the flaps, to ascertain the adequacy of the flap repositioning and then they are evenly spaced along the edges of the flaps, to close the wound along the cut edges of the attached mucoperiosteum and the labial mucosa. Cover the area with dry aluminium foil and periodontal pack is placed. The periodontal pack and the sutures are removed at 1 week of follow-up.

Advantage- This technique achieved both the removal of fibrous band and the vertical lengthening of the vestibule.

Modified frenectomy technique by bagga et al, 2006²⁵

Indications- Wide, thick hypertrophied frenum with high abnormal attachment

when aesthetics are of utmost concern for patient.

Armamentarium- Hemostat/ Mosquito forceps, Surgical handle Bard Parker no 3 with detachable and replaceable surgical blade no.15, gauze sponges, 4-0 black silk sutures, suture pliers, scissors, and a periodontal dressing (Coe-pak).

Procedure- Local infiltration on the buccal and palatal aspects is given to anesthetize the selected maxillary anterior region site by using 2% lignocaine with 1:80000 adrenaline. A V-shaped full-thickness incision is placed at the gingival base of the frenal attachment with an external bevel. Tissue along with periosteum is separated from underlying bone. The initial incision results in a V-shaped defect on the gingival side. Fibrous tissue attached to the lip is dissected with scissors, and undermining of the labial mucosa is done. An oblique partial-thickness incision is placed on the adjacent attached gingiva beginning 1 mm apical to the free gingival groove and extending beyond the mucogingival junction. Partial-thickness dissection from the medial margin is carried out in an apico-coronal direction to create a triangular pedicle of attached gingiva with its free end as the apex and its base continuous with the alveolar mucosa. Alveolar mucosa at the base is undermined to facilitate repositioning of the pedicle without

tension. A similar procedure is repeated on the contralateral side of the V-shaped defect, resulting in 2 triangular pedicles of attached gingiva. These two pedicles were sutured with each other at the medial side and laterally with the adjacent intact periosteum of the donor site by 4-0 silk suture completely covering the underlying defect created by the initial frenal excision. Cover the area with dry aluminium foil and periodontal pack is placed. The periodontal pack and the sutures are removed at 1 week of follow-up.

Advantages- This technique provides many advantages, such as gain in attached gingiva in the region previously covered by the frenum, excellent color match, healing by primary intention, minimal scar formation and prevention of coronal reformation. This technique may be suitable in situations where anterior aesthetics is of primary importance.

Disadvantages- Performed only in cases of an adequate attached gingiva.

Frenectomy by using Electrocautery

Indications- Electrosurgery is recommended in cases of patients with bleeding disorders, where the conventional scalpel technique carries a higher risk which is associated with problems in achieving a haemostasis and also in non-compliant patients.

Armamentarium: An electrocautery unit with the loop electrode and a hemostat.

Procedure- After the area was anaesthetized with local infiltration by using 2% lignocaine with 1:80000 adrenaline, the frenum is held with the haemostat and by using a loop electrode tip, it is excised.

Advantages- Electrocautery offers the advantage of minimal procedural bleeding and there is no need of sutures. The healing occurs by secondary intention, as the wound edges are not approximated with sutures. Curved electrodes aid visibility and thus they are efficient and effective for soft tissue removal.

Disadvantages- Care is required around implants.

Frenectomy by using Lasers

Indications- An aberrant frenal attachment where minimal procedural bleeding is needed or on patients demand.

Armamentarium- CO2 laser or Er, Cr: YSGG laser or diode laser or Nd: YAG lasers.

Procedure- After the area was anaesthetized with local infiltration by using 2% lignocaine with 1:80000 adrenaline, the frenum is held with the haemostat and by using LASER tip, frenum is excised. LASERS are applied in a contact mode with focused beam for excision of the tissue. For its use, follow

the vertical axis of the frenulum until the wound presented a linear shape. At this point the laser was applied transversely until the wound took a rhomboidal shape. Then, the palatine limit of the papilla is treated in those cases in which the frenulum showed a low insertion. The ablated tissue is continuously mopped using wet gauze piece. This takes care of the charred tissue and prevents excessive thermal damage to the underlying soft tissue. The attachment of frenum to the alveolar ridge is excised to prevent tension on gingiva. Patients are instructed to keep a complete oral hygiene throughout the postoperative period.

Advantages- The advantages of the surgical laser treatment versus the cold scalpel are as follows: a bloodless surgical field (using the CO₂ laser), no need for suturing because healing is by second intention, and postoperative pain and swelling are less intense or even absent.

Discussion

Various surgical techniques have been proposed for the correction of an abnormal upper labial frenum. Nevertheless, in spite of the various modifications which have been proposed for frenectomy, the widely followed procedure which remains is the classical technique. The classical technique leaves a longitudinal surgical incision and scarring, which may lead to

periodontal problems and an unaesthetic appearance, thereby necessitating other modifications.

The management of aberrant frenum is done by various modifications to surgical techniques (more conservative approach) and with use of electrocautery and lasers.

Each method has its own advantages and disadvantages. The techniques like simple excision and a modification of V-rhomboplasty fail to provide satisfactory aesthetic results in the case of a broad, thick hypertrophied frenum. This may be due to the inability to achieve a primary closure at the centre, consequently leading to a secondary intention healing at the wide exposed wound. It may become a matter of concern in the case of a high smile line exposing anterior gingiva. the Miller's technique results in no loss of the interdental papilla and no scar tissue. Thereby, it is best suited to prevent an orthodontic relapse.

The Z-plasty technique was found to be ideal for a broad, thick hypertrophic frenum with a low insertion, which was associated with an inter-incisor diastema and a short vestibule. It achieved both the removal of the fibrous band and the vertical lengthening of the vestibule.

The use of electro surgery and lasers has also been proposed for frenectomy. Researchers have advocated the use of an

electrocautery probe due to its efficacy and due to the safety of the procedure, the mild bleeding and the absence of postoperative complications. However, it is associated with certain complications which include burns, the risk of an explosion if combustible gases are used, interference with pacemakers and the production of surgical smoke.

The use of lasers for frenectomy has been promoted recently, and diode laser, CO₂ laser or Er, Cr:YSGG laser or Nd:YAG lasers have been reported. Nevertheless, Carbon dioxide laser is probably the most frequently used. With use of lasers, the patient experiences markedly less bleeding during surgery, no need for sutures or periodontal dressing, fewer functional complications, minimal swelling, less discomfort, and requires fewer analgesics than when a scalpel frenectomy was performed.

Conclusion

While an aberrant frenum can be removed by any of the modification techniques that have been proposed, a functional and an aesthetic outcome can be achieved by a proper technique selection, based on the type of the frenal attachment. Though the approaches to the problem of not using the traditional scalpel, like electro surgery and lasers have merits, further improvements can still be attempted.

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