Pre-prosthetic Surgery

Soft Tissue Abnormalities

Immediately after tooth removal, muscular and frenal attachments initially do not present problems but may eventually interfere with proper denture construction as bony resorption takes place.

Maxillary Tuberosity Reduction (Soft Tissue)

1- Local anesthetic infiltration in the posterior maxillary area is sufficient for a tuberosity reduction.
2- incision: initial elliptical incision is made over the tuberosity in the area requiring reduction, and this section of tissue is removed
3- flap margins preparation: the medial and lateral margins of the excision must be thinned to remove excess soft tissue, which allows further soft tissue reduction and provides a tension-free soft tissue closure.

Mandibular Retromolar Pad Reduction

Indications: real indication for hypertrophic tissue is rare

Note: it is important to verify that the patient is not posturing the mandible forward or vertically over-closed during clinical evaluation and with treatment records and mounted casts. (false indications)

Surgical procedure:

1- anesthesia: Local anesthetic infiltration in the area requiring excision is sufficient.
2- incision: An elliptical incision is made to excise the greatest area of tissue thickness in the posterior mandibular area.
3- Flap margins preparation: Slight thinning of the adjacent areas is carried out with the majority of the tissue reduction on the labial aspect. Excess removal of tissue in the submucosal area of the lingual flap may result in damage to the lingual nerve and artery.
4- Suturing: The tissue is approximated with continuous or interrupted sutures.
Unsupported Hypermobile Tissue

Excessive hypermobile tissue without inflammation on the alveolar ridge is generally the result of 1- resorption of the underlying bone 2- ill-fitting dentures.

Management:

1- If a bony deficiency is the primary cause of soft tissue excess, then augmentation of the underlying bone is the treatment of choice.
2- If adequate alveolar height remains after reduction of the hypermobile soft tissue, then excision may be indicated.

Surgical procedure:

1- A local anesthetic is injected adjacent to the area requiring tissue excision.
2- Removal of hypermobile tissue in the alveolar ridge area consists of two parallel full-thickness incisions on the buccal and lingual aspects of the tissue to be excised.
3- A tangential excision of small amounts of tissue in the adjacent areas may be necessary to allow for adequate soft tissue adaptation during closure.

***Denture impressions can usually be taken 3 to 4 weeks after surgery.

Inflammatory Fibrous Hyperplasia (epulis fissurata or denture fibrosis)

Definition: it is a generalized hyperplastic enlargement of mucosa and fibrous tissue in the alveolar ridge and vestibular area, which most often results from ill-fitting dentures.

Management:

- Early stages: when fibrosis is minimal, nonsurgical treatment with a denture in combination with a soft liner is frequently sufficient.
- Delayed stage: when significant fibrosis exists within the hyperplastic tissue. Excision of the hyperplastic tissue is the treatment of choice.

Surgical procedure:

1- Local anesthetic infiltration in the area of the redundant tissue is sufficient for anesthesia.
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2- The redundant areas of tissue are grasped with tissue pickups, a sharp incision is made at the base of the excessive fibrous tissue down to the periosteum, and the hyperplastic tissue is removed. The adjacent tissue is gently undermined and reapproximated using interrupted or continuous sutures.

Labial Frenectomy

Labial frenal attachments consist of thin bands of fibrous tissue covered with mucosa, extending from the lip and cheek to the alveolar periosteum. The level of frenal attachments may vary from the height of the vestibule to the crest of the alveolar ridge and even to the incisal papilla area in the anterior maxilla. With the exception of the midline labial frenum in association with a diastema, frenal attachments generally do not present problems when the dentition is intact.

Movement of the soft tissue adjacent to the frenum may create discomfort and ulceration and may interfere with the peripheral seal and dislodge the denture.

Surgical procedure:

1- Local anesthetic infiltration is often sufficient for surgical treatment of frenal attachments
2- For the simple excision technique, a narrow elliptical incision around the frenal area down to the periosteum is completed. The fibrous frenum is then sharply dissected from the underlying periosteum and soft tissue, and the margins of the wound are gently undermined and reapproximated. Placement of the first suture should be at the maximal depth of the vestibule and should include both edges of mucosa and underlying periosteum at the height of the vestibule beneath the anterior nasal spine. This technique reduces hematoma formation and allows for adaptation of the tissue to the maximal height of the vestibule. The remainder of the incision should then be closed with interrupted sutures. Occasionally it is not possible to approximate the portion of the excision closest to the alveolar ridge crest; this will undergo secondary epithelialization without difficulty.
b- In the Z-plasty technique, an excision of the fibrous connective tissue is performed similarly to that in the simple excision procedure. After excision of the fibrous tissue, two oblique incisions are made in a Z fashion, one at each end of the previous area of excision. The two-pointed flaps are then gently undermined and rotated to close the initial vertical incision horizontally. This technique may decrease the amount of vestibular ablation sometimes seen after linear excision of a frenum.

**Lingual Frenectomy**

An abnormal lingual frenum attachment usually consists of mucosa, dense fibrous connective tissue, and, occasionally, superior fibers of the genioglossus muscle. This attachment binds the tip of the tongue to the posterior surface of the mandibular alveolar ridge. Even when no prosthesis is required, such attachments can affect speech. After loss of teeth, this frenal attachment interferes with denture stability. **Surgical technique:**

1- Bilateral lingual blocks and local infiltration in the anterior area provide adequate anesthesia for a lingual frenectomy.
2- The tip of the tongue is best controlled with a traction suture.
3- Placement of a hemostat across the frenal attachment at the base of the tongue for approximately 3 minutes provides vasoconstriction and a nearly bloodless field during the surgical procedure.
4- After removal of the hemostat, an incision is created through the area previously closed within the hemostat.
Soft Tissue Surgery for Ridge Extension of the Mandible

The primary goals of soft tissue preprosthetic surgery are to provide an enlarged area of fixed tissue in the primary denture-bearing or implant area and to improve extension in the area of the denture flanges by removing the dislodging effects of muscle attachments in the denture-bearing or vestibular areas.

- **Transpositional Flap Vestibuloplasty (Lip Switch)**

  A lingually based flap vestibuloplasty was first described by Kazanjian. In this procedure a mucosal flap pedicled from the alveolar ridge is elevated from the underlying tissue and sutured to the depth of the vestibule. The inner portion of the lip is allowed to heal by secondary epithelialization. This procedure has been modified, and the use of a technique transposing a lingually based mucosal flap and a labially based periosteal flap (transpositional flap) has become popular.

- **Vestibule and Floor-of-Mouth Extension Procedures**

  on the lingual aspect of the mandible. Trauner described detaching the mylohyoid muscles from the mylohyoid ridge area and repositioning them inferiorly, effectively deepening the floor of the mouth area and relieving the influence of the mylohyoid muscle on the denture. Macintosh and Obwegeser later described the effective use of a labial extension procedure combined with the Trauner procedure to provide maximal vestibular extension to the buccal and lingual aspects of the mandible. The technique for extension of the labial vestibule is a modification of a labially pedicled supraperiosteal flap described by Clark. After the two vestibular extension techniques have been performed, a skin graft can be used to cover the area of denuded periosteum. The combination procedure effectively eliminates the dislodging forces of the mucosa and muscle attachments and provides a broad base of fixed keratinized tissue on the primary denture-bearing area. Soft tissue grafting with the buccal vestibuloplasty and the floor-of-mouth procedure is indicated when adequate alveolar ridge for a denture-bearing area is lost but at least 15 mm of mandibular bone height remains.
Tissue other than skin has been used effectively for grafting over the alveolar ridge. Palatal tissue offers the potential advantages of providing a firm, resilient tissue, with minimal contraction of become keratinized, is generally mobile, and often results in an inadequate denture-bearing surface.

**Soft Tissue Surgery for Maxillary Ridge Extension**

- **Submucosal Vestibuloplasty**

The submucosal vestibuloplasty can generally be performed with local anesthetic and intravenous sedation in an outpatient setting. A midline incision is made in the anterior maxilla, and the mucosa is undermined and separated from the underlying submucosal tissue. A supraperiosteal tunnel is then developed by dissecting the muscular and submucosal attachments from the periosteum. The intermediate layer of tissue created by the two tunneling dissections is incised at its attachment area near the crest of the alveolar ridge. This submucosal and muscular tissue can be repositioned superiorly or excised. After closure of the midline incision, a preexisting denture or prefabricated splint is modified to extend into the vestibular areas and is secured with palatal screws for 7 to 10 days to hold the mucosa over the ridge in close apposition to the periosteum. When healing takes place, usually within 3 weeks, the mucosa is closely adapted to the anterior and lateral walls of the maxilla at the required depth of the vestibule.

These techniques provide a predictable increase in vestibular depth and attachment of mucosa over the denture-bearing area. A properly relined denture can often be worn immediately after the surgery or after removal of the splint, and impressions for final denture relining or construction can be completed 2 to 3 weeks after surgery.