

**TITLE: SLING SUSPENSION IN CORONAL FLAP CLOSURE : A
TECHNICAL NOTE**

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Abstract:

The coronal scalp flap has evolved as an aesthetic approach to the facial skeleton for a variety of procedures ranging from complex facial trauma to face lifts. One unaesthetic complication of this flap is the sagging of facial skin and forehead. This is a technical note describing the incorporation of facial and brow sling sutures during closure of the flap to prevent sag and improve the aesthetic outcome.

Key Words:

Coronal flap, Face lift, Maxillofacial trauma.

Article:

Introduction:

The coronal scalp flap has evolved as an aesthetic approach to the facial skeleton for a variety of procedures ranging from complex facial trauma to face lifts. One unaesthetic complication of this flap is the sagging of facial skin and forehead. To prevent this, we recommend the incorporation of facial and brow sling sutures during closure of the flap.

Technique:

Coronal incision is made in the conventional manner and flap reflected in the subgaleal layer.^[1]
^{2]} An incision is made in the periosteum three to four centimeters above the supraorbital rim and further dissection is carried out in the subperiosteal layer to reach the bony supraorbital rim and expose the central facial skeleton as per the requirement. The lateral skeleton can be approached either through the superficial temporal fat pad or using the supratemporalis approach^[3]. Once the desired procedure has been carried out, we recommend the use of suspensory sling sutures anchoring the musculature inferiorly to the pericranium superiorly using 1 – 0 polypropylene suture material (Prolene™, Ethicon.Inc, USA).

Frontal sling: This is performed by taking a superficial bite through the muscle tissue consisting of fibres of both frontalis and corrugator supercili muscles at the supraorbital region. A second bite is taken through the pericranium vertically in line with the first bite in the anterior parietal region. This is eyeballed for position and an estimate of appropriate tension is made by replacing the flap in its final position while the superior ends of the suture are manipulated manually to achieve slight overcorrection. Once verified, the suture is knotted superiorly as per the estimate and the frontal sling is completed [Fig 1, 2].

Lateral sling: This is performed by taking a superficial bite through the temporoparietal fascia at the suprazygomatic region. A second bite is taken through the pericranium vertically in line with the first bite in the lateral parietal region. This is eyeballed for position and an estimate of appropriate tension is made by replacing the flap in its final position while the superior ends of the suture are manipulated manually to achieve slight overcorrection. Once verified, the suture is knotted superiorly as per the estimate and the lateral sling is completed [Fig 2].

The sling is incorporated as a preliminary step in closure and is followed by completion of layer-wise closure of the flap and a pressure dressing with padding for forty-eight hours. Patient was followed up for six months.

Results: The patients recovered uneventfully. There was no facial drooping or brow sag after this technique of closure. There was complete animation of facial muscles at the two week follow up. No evidence of any complication at six month follow up.

Discussion:

Craniofacial surgery is closely associated with cosmesis and it is important to use incisions that will minimize scars⁷. The coronal incision is an esthetically acceptable, versatile flap that provides access to the cranial vault, cranial base, forehead, nose, upper middle face, and

orbits ^[2, 4]. The extent of access is dependent on the inferior extent of the incision and not its anterior position. Variations have been described, like the Stealth modification, placing the incision behind the vertex, intra – auricular and post – auricular incisions. It is a time – tested flap, with a low incidence of infection, attributable to the high vascularity of the flap. Short term complications include decreased animation of facial muscles during the recovery phase, itch along the incision line and hematoma under the flap and long term complications include sensory disturbances of the supraorbital and preauricular areas, motor deficits of the frontal branches of the facial nerve and alopecia along the scar ^[4, 5]. To minimize post operative muscle sag, face – lift or brow – lift procedures can be incorporated in conjunction with coronal flap closure. Various techniques for face lift and brow lift like SMAS (superficial musculo-aponeurotic system) plication, imbrication, subperiosteal lift, malar fat repositioning, endoscopic techniques and endotine technique have been described in literature ^[6]. However, addition of complex procedures will increase the duration of surgery and the expenditure involved. The use of the frontal and lateral facial slings as described in this note does not require any expertise and only takes the time involved to place an additional stitch.

In conclusion, we recommend the use of suspension sutures during coronal flap closure to prevent facial and forehead sag for a better aesthetic outcome.

Figure Legend:

Fig 1: Two frontal suspension sutures anchoring frontalis muscle to pericranium

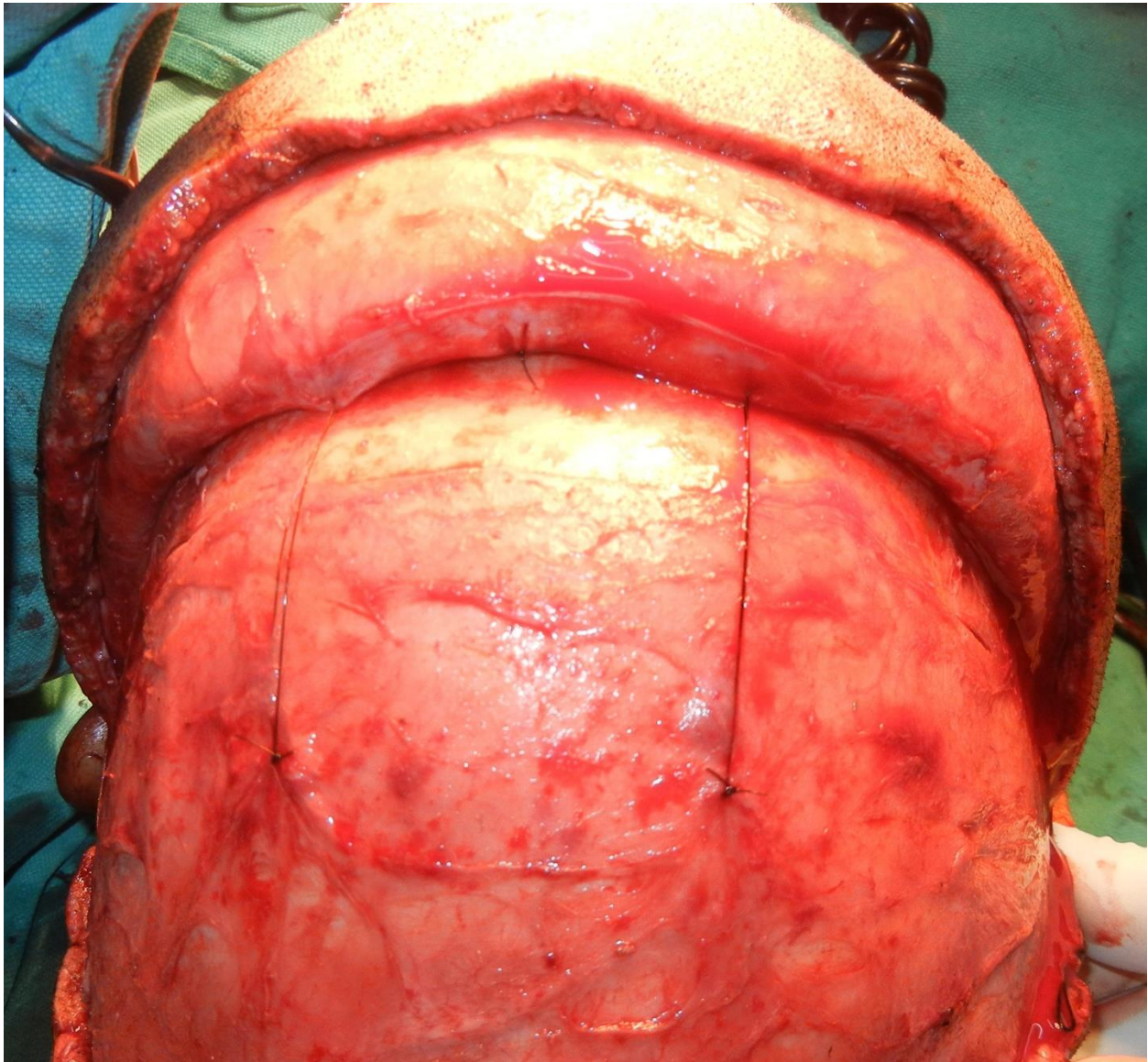
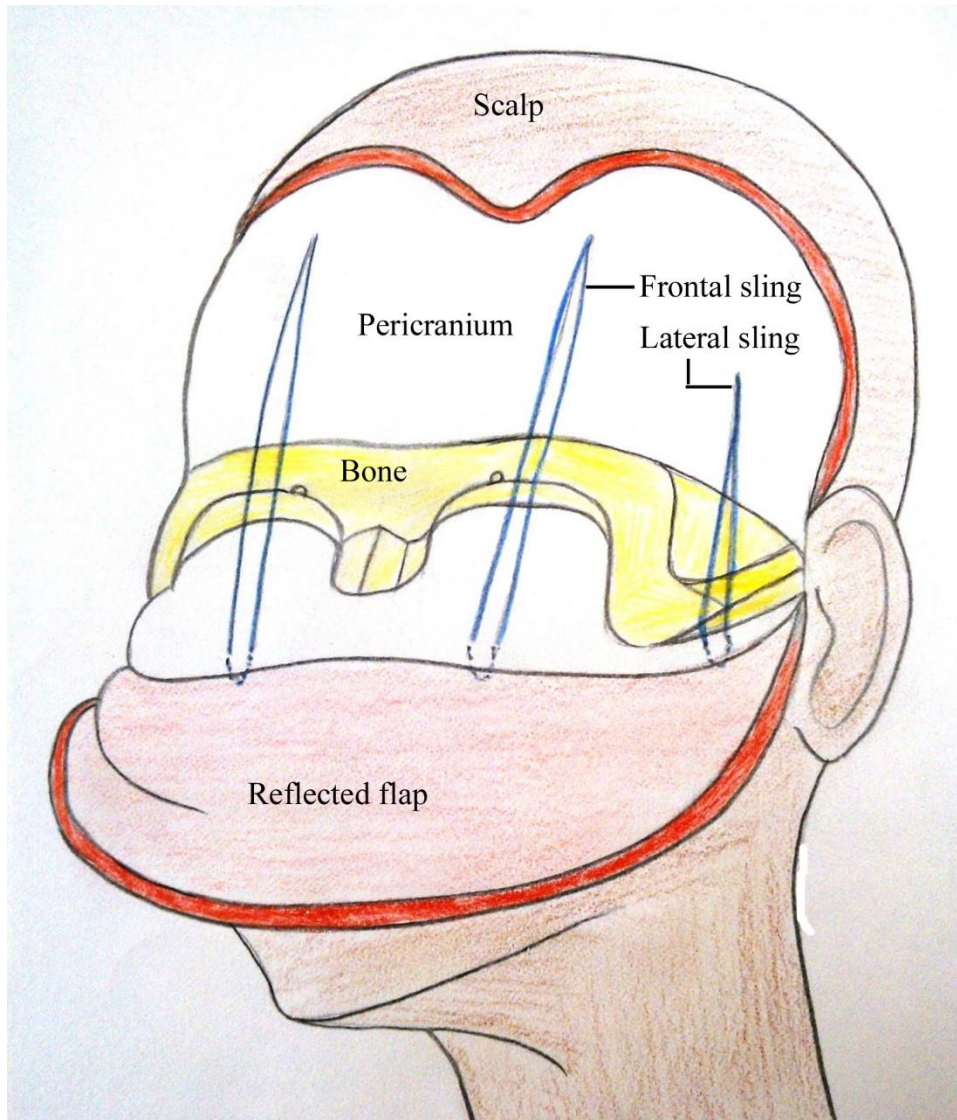


Fig 2: Illustration of frontal and lateral sling sutures



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