

MORPHOFUNCTIONAL APPROACH TO TREAT TMJ ANKYLOSIS

RESECTION OF TMJ ANKYLOSIS FACIAL ASYMMETRY CORRECTION

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GSR Institute of Facial Plastic Surgery



- Non-profit hospital established in 1996
- Dedicated Cleft & Craniofacial Centre of Excellence
- **1,500** cleft and cranio-facial surgeries are done every year
- 2 surgeons and 4 fellows with full support team
- More than **25,000** cleft & craniofacial surgeries have been performed since 1996
- **600** primary new born cleft children are treated every year



TMJ Ankylosis



SURGICAL MANAGEMENT OF TMJANKYLOSIS

Resection

Reconstruction

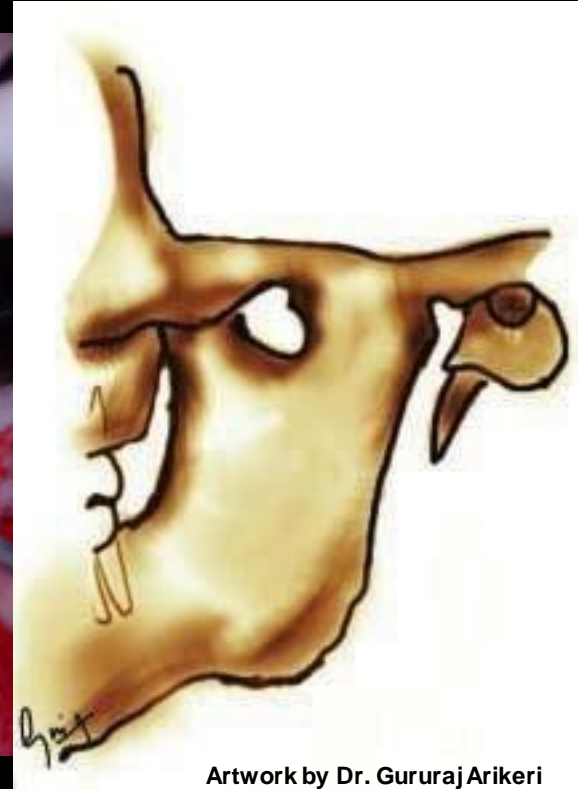
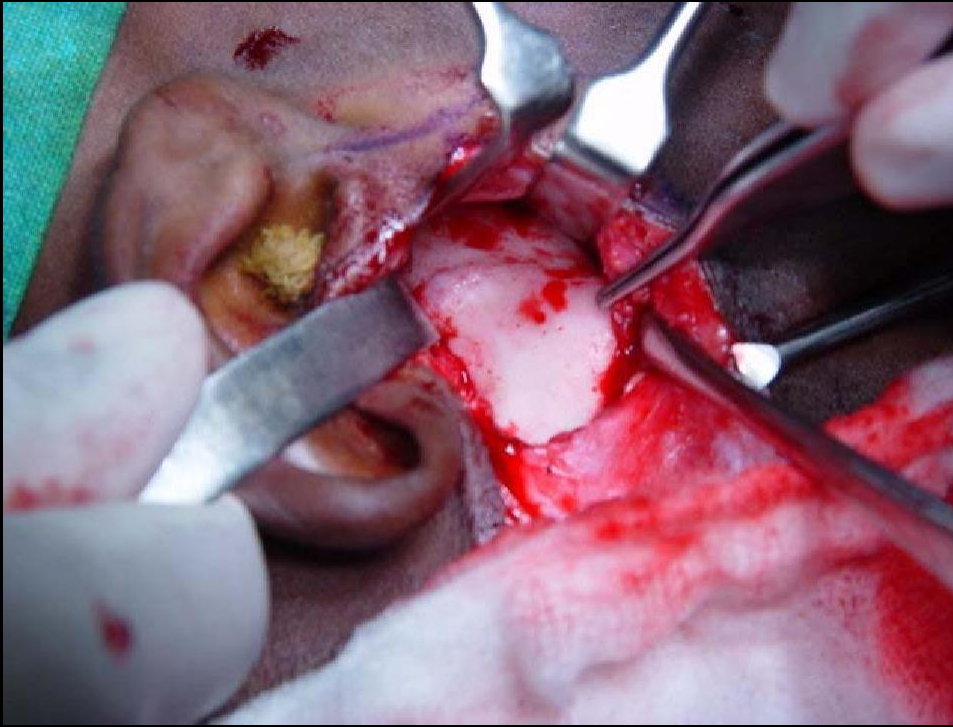


Resection

- Condylectomy
- Gap arthroplasty
- Interpositional arthroplasty



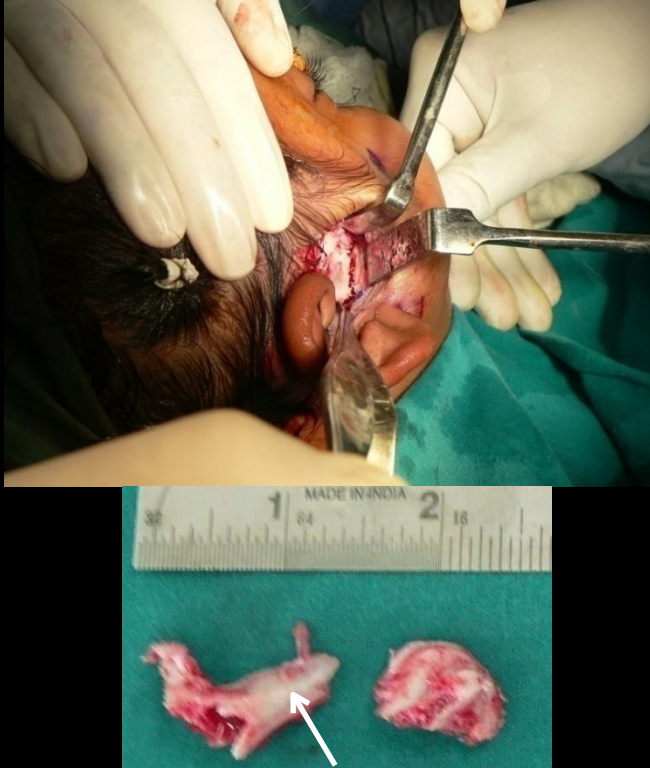
Morphofunctional Interpositional Arthroplasty



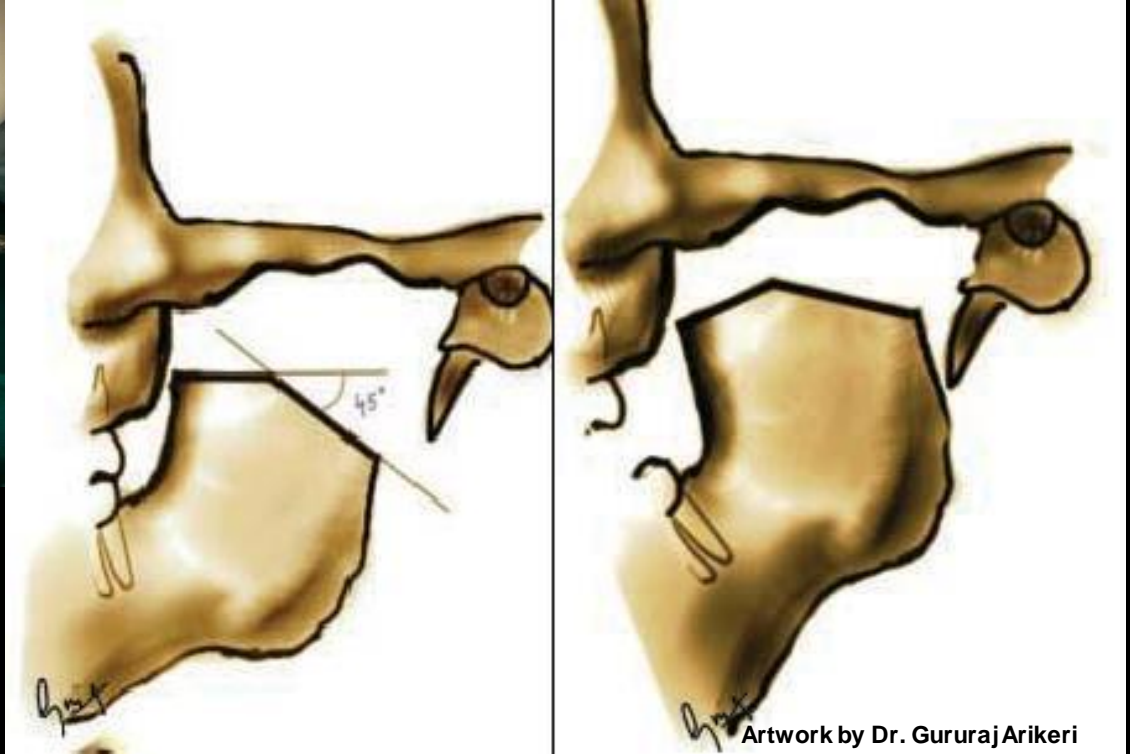
- Approach: Preauricular incision to expose the TMJ and coronoid process
Care should be taken not to injure facial nerve



Morphofunctional Interpositional Arthroplasty



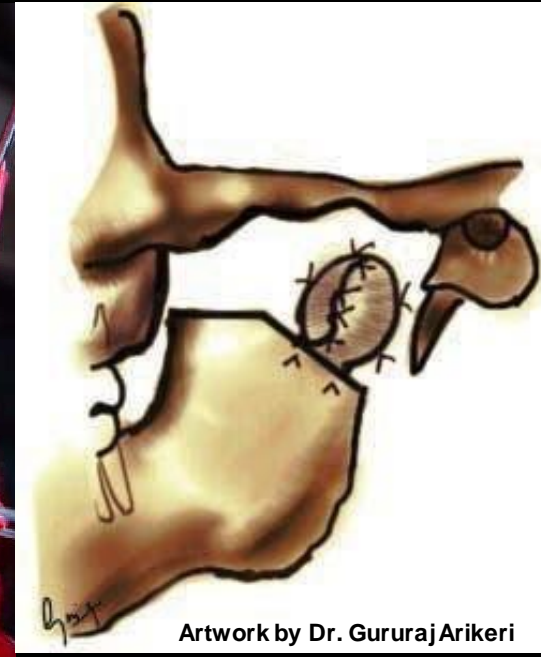
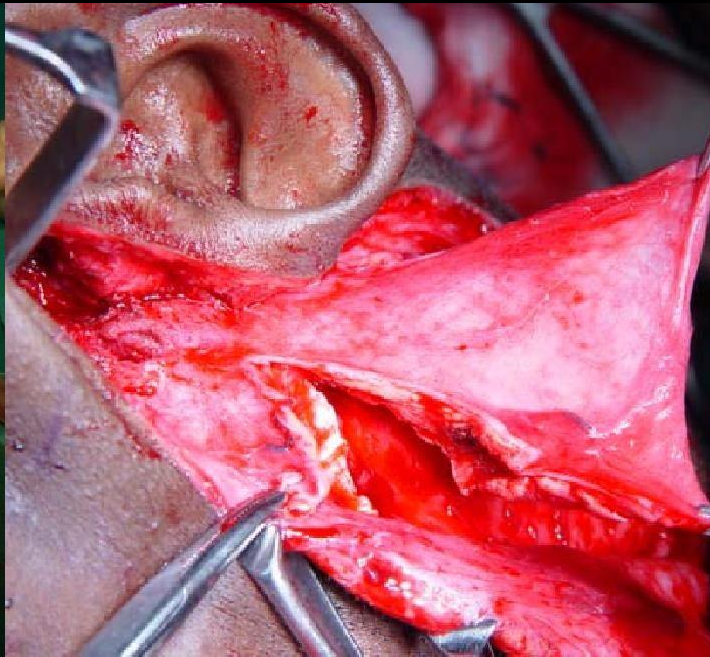
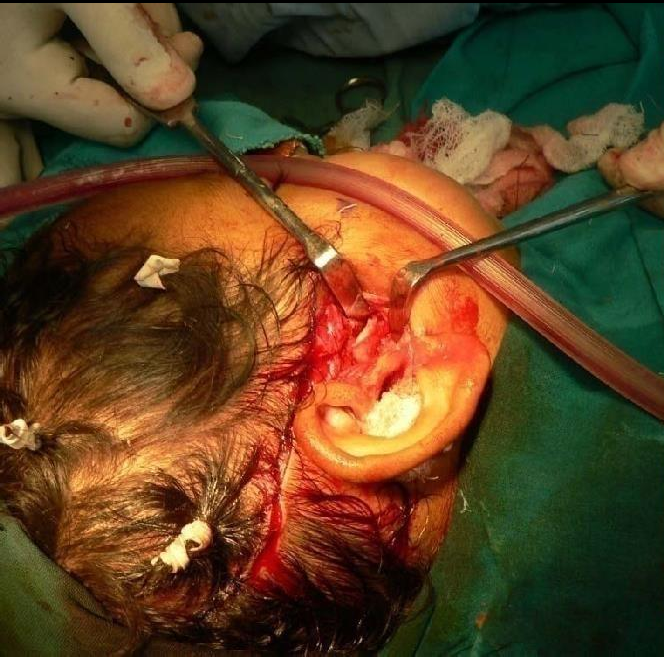
Coronoid Process



- Horizontal osteotomy cuts:
1. Roof of the glenoid fossa and the
 2. Ramus of the mandible
- Unilateral Primary Ankylosis: 1.0 cm to 1.5 cm Resection
- Secondary Ankylosis: 1.5 cm to 2.0 cm Resection



Morphofunctional Interpositional Arthroplasty



Galea:
Galea+Temporalis Fascia:
Temporalis Muscle:

Primary, Unilateral, Pseudo Ankylosis
Secondary, Unilateral, Bony Ankylosis
Bilateral Bony Ankylosis
(Primary Or Secondary)



Morphofunctional Interpositional Arthroplasty



Costochondral graft: Cut into thin sheets of 1-3mm

Auricular cartilage graft: Rolled and compressed

To form a compact bundle to fit into the gap created

NEO CONDYLIZATION:

Tightly compacting the cartilaginous sheet bundle adapts it into the shape of condyle



Morphofunctional Interpositional Arthroplasty

Intense physiotherapy of mouth opening is continued for 6 months post operatively

Periodical OPG radiographs are taken every year for 5 years to assess reankylosis.



Morphofunctional TMJ Ankylosis Resection

In standard ankylosis treatment the graft used to interpose gets mobile, which hampers both the vertical height and also induces fibrosis, leading to reankylosis.

In morphofunctional approach, the rolled cartilage sheets survive in low oxygen tension and maintain the ramal height and antero posterior dimension.

The galeal/temporalis muscle flap used for interpositioning also prevents reankylosis by avoiding the contact of glenoid fossa and the superior surface of the graft.

Also, with the force exerted by the mandibular stump on the warped graft, the superior facet of the graft takes up the shape of the condyle, helping in both form and function.



Reconstruction of Facial Asymmetry

Genioplasty

Distraction Osteogenesis

Orthognathic surgery



Genioplasty

Done for correcting the asymmetry of the genium in the antero posterior and vertical dimensions.

Sliding genioplasty: mild deficiency in antero-posterior or vertical dimension of the genium

Double sliding genioplasty: Significant deficiency of the antero-posterior dimension of the genium

Propeller genioplasty: asymmetry combined with mild deficiency in vertical and antero-posterior dimension of the genium



Incision



‘Crown’ incision / Mommart’s incision is given to avoid vestibular shortening and tension free closure.



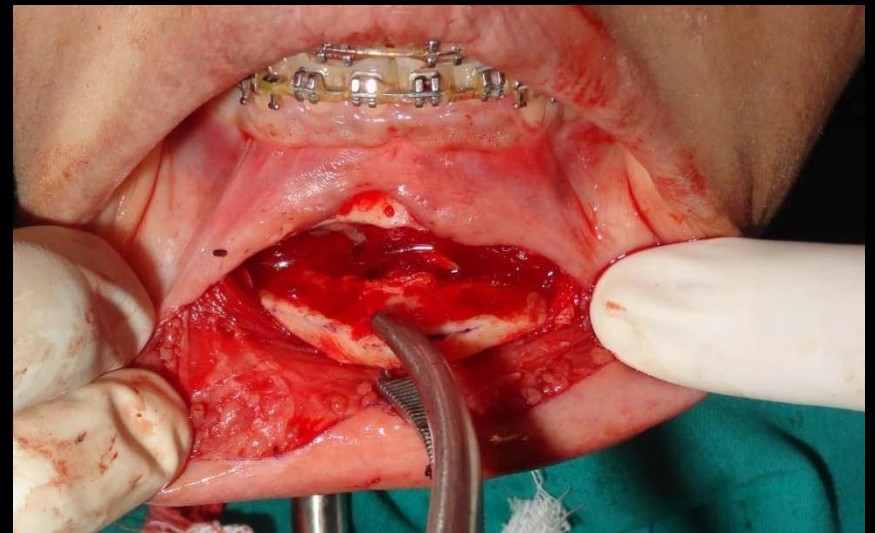
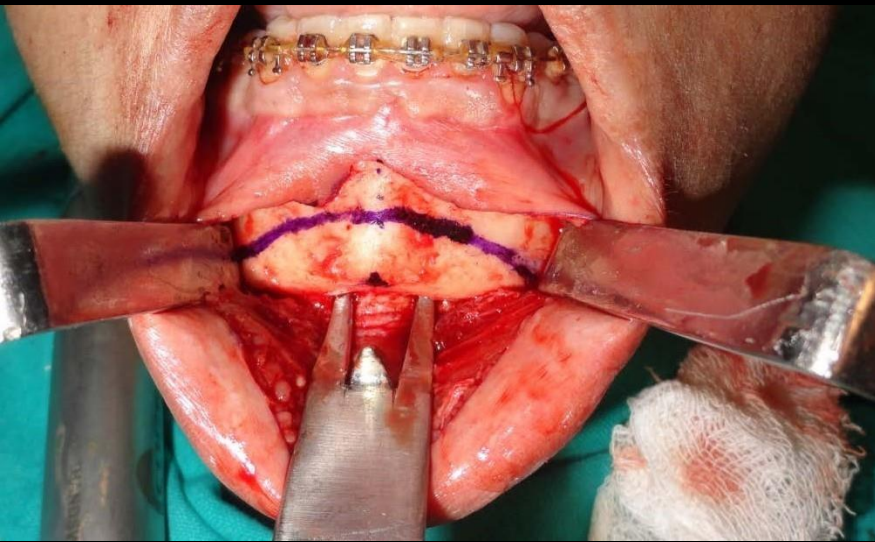
Sliding Genioplasty



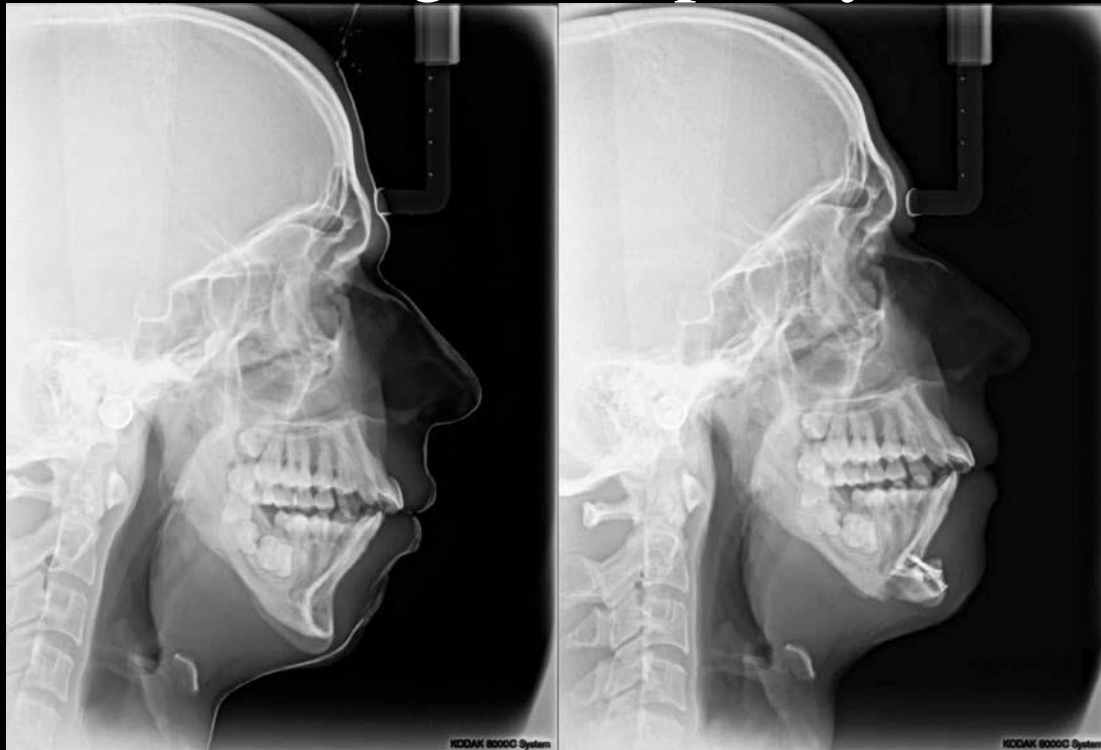
Done when there is a mild asymmetry and deficiency of the antero posterior dimension of the genium



Sliding Genioplasty



Sliding Genioplasty



Sliding Genioplasty



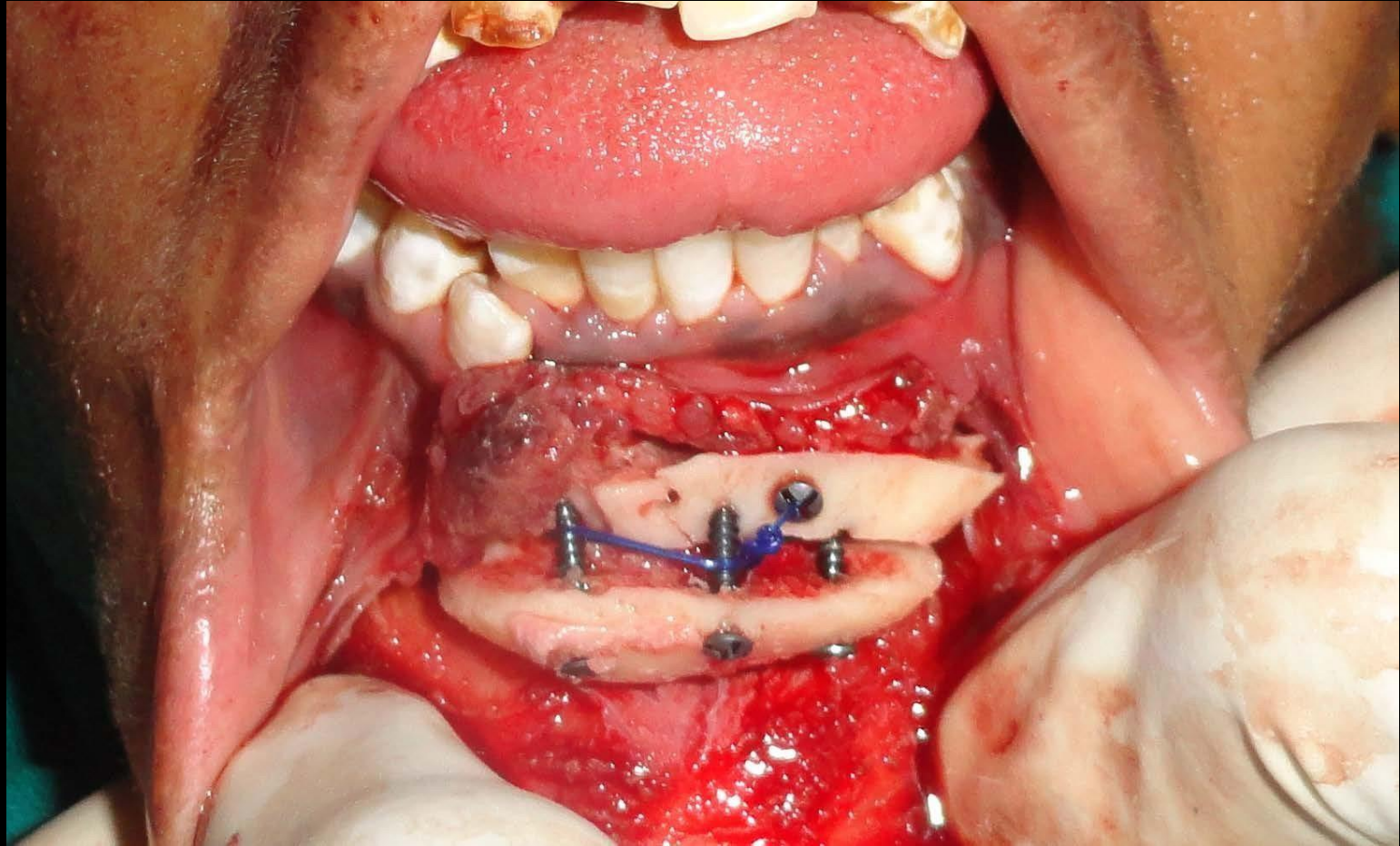
Double Sliding Genioplasty



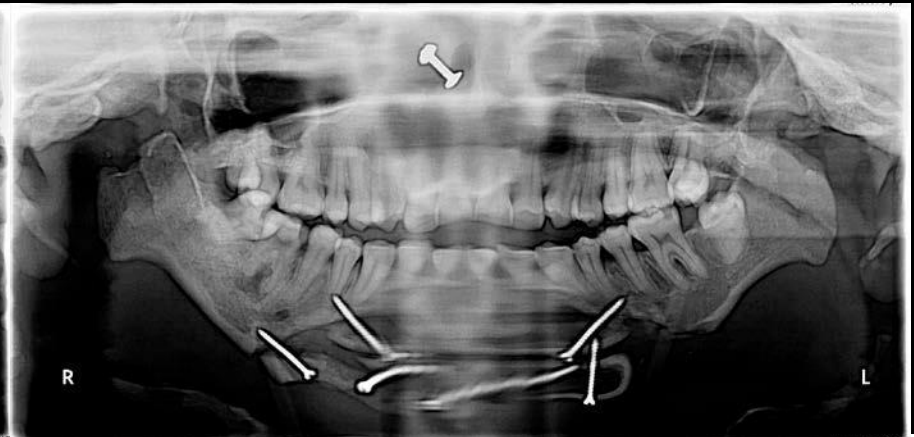
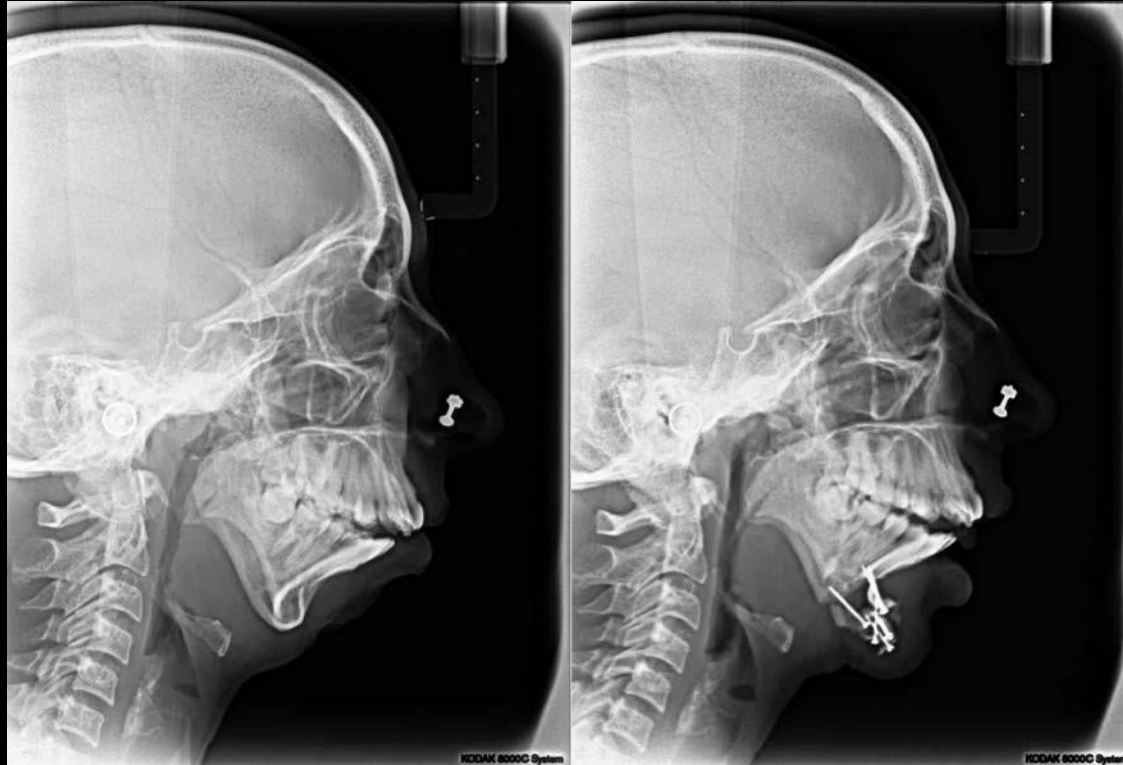
Done when there is a significant deficiency in antero-posterior or vertical dimension of the genium



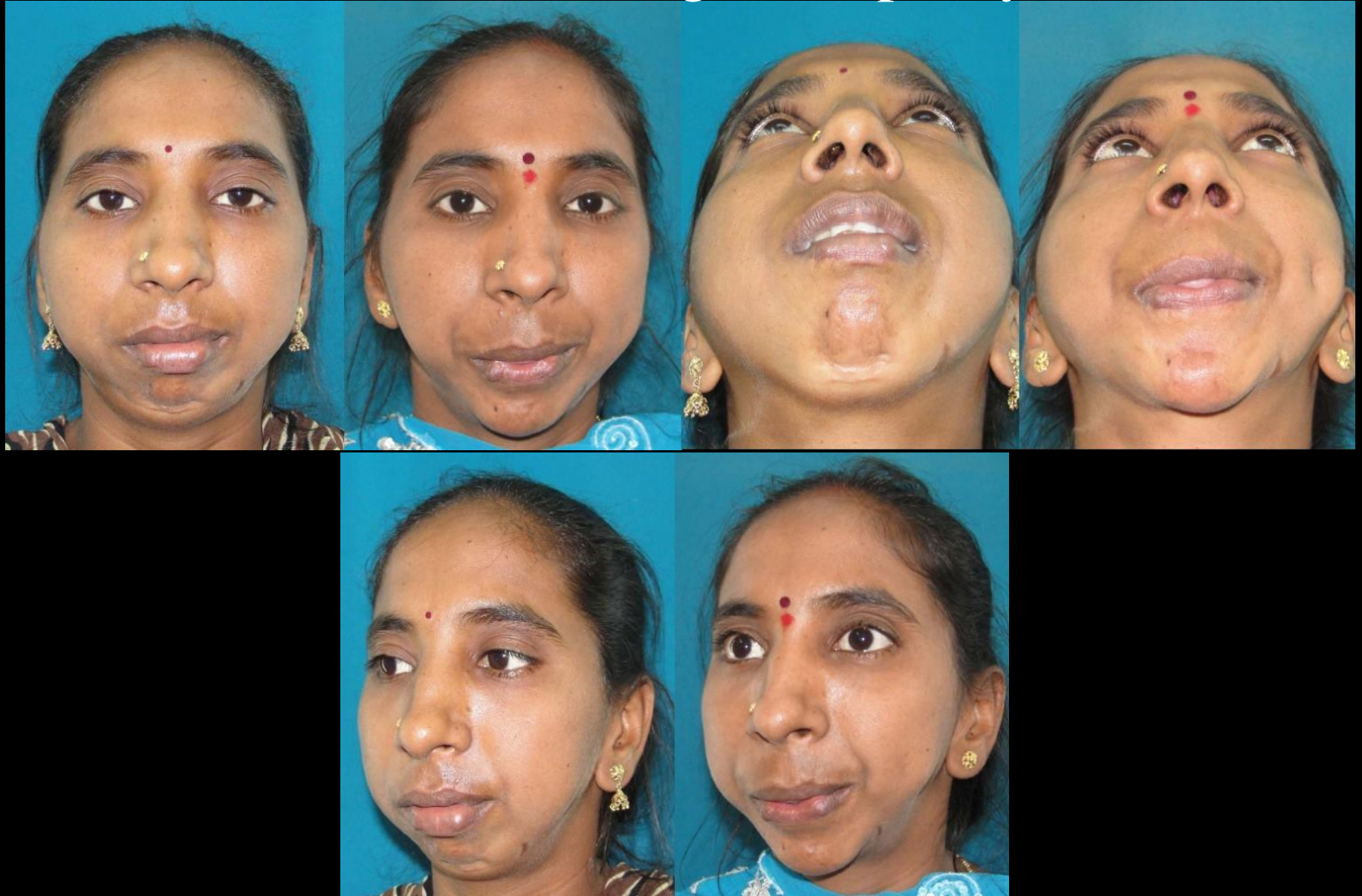
Double Sliding Genioplasty



Double Sliding Genioplasty



Double Sliding Genioplasty



Propeller Genioplasty

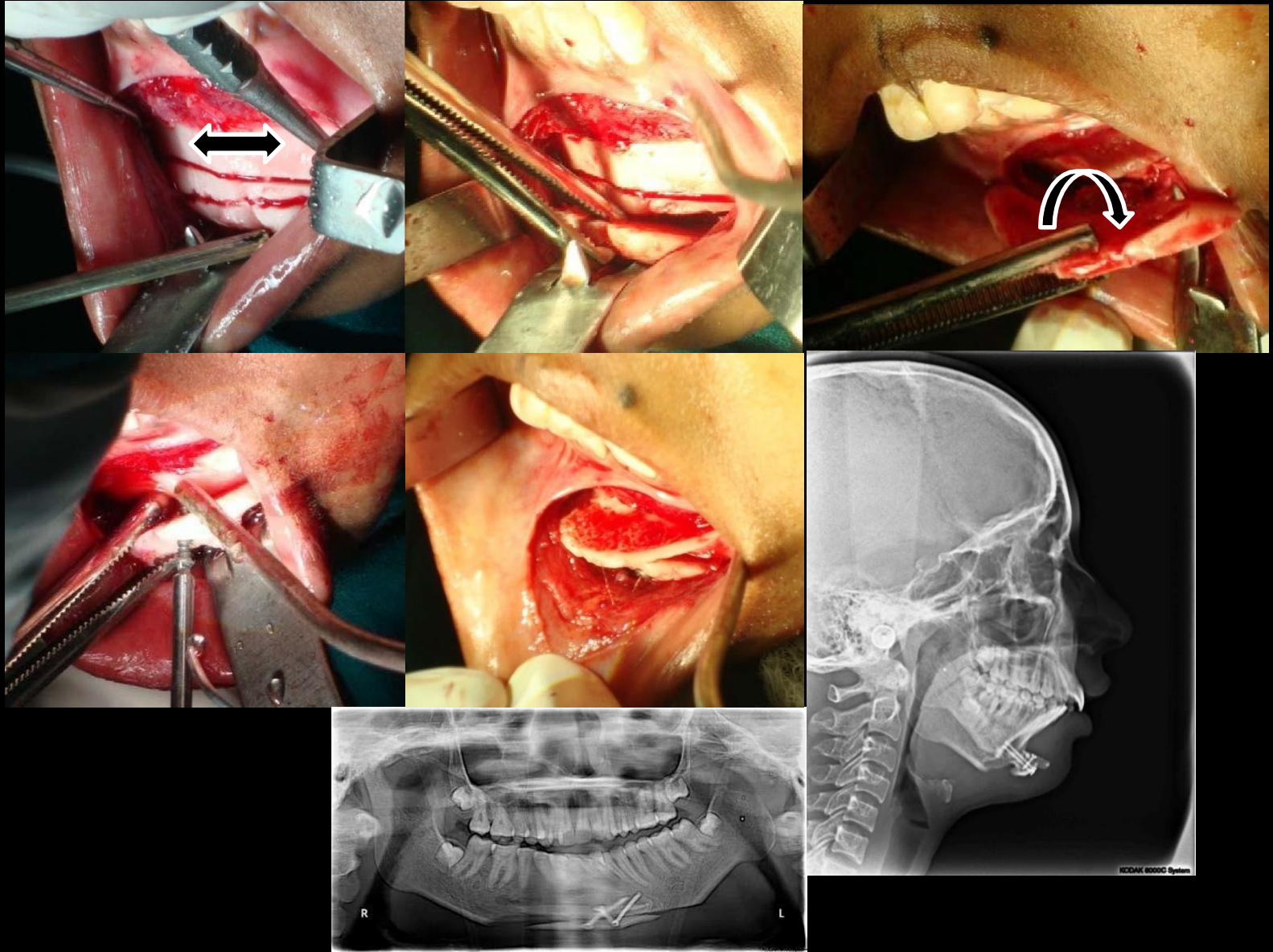


Done when there is asymmetry combined with mild deficiency in vertical and antero-posterior dimension of the genium



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Propeller Genioplasty



Propeller Genioplasty (Asymmetric Jawline)



Types of Distraction Osteogenesis

- Direction
 - Uni-directional
 - Bi-directional
- Placement
 - Intraoral
 - Extraoral
- Maxillo Mandibular Distraction: For correcting maxillary cant
- Morphofunctional Distraction: Done before TMJ resection to correct sleep apnea



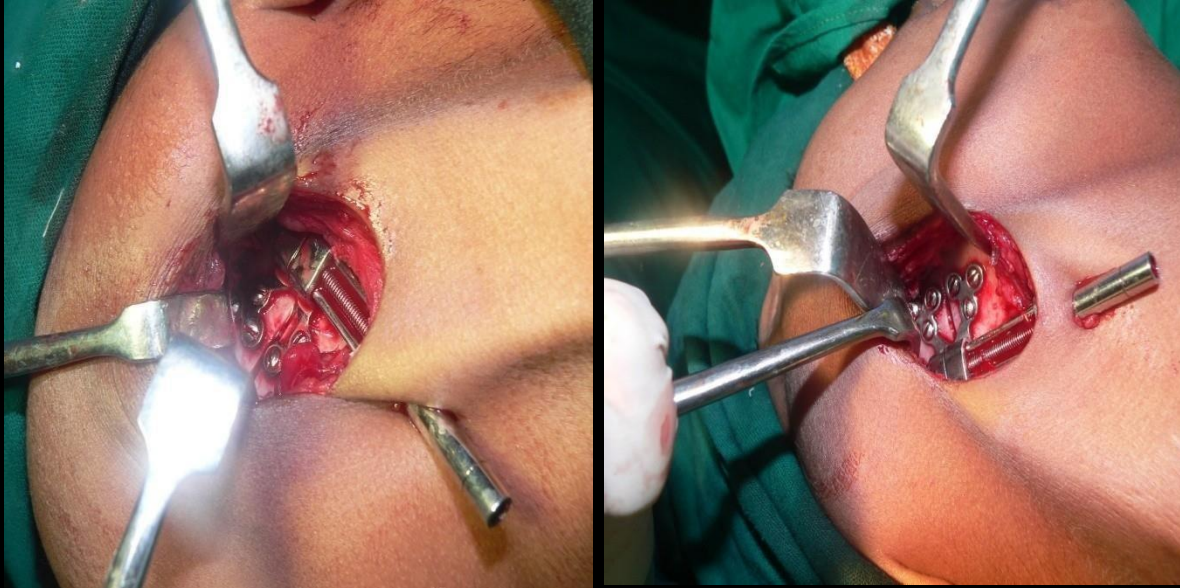
Intraoral Uni-directional Distraction Osteogenesis

STAGE I – Distraction Osteogenesis by using intra oral ramal distractor

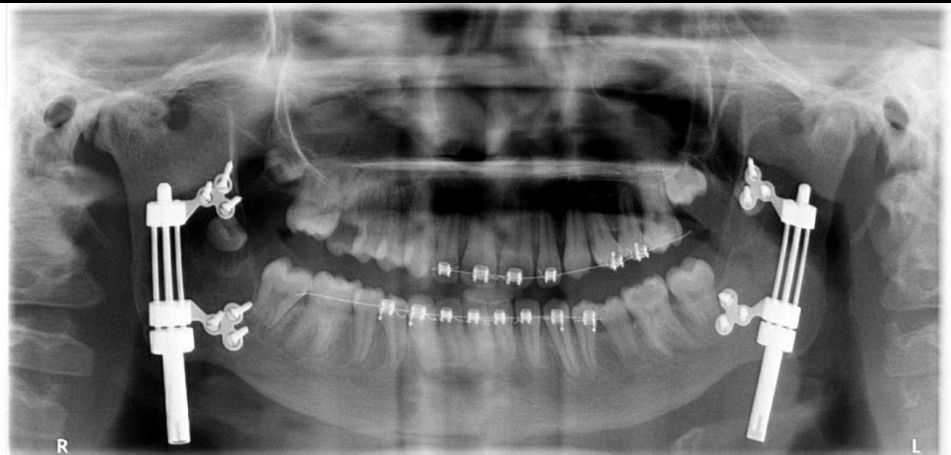
STAGE II - Bilateral release of ankylotic mass and removal of distractors



Distractor placement and distraction



12 mm distraction



20 mm distraction



Pre-operative status for distractor removal and ankylosis release



Bilateral TMJ Ankylosis release simultaneous distractor removal



Intraoral Uni-directional Distraction Osteogenesis



Intraoral Uni-directional Distraction Osteogenesis



Post op 5 months

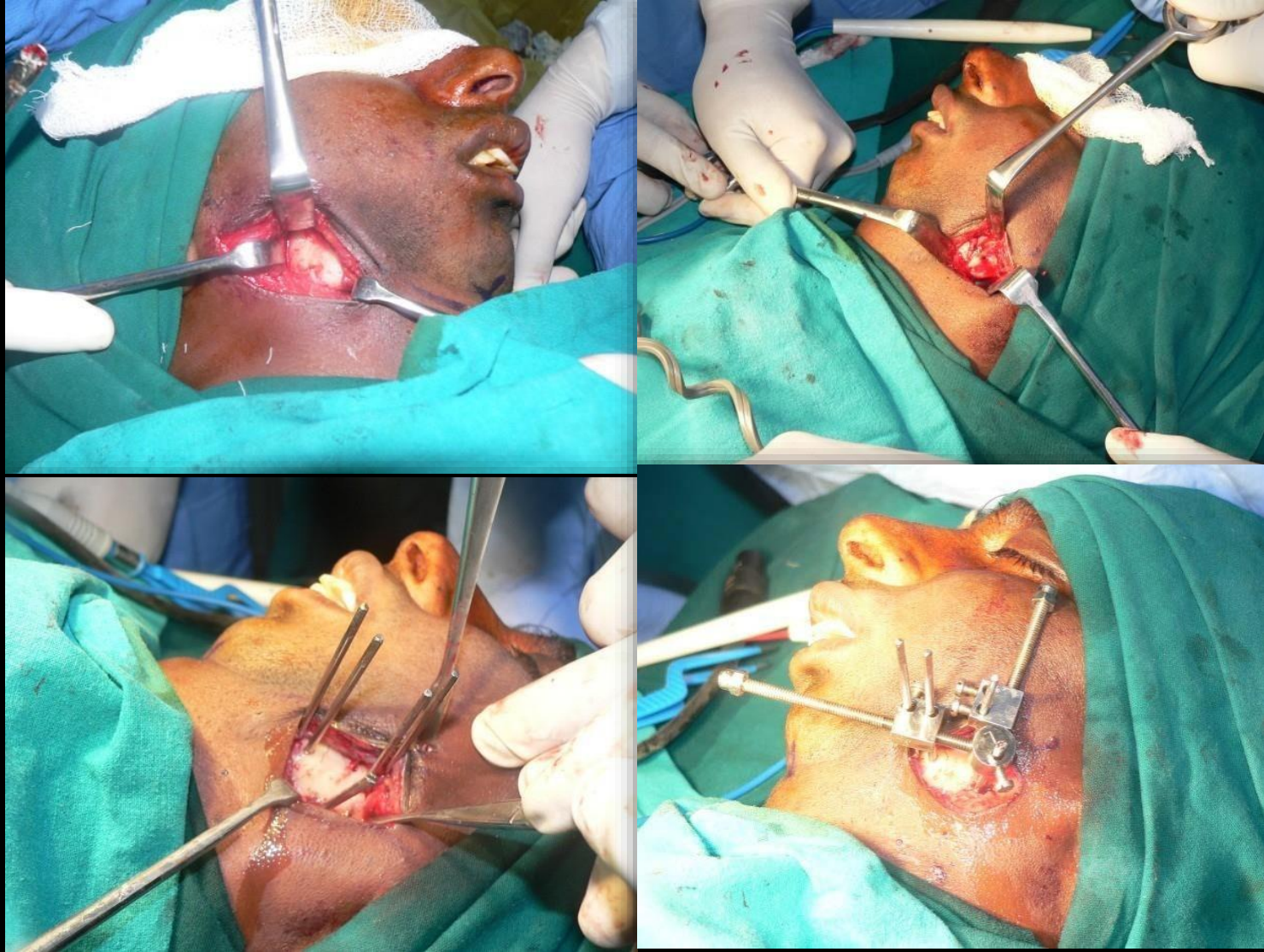


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Extraoral Bi-directional Distraction Osteogenesis



Bi-directional distractor placement



0-24mm Distraction



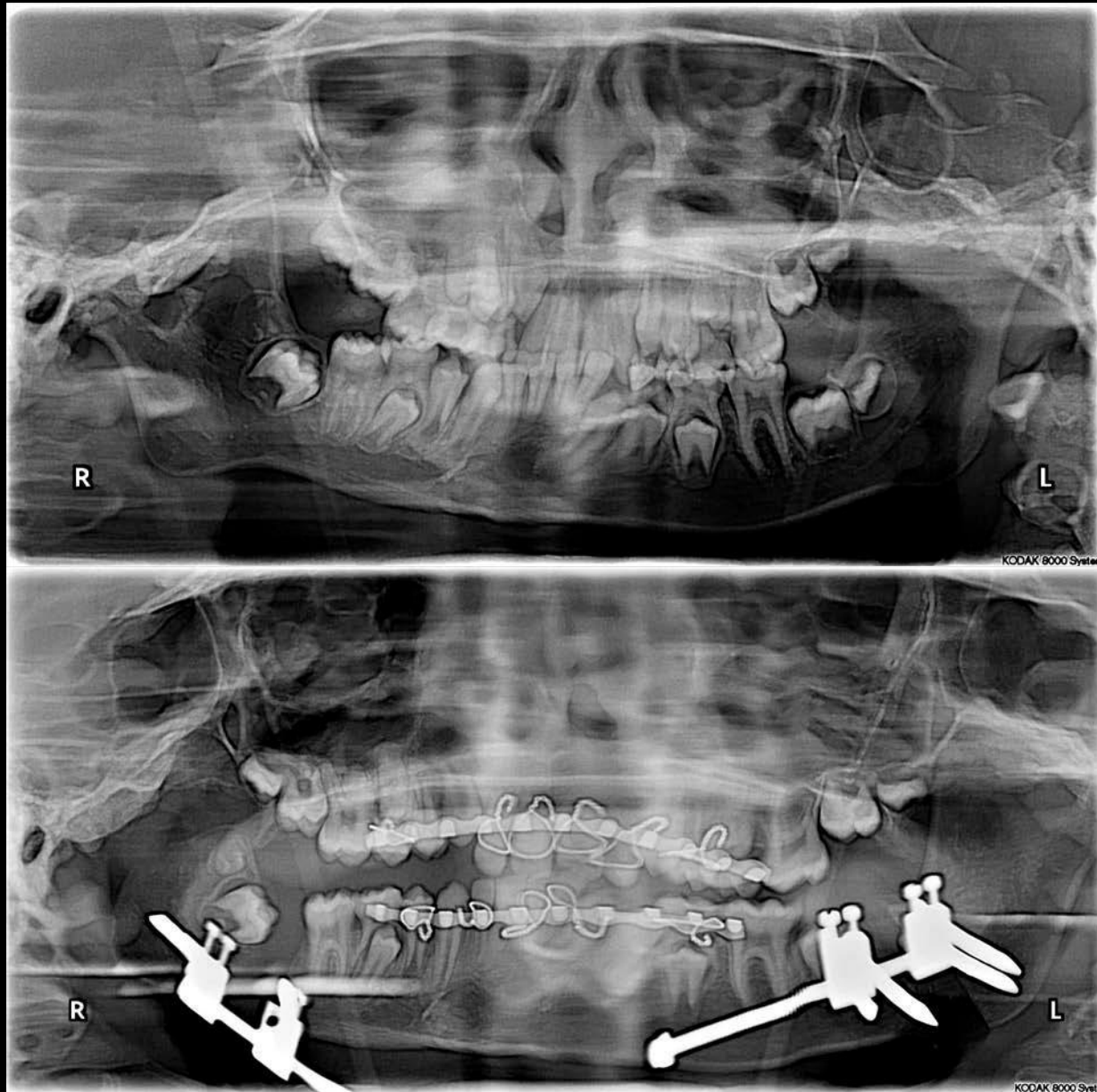
Extraoral Bi-directional Distraction Osteogenesis



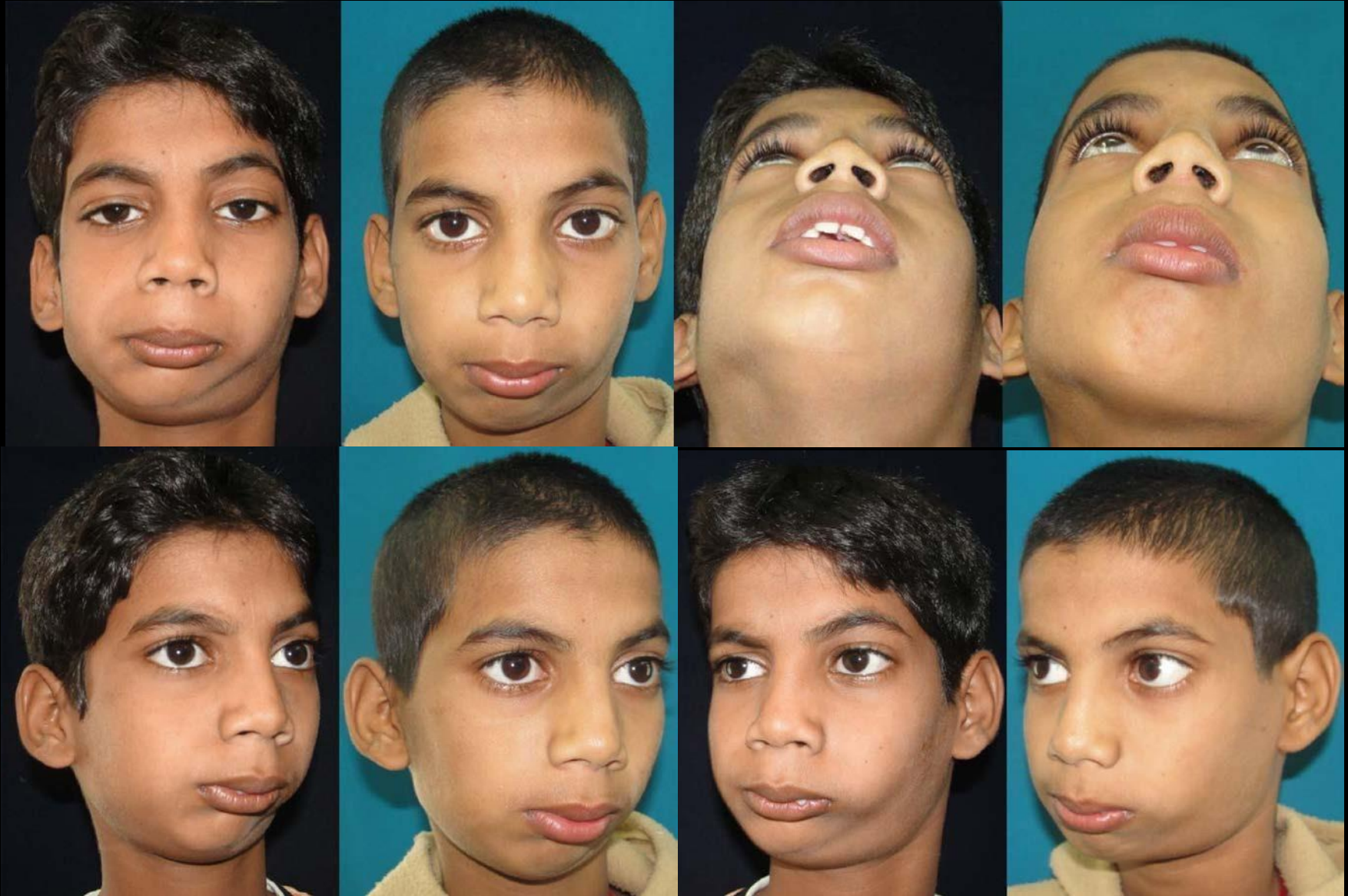
Extraoral Uni-directional Distraction Osteogenesis



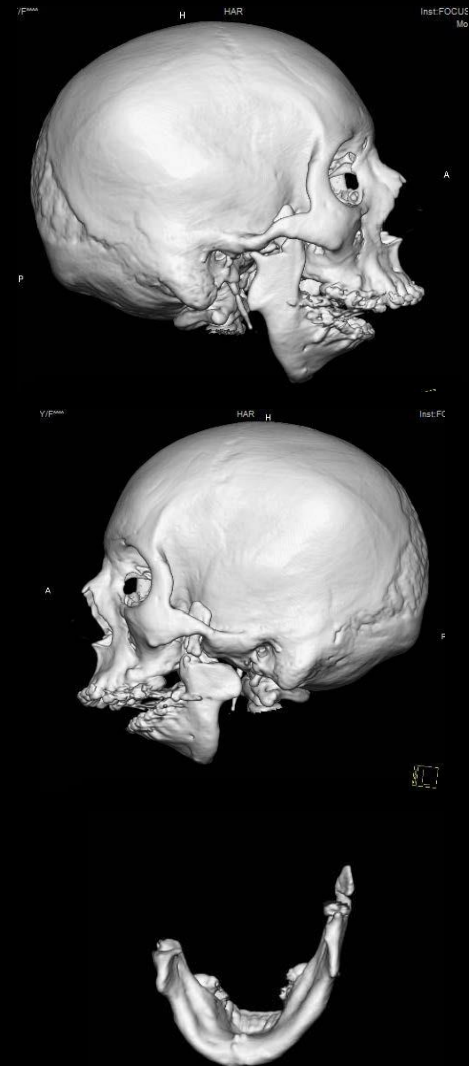
Extraoral Uni-directional Distraction Osteogenesis



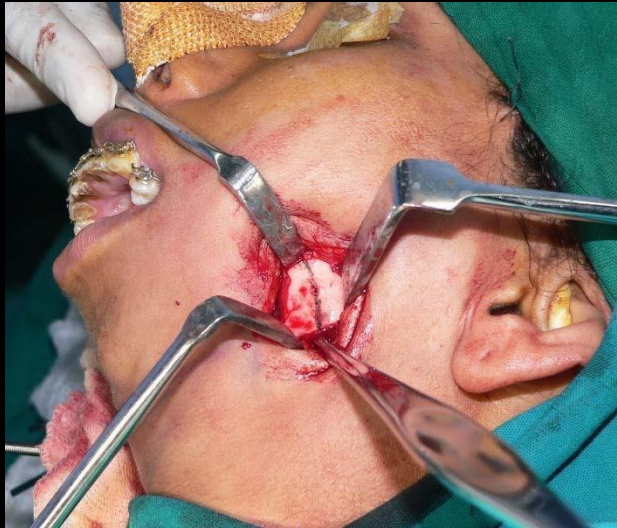
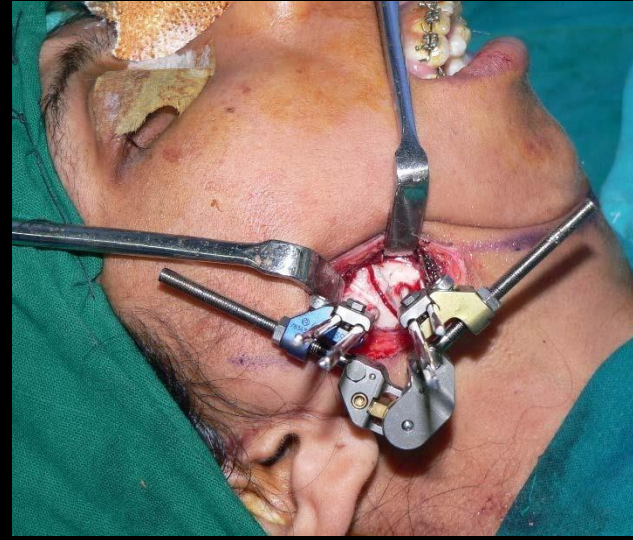
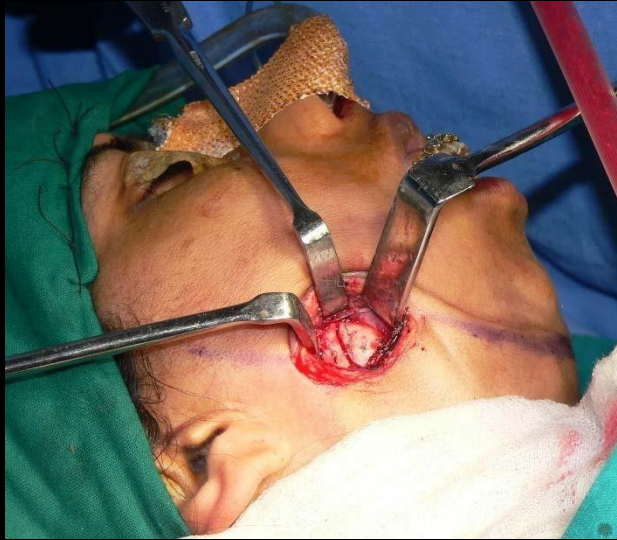
Extraoral Uni-directional Distraction Osteogenesis



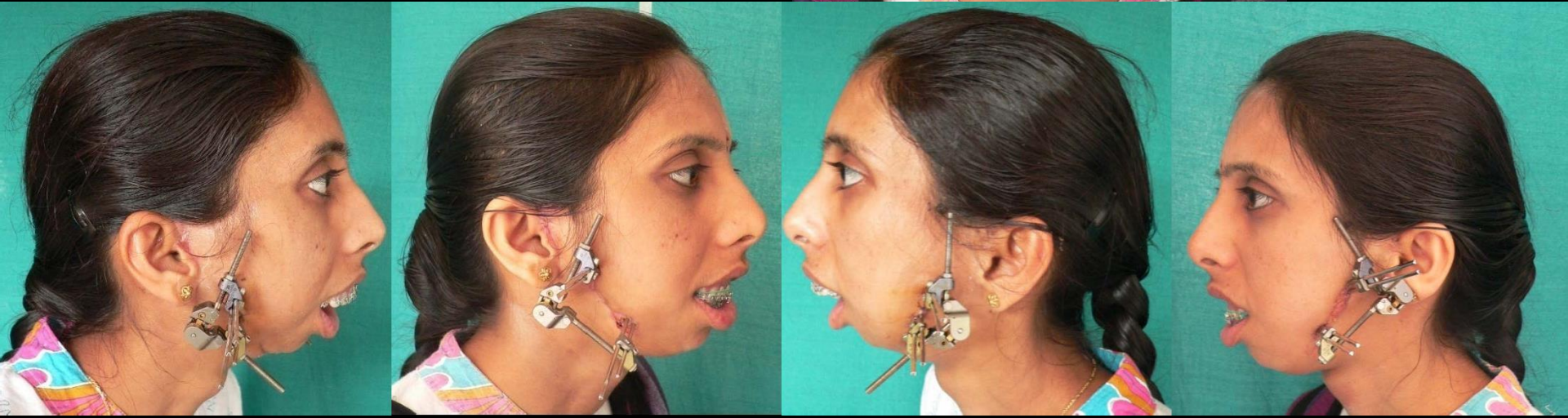
Distraction Osteogenesis and Orthognathic Surgery for correction of Maxillo-Mandibular defect after TMJ ankylosis release



Multivector distractor placement



0-22mm Distraction

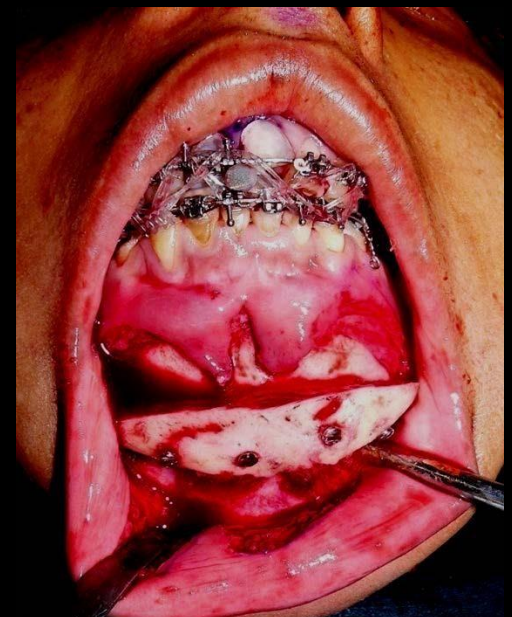




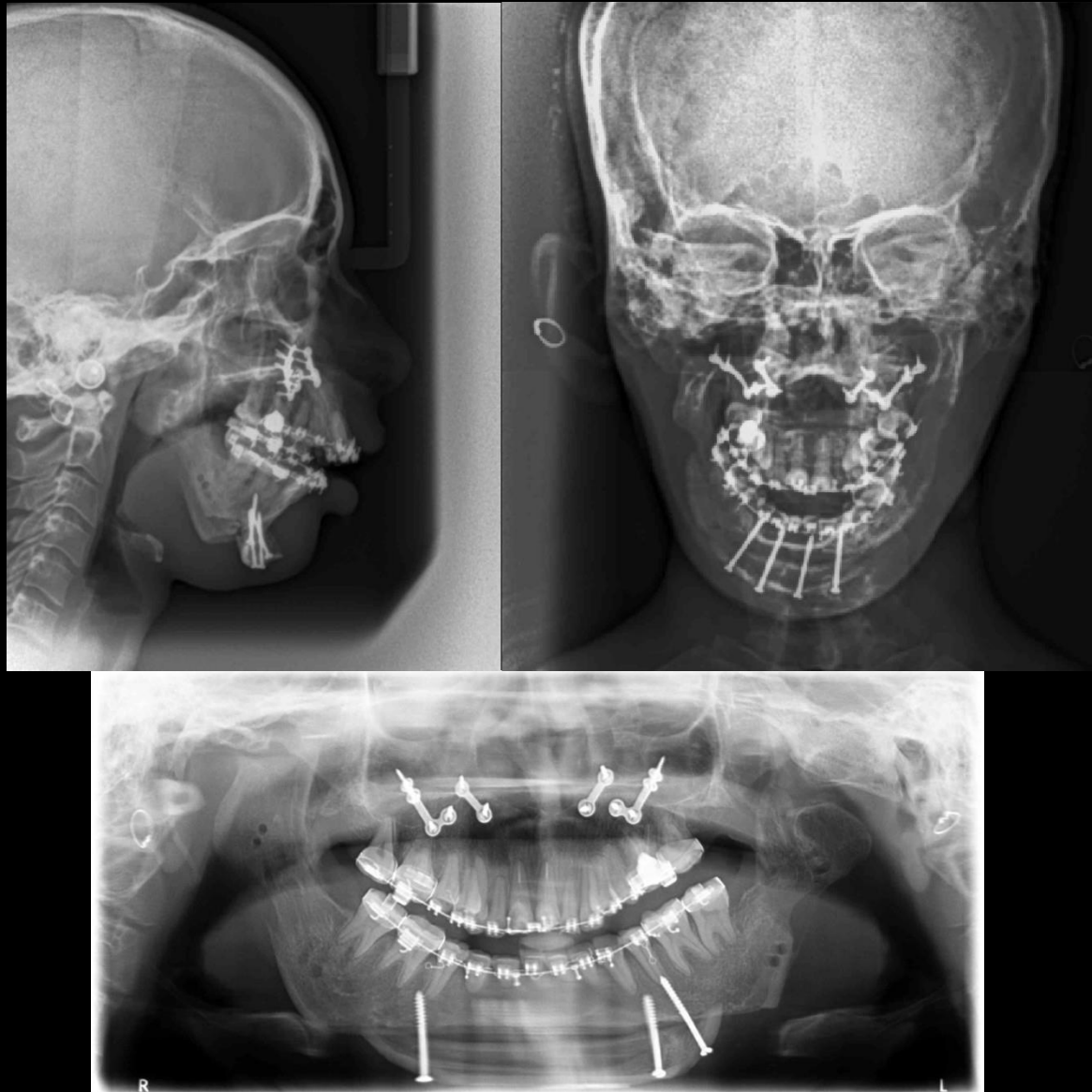
Distractor removal after 6 months



Lefort I impaction with genioplasty



Lefort I impaction with genioplasty



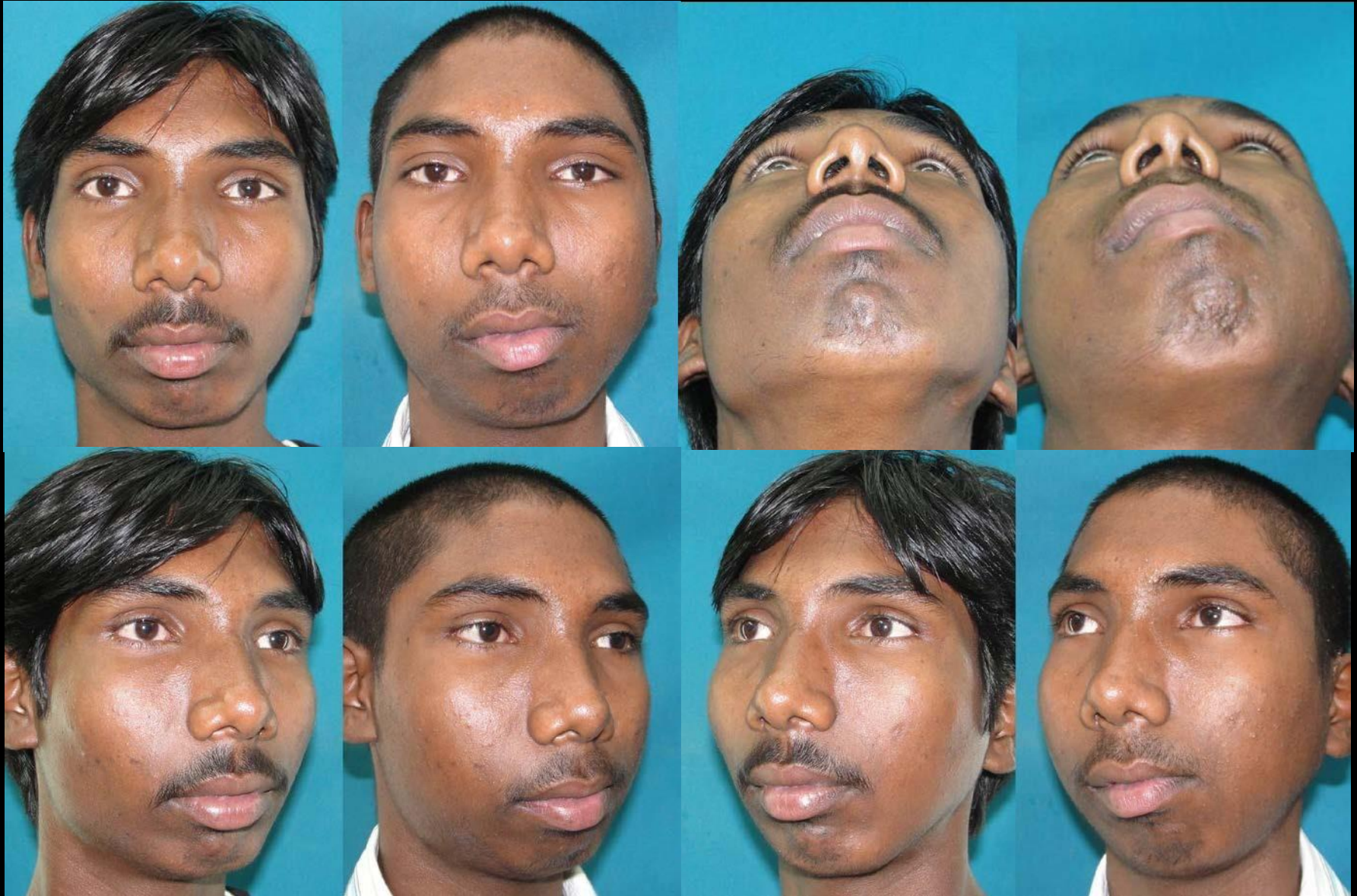


Pseudoankylosis

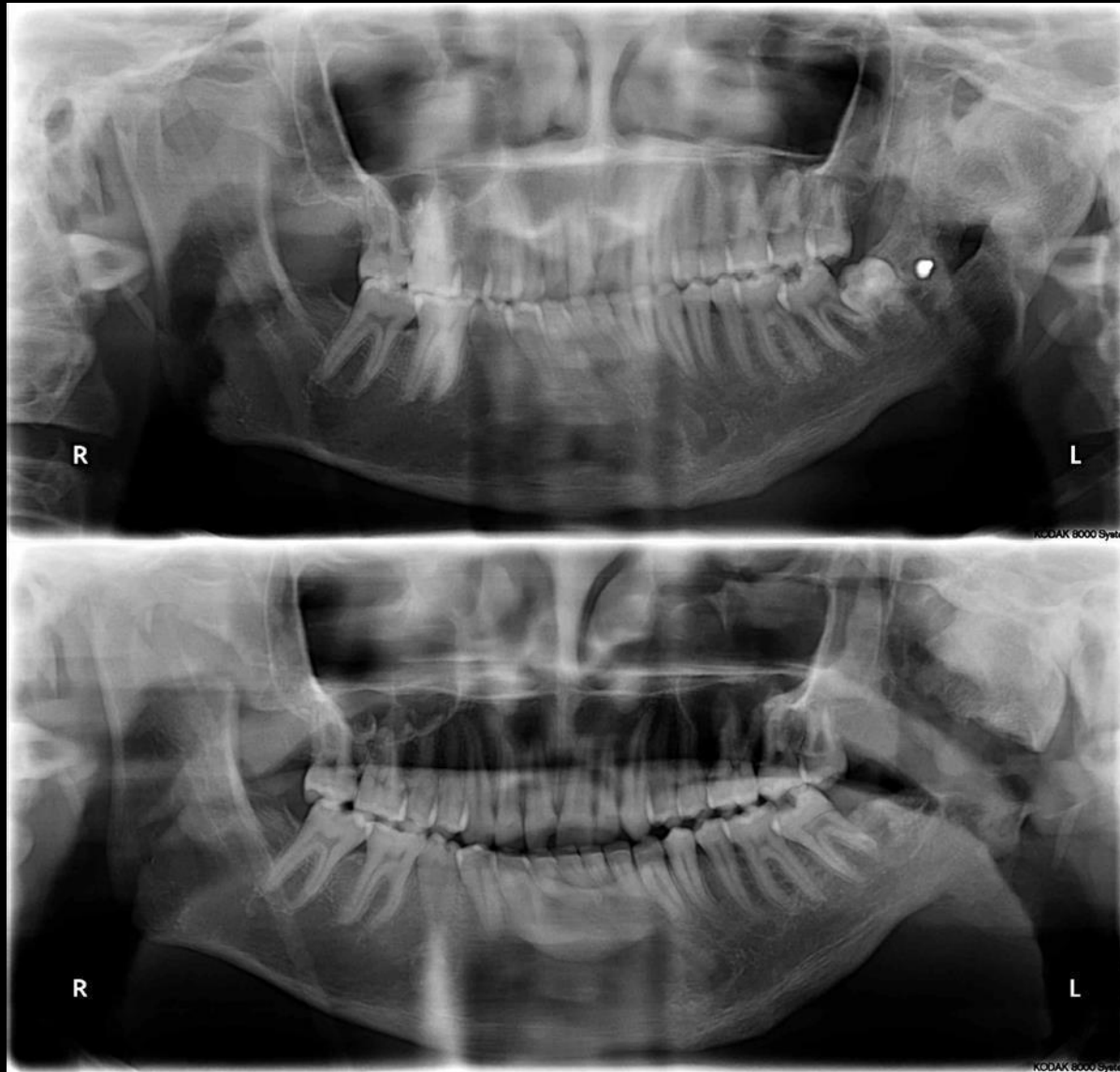
- 4-5 mm of ramus segment removed.
- Maintaining the function and vertical height with masseter muscle interpositioning.
- Advantageous as it does not reduce vertical height.



Pseudo-ankylosis



Pseudo-ankylosis



Orthomorphic Distraction

Horizontal osteotomy cuts made from angle to the symphyseal region

Distraction vectors applied in an outward and forward direction

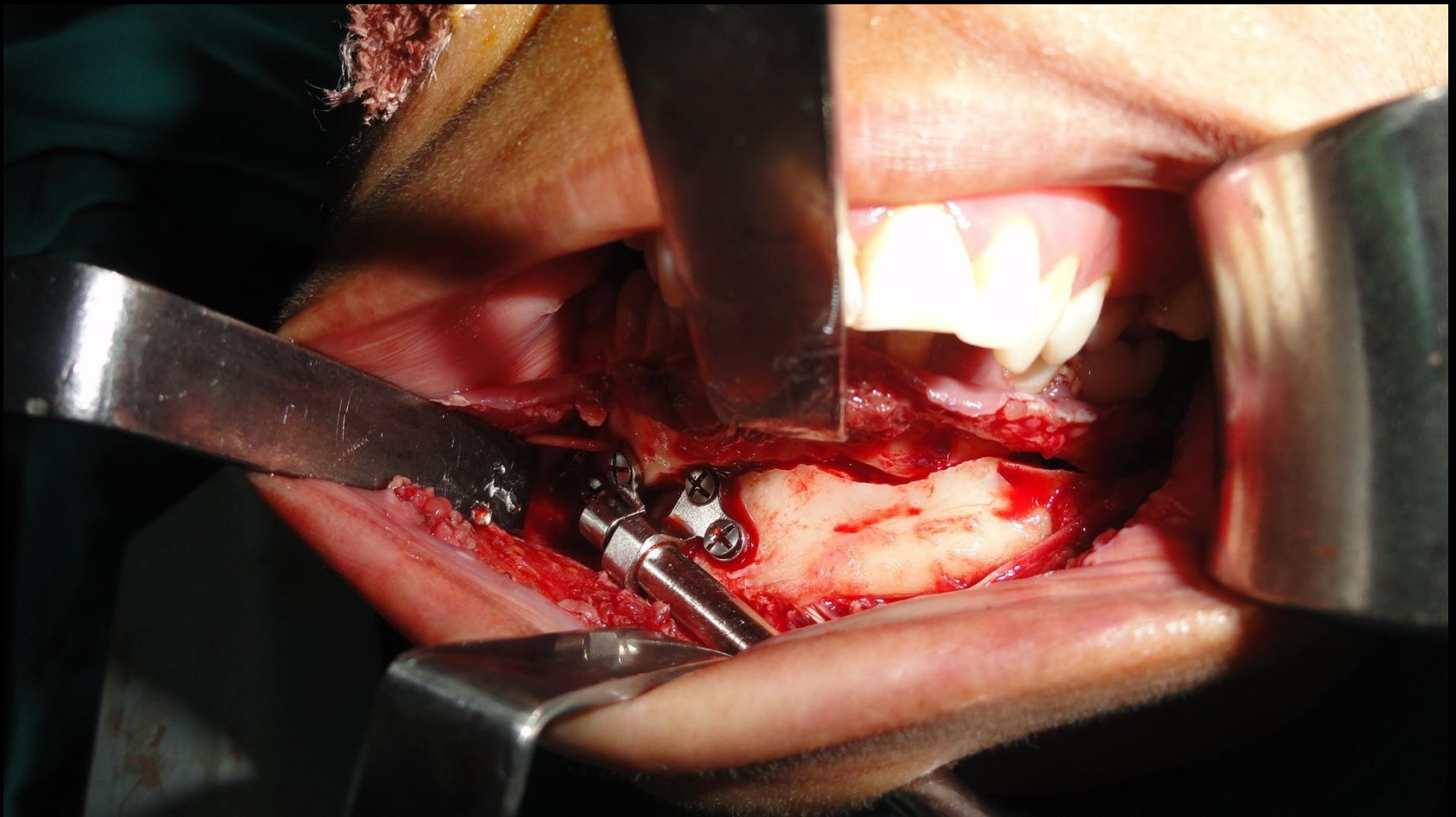
Thereby maintaining the mandibular contour as same as the contralateral side



Orthomorphologic Distraction Osteogenesis



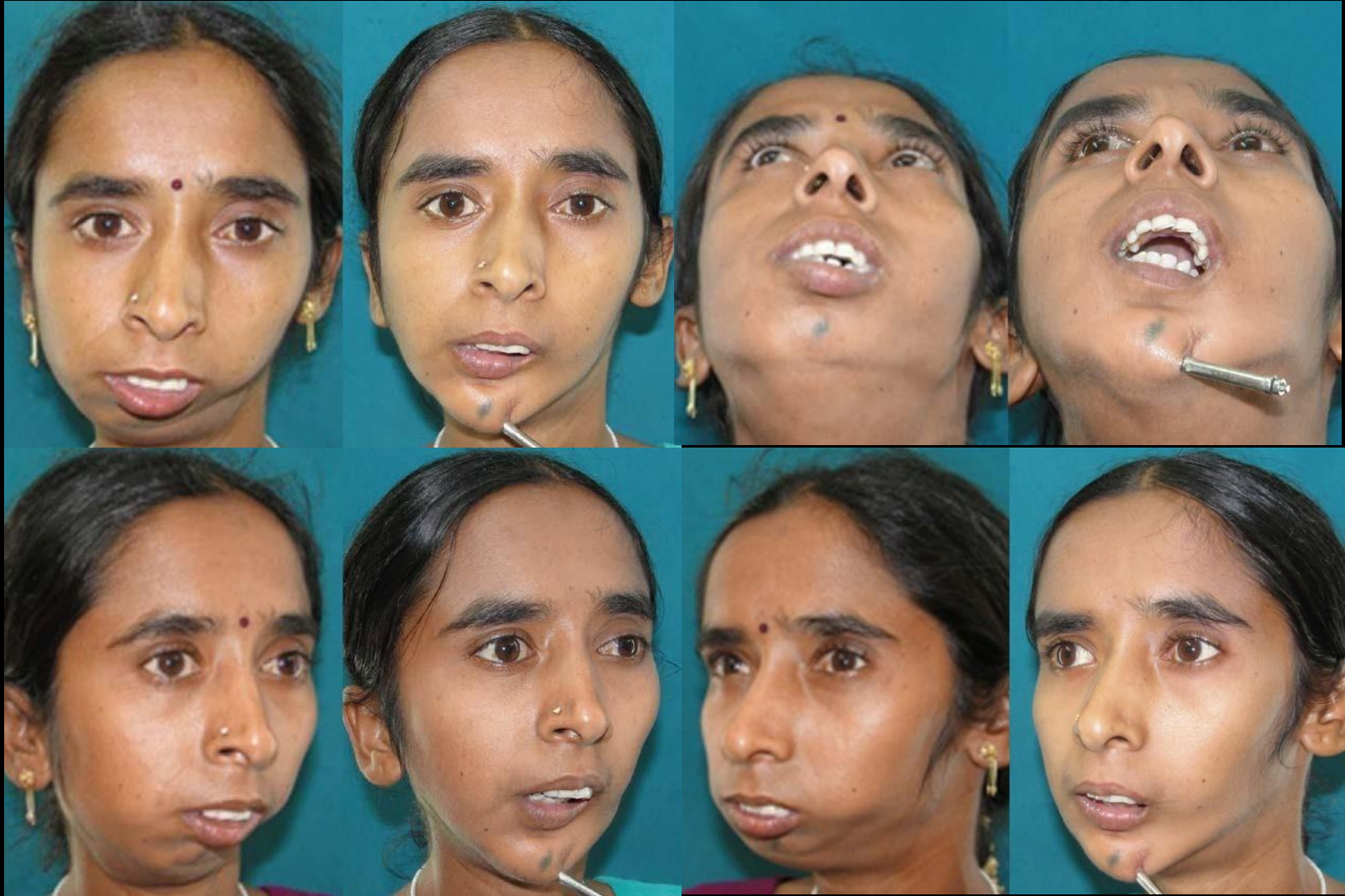
Orthomorphic Distraction Osteogenesis



Orthomorphpic Distraction Osteogenesis



Orthomorphologic Distraction Osteogenesis



Bring the Smile Back



Thank You



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