

Surgical Correction of Facial Asymmetry Caused by Unilateral Condylar Hyperplasia with Co-existing Oral Submucous Fibrosis: A Case Report

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ABSTRACT

Condylar Hyperplasia (CH) is a rare developmental disorder of the temporomandibular joint causing abnormal overgrowth of the mandibular condyle, usually resulting in facial asymmetry, malocclusion, and limitation of function. The case management of a 25-year-old male patient diagnosed with unilateral left CH combined with grade III Oral Submucous Fibrosis (OSMF) is described herein. The patient presented with mandibular deviation, masticatory difficulty, limited mouth opening, and aesthetic worry related to facial disharmony. Clinical assessment, supported by an orthopantomogram and posteroanterior skull radiographs, was used to establish the diagnosis. The surgical treatment of choice was a left low-level condylectomy with removal of 14 mm of the condylar head, followed by mandibular lower border ostectomy and contouring, all under general anaesthesia. Intralesional triamcinolone acetonide (10-40 mg) was administered for rapid symptomatic relief and to facilitate improvement in mouth opening. This strategy was followed by noticeable improvement in facial symmetry, correction of occlusal cant, and restoration of functional mouth opening. Postoperative follow-up confirmed stable occlusion, augmented inter-incisal opening, and satisfactory aesthetic rehabilitation. The present case points to the significance of combining condylectomy with mandibular reshaping in individual patients and emphasises the role of early diagnosis, careful planning, and multidisciplinary care in obtaining predictable results.

Keywords: Condylectomy, Mandibular deviation, Malocclusion, Piezoelectric osteotomy

CASE REPORT

A 25-year-old male presented to the Department of Oral and Maxillofacial Surgery with complaints of progressive facial asymmetry over the preceding 3-4 years. He reported gradual deviation of the lower jaw associated with cosmetic concern and dissatisfaction with facial appearance. There was no history of trauma, pain, or acute onset swelling. The patient denied difficulty in mastication or deglutition or temporomandibular joint-related symptoms such as clicking or locking. There was no history of forceps delivery, topical balm application, cold compression, or hot fomentation. Medical and dental history revealed no known systemic illness, long-term medication use, prior maxillofacial surgery, orthodontic therapy, dental extractions, or similar complaints within the family. There was no history suggestive of temporomandibular joint disorders. The patient reported chronic areca nut chewing for approximately 10 years but denied tobacco smoking or alcohol consumption. Written and oral informed consent was obtained from the patient for clinical examination, treatment and publication of clinical data and photographs.

On general examination, the patient was moderately built and moderately nourished. Vital signs were within normal limits, with a pulse rate of 82 beats/min, respiratory rate of 20 breaths/min, blood pressure of 110/70 mmHg, and temperature of 98°F. His height was 170 cm and weight 60 kg, corresponding to a body mass index of 20.76 kg/m² and a body surface area (Mosteller) of 1.68 m². Extraoral examination revealed marked facial asymmetry characterised by vertical elongation of the lower face with deviation of the chin toward the right side. Relative fullness of the left mandibular region with flattening of the contralateral side was noted, resulting in facial disproportion. Mandibular movements demonstrated deviation toward the right side on opening. No tenderness, clicking, or crepitus was detected over either temporomandibular joint. Examination of the eyes, ears, and nose was unremarkable. Lips were competent, and no cervical lymphadenopathy was clinically evident.

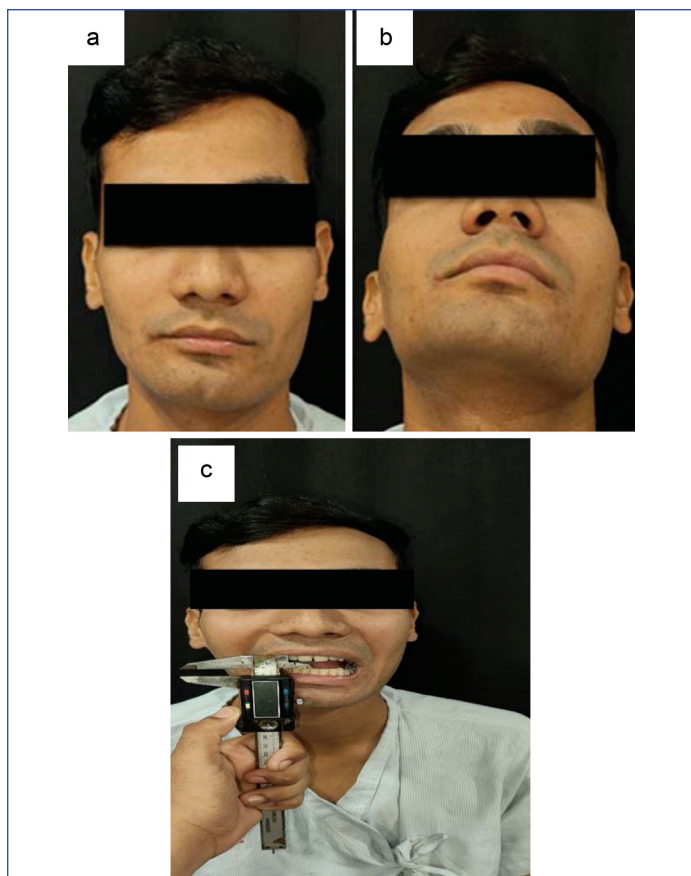
Intraoral examination demonstrated reduced interincisal mouth opening of approximately 20-22 mm, consistent with functional limitation due to OSMF. Permanent dentition was presented (11-18, 21-28, 31-38, 41-48). Preoperative intraoral photographs demonstrated unstable occlusion with occlusal canting and mandibular deviation attributable to unilateral CH. Intraoral examination showed reduced interincisal mouth opening with palpable fibrotic bands in the buccal mucosa, consistent with Grade III OSMF according to the Khanna JN and Andrade NN classification [1] for five years. The hard palate, soft palate, tongue, floor of mouth, and uvula appeared normal, with no mucosal lesions or suspicious intraoral abnormalities. Dental examination performed prior to scaling of tobacco stains revealed a deviated occlusal cant to mandibular asymmetry [Table/Fig-1a-c,2].

Radiological Evaluation

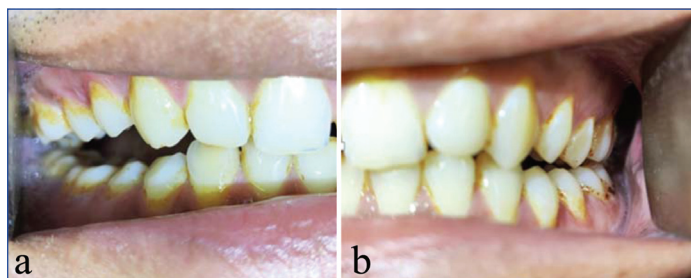
Radiographic evaluation was performed to assess the extent of skeletal deformity. The orthopantomogram demonstrated marked enlargement of the left condylar head with associated elongation of the condylar neck compared to the contralateral side. The posteroanterior skull radiograph further confirmed lateral deviation of the mandible with resultant facial asymmetry, supporting the diagnosis of unilateral CH [Table/Fig-3].

Biochemical Investigations

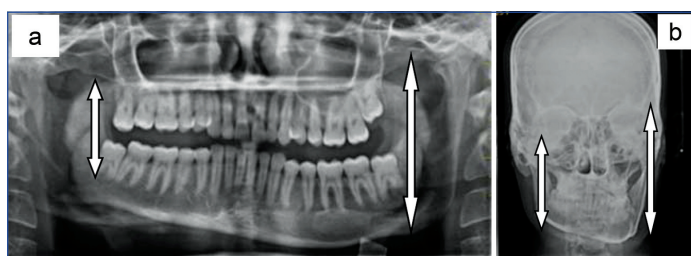
Routine haematological and biochemical evaluation showed values within normal reference ranges: haemoglobin 14.2 g/dL (13-17 g/dL), total leucocyte count 7,800 cells/mm³ (4,000-11,000), platelets 2.4×10⁵/mm³ (1.5-4.5×10⁵), serum calcium 9.4 mg/dL (8.6-10.2), phosphorus 3.6 mg/dL (2.5-4.5), alkaline phosphatase 92 IU/L (40-130), blood urea 28 mg/dL (15-40), creatinine 0.9 mg/dL (0.6-1.2), and Erythrocyte Sedimentation Rate (ESR) 10 mm/hour (<15), excluding metabolic, endocrine, or inflammatory aetiologies.



[Table/Fig-1]: a) Preoperative extraoral frontal photograph demonstrating facial asymmetry with fullness of the left mandibular region and deviation of the chin toward the right-side; b) Preoperative extraoral worms eye view showing prominence and vertical elongation of the left mandibular body contributing to lower facial disproportion; c) Preoperative clinical photograph demonstrating reduced mouth opening.



[Table/Fig-2a,b]: Preoperative intraoral view, demonstrating occlusal canting and malocclusion with features consistent with OSMF. Tobacco stains were reduced following scaling, improving visualisation.



[Table/Fig-3]: a) Orthopantomogram demonstrating enlargement of the left condylar head with elongation of the condylar neck compared with the contralateral side (arrow), suggestive of CH; b) Posteroanterior skull radiograph showing lateral deviation of the mandible with facial asymmetry and occlusal canting.

Diagnostic Work-up

A comprehensive diagnostic work-up was undertaken to establish the diagnosis, assess disease activity, exclude metabolic or endocrine causes, and plan definitive surgical management.

Differential diagnoses considered included hemimandibular hypertrophy/elongation, condylar osteochondroma or osteoma, fibrous dysplasia of the mandible, post-traumatic condylar deformity, and early temporomandibular joint ankylosis, which were excluded based on clinical features and radiographic findings.

Based on the clinical findings of progressive facial asymmetry, mandibular deviation, and restricted mouth opening, along with initial radiographic evidence demonstrating enlargement of the left condylar head and elongation of the condylar neck, a diagnosis of unilateral left mandibular CH with co-existing Grade III OSMF was considered.

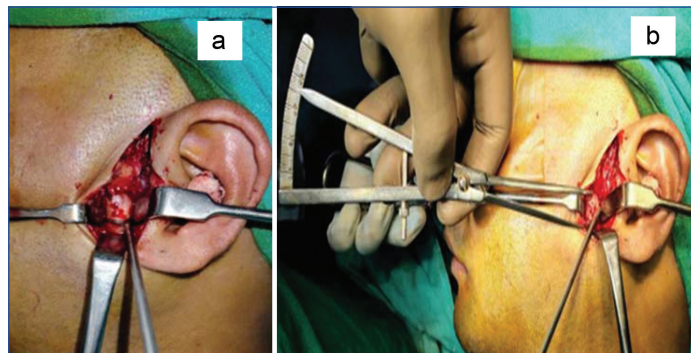
Surgical Review

Based on clinical, radiological, and laboratory findings, a diagnosis of unilateral active CH with associated OSMF was established. After multidisciplinary discussion involving maxillofacial surgeons and anaesthesiologists, surgical intervention was planned to arrest abnormal condylar growth and correct facial asymmetry while preserving temporomandibular joint function.

Management

An interdisciplinary assessment was performed involving the oral and maxillofacial surgery, orthodontics, oral medicine, and anaesthesiology teams. Skeletal asymmetry and condylar activity were evaluated, occlusal discrepancies assessed, and Grade III OSMF was confirmed. The patient was advised Intralesional corticosteroids, physiotherapy, and habit cessation. Pre-anaesthetic evaluation anticipated a difficult airway due to restricted mouth opening; therefore, awake fibre-optic nasotracheal intubation was performed under topical airway anaesthesia to secure the airway safely. Following successful intubation, general anaesthesia was induced and maintained.

A preauricular incision was used to expose the left temporomandibular joint. Low-level condylectomy was performed with resection of approximately 14 mm of the condylar head using a piezoelectric osteotomy device to ensure precision and minimise soft-tissue injury. The remaining condylar stump was contoured to allow smooth articulation. Subsequently, mandibular lower border osteotomy and contouring were carried out through an intraoral vestibular approach to achieve facial symmetry. Haemostasis was achieved and wounds were closed in layers. Postoperative analgesics, antibiotics, and physiotherapy were prescribed [Table/Fig-4a,b].



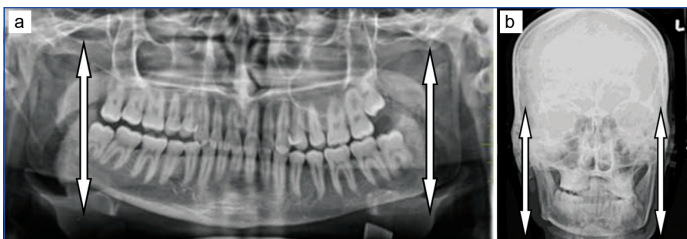
[Table/Fig-4]: Intraoperative photographs showing: a) Low-level condylectomy of the left mandibular condyle following preauricular exposure with resection of approximately 14 mm of the condylar head, and b) Mandibular lower border osteotomy and contouring performed via an intraoral vestibular approach to restore facial symmetry.

Follow-up

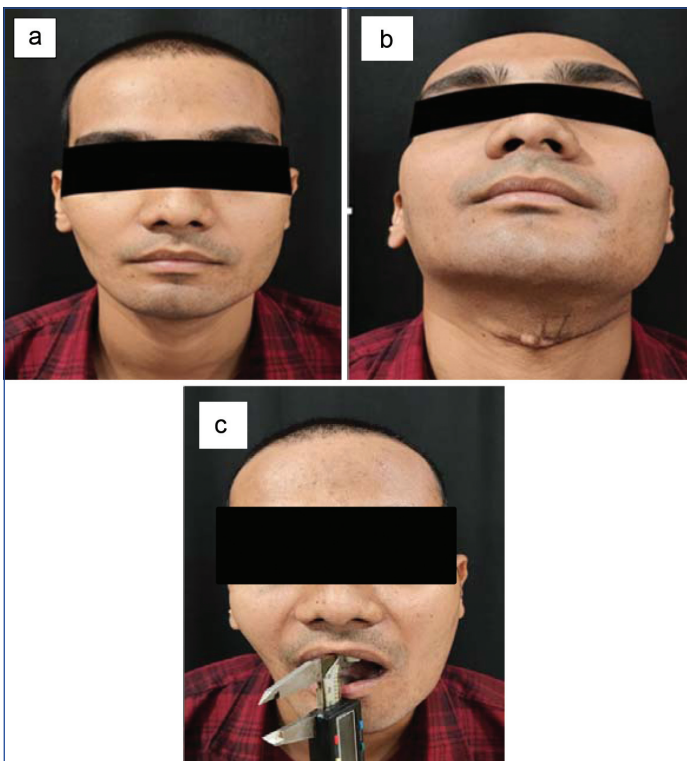
The postoperative period was uneventful. Radiographic evaluation confirmed adequate resection and improved mandibular symmetry [Table/Fig-5a,b]. At six-month follow-up, the patient showed marked improvement in facial aesthetics, stable occlusion, and increased mouth opening of approximately 30 mm [Table/Fig-6a-c,7]. Ongoing physiotherapy and management of OSMF were advised to further improve function.

DISCUSSION

Condylar Hyperplasia is an uncommon developmental disorder characterised by excessive unilateral growth of the mandibular condyle, resulting in progressive facial asymmetry, occlusal



[Table/Fig-5]: Postoperative radiographs showing: a) Orthopantomogram demonstrating symmetrical mandibular condylar height with satisfactory remodelling of the left condylar stump following low-level condylectomy; and b) Posteroanterior skull radiograph confirming correction of mandibular deviation and restoration of facial symmetry.



[Table/Fig-6]: Postoperative extraoral clinical photographs showing: a) Frontal view with marked improvement in facial symmetry and correction of chin deviation; b) Worms eye view demonstrating balanced mandibular contour; and c) Improved mouth opening at follow-up.



[Table/Fig-7]: Postoperative intraoral occlusal photograph demonstrating correction of occlusal cant with improving dental alignment and stable intercuspation following combined low-level condylectomy and mandibular contouring.

disturbance, and functional limitation. Although relatively rare in the general population, it remains a clinically important cause of dentofacial deformity encountered in orthodontic and maxillofacial practice [2]. The condition commonly manifests during the pubertal growth period but may continue into early adulthood if untreated, leading to progressive skeletal deformity, as observed in the present case. The precise aetiology of CH remains uncertain. Proposed mechanisms include increased vascularity, hormonal influences, genetic predisposition, and altered biomechanical loading [3]. Histopathological studies demonstrate thickened fibrocartilage,

increased chondrocyte proliferation, and enhanced endochondral ossification, supporting intrinsic dysregulation of condylar growth rather than a purely reactive process [3]. Nitzan DW et al., reported that CH commonly presents with progressive unilateral facial asymmetry, mandibular deviation, and occlusal discrepancies due to excessive condylar growth [4]. Occlusal canting and chin deviation toward the unaffected side were frequent findings. These features correlate with the present case, which demonstrated progressive facial asymmetry, mandibular deviation, and occlusal canting consistent with unilateral CH. Clinically, CH typically presents with gradual lower facial asymmetry, deviation of the chin toward the contralateral side, occlusal canting, unilateral crossbite or open bite, and masticatory difficulty [5]. Similar features were evident in the present patient, who demonstrated progressive mandibular deviation and occlusal instability. The coexistence of Grade III OSMF resulted in restricted mouth opening and additional functional limitation, further complicating airway management and surgical planning. Such combined pathology is infrequently reported and necessitates careful multidisciplinary coordination. Radiological evaluation remains fundamental for diagnosis and treatment planning. Conventional modalities such as orthopantomogram and posteroanterior skull radiographs allow assessment of condylar enlargement, elongation of the condylar neck, and mandibular deviation [4,5]. Advanced imaging techniques such as cone beam computed tomography provide superior three-dimensional visualisation. Determination of condylar growth activity is critical prior to intervention, and nuclear imaging modalities including bone scintigraphy and Single-Photon Emission Computed Tomography (SPECT) demonstrate good correlation with active disease [6,7]. Management depends on disease activity, severity of asymmetry, and functional or aesthetic concerns. In active CH, surgical intervention aimed at arresting pathological growth is recommended. Low-level or proportional condylectomy has gained wide acceptance as it removes the hyperactive growth centre while preserving temporomandibular joint function [8]. Kim JY et al., reported stable long-term outcomes following condylectomy in active unilateral CH [9], while Abboud WA et al., demonstrated significant improvement in facial symmetry and occlusal stability using three-dimensional analyses [8]. Adjunctive mandibular procedures such as lower border ostectomy, contouring, or orthognathic correction may be required to address residual deformity [10]. In the present case, combined low-level condylectomy with mandibular border ostectomy and contouring achieved satisfactory facial symmetry, correction of occlusal cant, and restoration of function.

Comparatively, the presentation and outcomes observed in this patient are consistent with previously reported case series describing progressive asymmetry and malocclusion managed successfully with condylectomy and adjunctive skeletal reshaping [3,5,8-10]. However, the additional presence of OSMF posed unique challenges, including restricted mouth opening, difficult airway management, and prolonged postoperative rehabilitation, highlighting the importance of a multidisciplinary approach involving surgeons, orthodontists, oral medicine specialists, and anaesthesiologists.

Recurrence after adequate condylectomy is generally uncommon when surgery is performed during the active growth phase with sufficient resection. Long-term studies have documented stable outcomes with low relapse rates [9]. Proper assessment of condylar activity and surgical timing are essential for long-term stability and prevention of relapse [11]. Furthermore, meta-analytic evidence supports preoperative bone scintigraphy or SPECT to minimise recurrence risk by accurately identifying active disease [12]. Patient's follow-up demonstrated stable occlusion, improved mouth opening, and maintained facial symmetry without evidence of relapse, consistent with the favourable outcomes reported in the literature.

Overall, the present case reinforces that early diagnosis, appropriate imaging to assess growth activity, and comprehensive multidisciplinary care are essential for successful management of CH. Combined low-level condylectomy and mandibular contouring provide predictable functional and aesthetic correction, even in complex cases with co-existing OSMF.

CONCLUSION(S)

Unilateral CH can result in significant facial deformity and functional disability. Low-level condylectomy combined with mandibular osteotomy provides reliable correction with favourable aesthetic and functional outcomes. Early diagnosis, precise imaging, and multidisciplinary management are essential, particularly in patients with coexisting OSMF.

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