



Case Study

Symphyseal Mandibular Fracture with Bilateral Condylar Fractures: Open Reduction and Internal Fixation under General Anaesthesia – A Clinical Case Report

R. Rajendra Prasad*¹, Seema Yoganna²

¹MDS, Oral & Maxillofacial Surgeon and Medical Director, Suyog Hospital, Mysore

²MDS, Oral Pathologist and Medical Director, Suyog Hospital, Mysore

Fractures of the mandible are among the most common maxillofacial injuries in oral and maxillofacial surgery, and most commonly occur as a result of road traffic accidents, interpersonal violence, falls, and sports trauma. Since the mandible has a horseshoe shape, a single trauma to the mandible will cause fractures at more than one site - either directly at the point of impact or indirectly at the condylar neck, angle, or parasymphysis. We present a clinical case of a combined symphyseal mandibular fracture with bilateral condylar fractures successfully treated with ORIF under general anaesthesia. The symphysis was approached and plated via an intraoral vestibular incision, and both condylar fractures were treated with a retromandibular transmasseteric approach for rigid miniplate fixation. This report describes the diagnostic approach, surgical technique, and rationale for open management of bilateral condylar fractures in conjunction with symphyseal fracture conditions and reviews literature on treatment selection for this fracture pattern.

Keywords: Mandible fracture, symphysis fracture, bilateral condylar fracture, open reduction and internal fixation, maxillomandibular fixation, maxillofacial trauma.

INTRODUCTION

The mandible is the second most commonly fractured facial bone after the nasal bone, owing to its prominent and unprotected position in the lower third of the face. Mandibular fractures account for a significant proportion of all maxillofacial injuries in trauma series, with the condyle, angle, symphysis/parasymphysis and body being the most frequently affected sites in decreasing or variable order depending on the population studied. The combination of a symphyseal fracture with bilateral condylar fractures is a well-known injury pattern that typically results from a direct anterior blow to the chin and is transmitted bilaterally along the mandibular body to the condylar necks (the thinnest and biomechanically weakest part of the mandible). While the management of condylar fractures is one of the most controversial issues in maxillofacial trauma

surgery, it currently has three options: closed reduction with maxillomandibular fixation (MMF) and early mobilisation, open reduction and internal fixation (ORIF) with rigid or semi-rigid osteosynthesis. If condylar fractures happen bilaterally, particularly with a fracture elsewhere in the mandibular arch (the symphysis for instance), the risk of a decrease in posterior facial height, premature posterior occlusal contact, anterior open bite, facial asymmetry and long-term TMJ dysfunction increases considerably if treated by closed means only. However, a growing body of evidence is favouring an open management of displaced and dislocated condylar fractures, especially when they occur bilaterally, in order to better manage ramus height, condylar position and pre-traumatic occlusion. We have presented a case of symphyseal fracture with

bilateral condylar fractures treated by ORIF under general anaesthesia and discussed the clinical decision making.

Case Report.

2.1 History and Presenting Complaint. A patient with a history of trauma to the face after a road traffic accident reported to the Department of Oral and Maxillofacial Surgery. The patient had pain and swelling of the lower jaw and chin region, difficulty chewing, limited mouth opening, and a substantial change in the bite. There was no history of loss of consciousness, vomiting, ear or nasal bleed, seizure and the patient was conscious, oriented and haemodynamically stable at the time of presentation. A complete general physical examination was carried out to rule out any systemic and other regional injuries as per standard advanced trauma life support (ATLS) protocol and a focused maxillofacial examination was then performed.

2.2 Clinical Examination. Extraoral examination revealed:

- Bilateral preauricular tenderness and

swelling in both condylar regions, with restricted and deviated mandibular movements.

- Restricted maximal mouth opening (inter-incisal opening reduced compared to normal range), with deviation of the jaw on opening suggestive of bilateral condylar involvement.
- Decreased or absent condylar movement on palpation over the preauricular region during mouth opening, more marked on the side with greater displacement.
- The step deformity was not consistently palpable at the condylar region, as is typical of high subcondylar/condylar neck fractures, but was clearly palpable at the symphysis. Intraoral examination revealed:
- A palpable step deformity and mobility of the fracture segments at the symphysis, with sublingual ecchymosis — a classic sign of an underlying anterior mandibular fracture.
- Deranged occlusion with premature posterior tooth contact and an anterior open bite tendency, consistent with bilateral loss of posterior mandibular (condylar/ramal) height.
- Mobility of the symphyseal segment on bimanual manipulation, with associated pain.
- No obvious mucosal laceration or gross displacement of teeth, although individual teeth in the line of fracture were assessed for mobility and vitality.



2.3 Radiographic and Imaging Findings

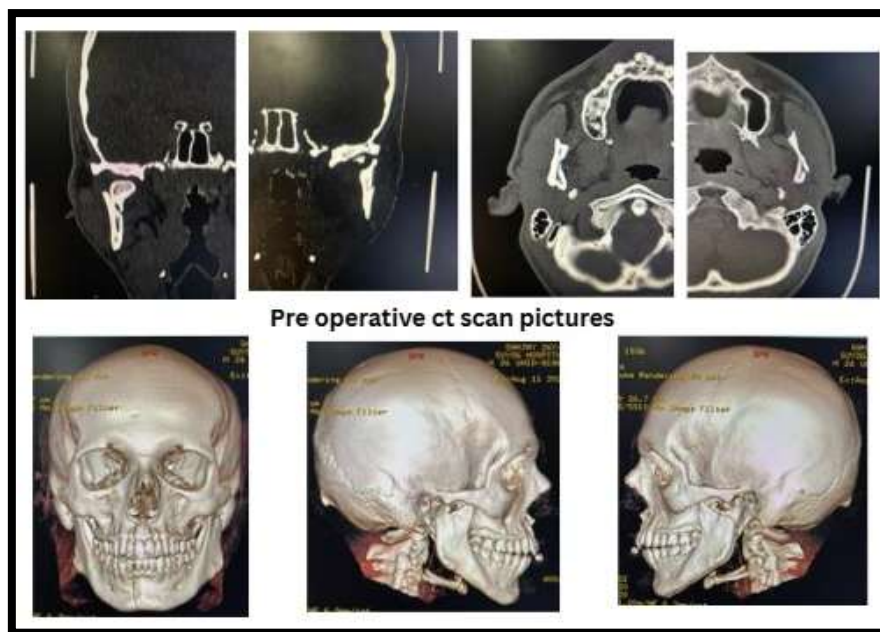
Radiographic evaluation was carried out with an orthopantomogram (OPG) as the initial screening investigation, supplemented by a postero-anterior (PA) view of the mandible and, given the need for precise three-dimensional assessment of the condylar fractures, a computed tomography (CT) scan of the face with axial, coronal, and 3D reconstructions. Imaging confirmed:

- A fracture line through the symphyseal region of the mandible, with mild to moderate displacement of the fragments.
- Bilateral fractures of the mandibular condyle, with displacement and angulation of the condylar segments (the degree and direction of displacement — whether condylar neck, subcondylar, or intracapsular; and whether deviated, displaced, or dislocated — should be documented per side using an accepted classification such as that of Spiessl and Schroll, or the more recent classification of Loukota et al.,

since this determines the specific surgical approach and plating pattern selected for each side).

- No evidence of gross comminution, and no radiographic evidence of associated fractures of the maxilla, zygomaticomaxillary complex, orbit, or skull base on the imaging obtained.

Correlating the clinical finding of an anterior open bite with bilateral loss of posterior facial height on imaging confirmed the diagnosis of a symphyseal fracture with bilateral displaced condylar fractures, and open management was planned for both the symphysis and both condyles.



2.4 Treatment Planning

Given (a) the bilaterality of the condylar fractures, (b) the presence of a concomitant fracture elsewhere in the mandibular arch (the symphysis) which removes the buttressing effect an intact contralateral mandible would otherwise provide, and (c) the clinical/radiographic evidence of displacement with derangement of occlusion, the decision was made in favour of open reduction and internal fixation of all three fracture sites (symphysis and both condyles) rather than closed reduction with prolonged maxillomandibular fixation alone. This decision is consistent with the generally accepted indications for open treatment of condylar fractures, which include displacement into the middle cranial fossa, inability to obtain adequate occlusion by closed methods, lateral extracapsular dislocation, bilateral condylar fractures associated with comminuted midface fractures or symphyseal fractures where closed treatment would compromise vertical ramus height, and medical or anatomical contraindications to a prolonged period of maxillomandibular fixation. The patient was planned

for surgery under general anaesthesia with nasotracheal intubation to allow uninterrupted intraoperative assessment of occlusion.

2.5 Surgical Procedure

1. Under general anaesthesia with nasoendotracheal intubation, the surgical plan was as follows:
 - Intraoperative maxillomandibular fixation (MMF) was first performed using arch bars/IMF screws and elastics to establish the patient's pre-traumatic occlusion as a reference for fixation of the fracture segments.
 - The symphyseal fracture was first approached via intraoral vestibular (degloving) incision to reveal the site of fracture with subperiosteal dissection and to protect the mentalis muscle attachment to avoid post-operative chin ptosis. The fracture was reduced under direct vision and fixed using the two-miniplate approach: a superior tension band plate placed close to the alveolar crest and an inferior load-bearing plate placed near the lower

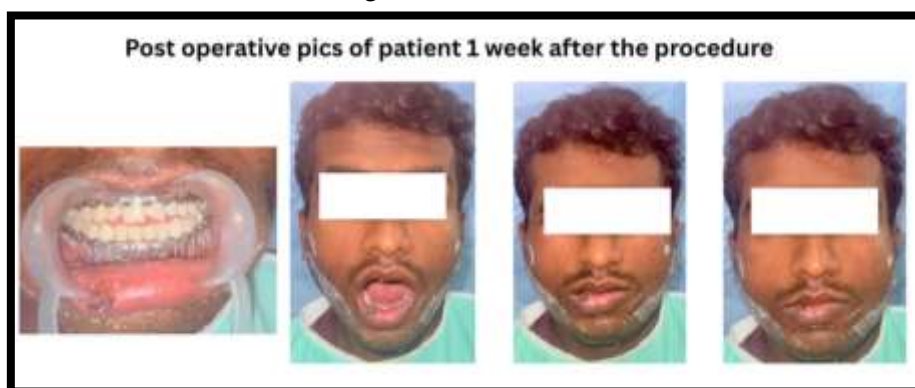
border of the mandible, in line with Champy's osteosynthesis lines for the symphyseal/parasymphyseal region and secured with monocortical/bicortical titanium screws as per the individual's needs.

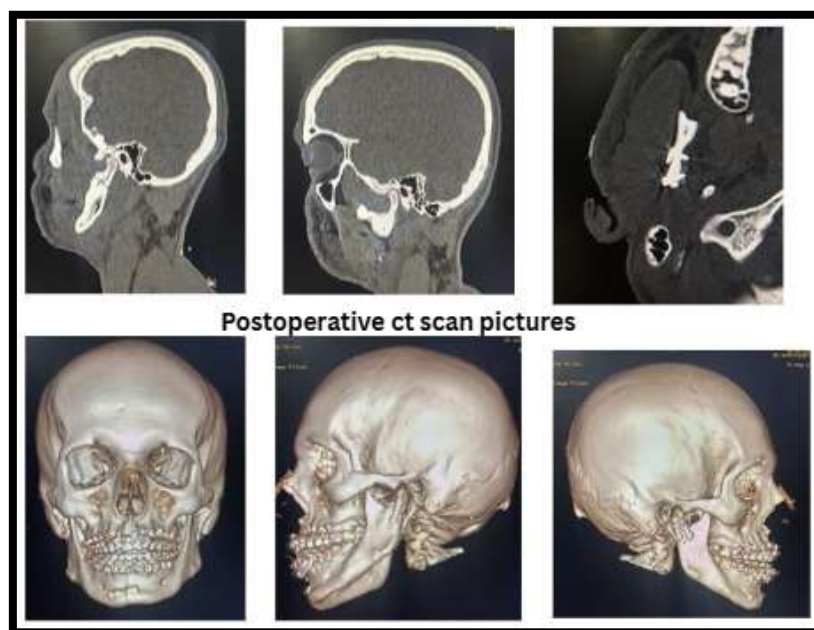
- Attention was then turned to the condylar fractures. Each side was approached through a retromandibular transmasseteric (Hinds) approach that gives direct access to the condylar neck/subcondylar region with minimal risk to the marginal mandibular and buccal branches of the facial nerve if layered dissection is employed. The proximal (condylar) and distal fragments were identified, the fracture haematoma evacuated, and anatomical reduction achieved under direct vision, following which the fracture was secured with titanium miniplates (a single strut plate along the posterior border and/or two mutually stabilising plates according to fracture geometry and available bone stock), applied in a manner that resisted both the medially-directed pull of the lateral pterygoid muscle and functional loading of the joint.
2. The identical sequence was repeated on the contralateral condyle.
 3. Following fixation of all three sites, the intraoperative MMF was released and occlusion was re-checked, confirming restoration of the patient's pre-traumatic occlusal relationship with free and unobstructed mandibular movement and passively correct condyle-fossa seating.
 4. Wounds were closed in layers — meticulous re-approximation of the masseteric sling and

periosteum over each condylar plate, followed by closure of the parotid-masseteric fascia, subcutaneous tissue, and skin at the retromandibular sites, and mucosal closure at the intraoral symphyseal site. A pressure dressing was applied over both condylar/preauricular regions.

2.6 Post-Operative Course

The post-operative period was uneventful. The patient was maintained on intravenous antibiotics and analgesics, and light elastic guidance (rather than rigid MMF) was used for a short initial period to encourage early, guided, physiotherapeutic jaw movement rather than prolonged immobilisation, in keeping with the rationale for rigid internal fixation of condylar fractures — namely, that stable osteosynthesis permits early return of function, which in turn reduces the risk of TMJ ankylosis and myofascial stiffness that can follow prolonged immobilisation, particularly in bilateral condylar injuries. Sutures were removed on the appropriate post-operative day, and the patient was placed on a structured physiotherapy/mouth-opening exercise regimen. At follow-up review, the patient demonstrated a stable, pre-traumatic occlusion, progressively improving maximal inter-incisal mouth opening, symmetrical mandibular movement without deviation, and no clinical evidence of facial nerve weakness. There was no palpable step deformity, no residual malocclusion, and the surgical scars healed favourably. Radiographic review confirmed satisfactory reduction and stable plate position at all three fracture sites with no evidence of hardware failure or non-union.





DISCUSSION

The combination of a symphyseal (or parasymphyseal) mandibular fracture with bilateral condylar fractures is a mechanistically predictable injury pattern: a direct blow to the chin is transmitted as a force vector along both mandibular bodies to the condylar necks, the narrowest and most structurally vulnerable portion of the mandible. This 'guardsman fracture' pattern, classically described in falls and direct anterior trauma, carries a particular risk of loss of posterior facial (ramal) height and consequent anterior open bite if the condylar component is not adequately managed, because both condyles — and therefore both posterior vertical buttresses of the mandible — are compromised simultaneously. The management of condylar fractures continues to generate considerable discussion in the literature, and no single treatment protocol is universally applicable to every condylar fracture. Closed treatment, consisting of a period of maxillomandibular fixation followed by graduated mobilisation, remains a reasonable option for minimally displaced, non-dislocated condylar fractures in patients who can achieve and maintain a stable occlusion, and is generally preferred in the growing patient because of the strong remodelling potential of the paediatric condyle. However, when condylar fractures are bilateral — and more so when they are accompanied by a fracture elsewhere in the mandibular arch that removes the stabilising effect of an otherwise intact mandible, as in the symphyseal fracture described

here — closed treatment alone becomes considerably less predictable. In such circumstances the mandible effectively loses its posterior vertical support bilaterally at the same time that its anterior segment is also destabilised, making it difficult to reliably re-establish and maintain occlusal and skeletal relationships without direct visualisation and rigid fixation of at least one, and frequently both, condyles. Several authors have proposed criteria favouring open management of condylar fractures, broadly including: displacement of the condylar fragment into the middle cranial fossa; inability to obtain adequate occlusion by closed reduction; lateral extracapsular displacement of the condyle; presence of a foreign body within the joint; and bilateral condylar fractures in combination with comminuted midface fractures or in edentulous patients where splinting is impractical. Beyond these classical indications, many contemporary maxillofacial surgeons now extend the indication for open treatment to bilateral condylar fractures with significant angulation or shortening even in the absence of the above, on the basis of accumulating evidence — including randomised and prospective comparative studies — suggesting that ORIF produces more predictable restoration of ramus height, mouth opening, and occlusal function, with lower rates of malocclusion and TMJ dysfunction, compared with closed treatment, provided the surgery is performed with an approach that safeguards the facial nerve and achieves stable fixation. The retromandibular transmasseteric approach used in this case is favoured by many surgeons for access to the

condylar neck and subcondylar region because it offers a short, relatively direct route to the fracture with a low reported incidence of facial nerve injury when the dissection plane is kept close to the posterior border of the ramus and the branches of the facial nerve are retracted rather than transected. Alternative approaches described in the literature include the preauricular, endaural, submandibular (Risdon), and various transoral approaches (with or without endoscopic assistance), each with its own advantages, limitations, and learning curve; the choice of approach is generally guided by the height of the fracture (condylar head/neck versus low subcondylar), the surgeon's experience, and the need to combine access with fixation of other concurrent mandibular fractures. Fixation of the symphyseal component with a two-miniplate technique, as performed in this case, follows Champy's principle of ideal osteosynthesis lines, wherein a tension band is applied near the alveolar crest to counteract the tensile forces generated during function, complemented by a second, more robust plate near the inferior border to resist the compressive and torsional forces generated in this high-stress region of the mandible. Simultaneous rigid fixation of the symphysis and both condyles allows early, active, physiotherapy-guided mandibular movement rather than prolonged immobilisation, which is particularly advantageous in reducing the risk of TMJ hypomobility/ankylosis — a well-recognised long-term complication of bilateral condylar injuries, especially in patients who have undergone extended periods of MMF. The favourable outcome in this case — restoration of pre-traumatic occlusion, symmetric excursive movements, adequate mouth opening, and absence of facial nerve deficit — underscores the value of a carefully planned, anatomically-directed open approach to combined symphyseal and bilateral condylar fractures, supported by high-resolution imaging for pre-operative classification and by intraoperative maxillomandibular fixation to verify occlusion before definitive plate fixation.

CONCLUSION

Symphyseal mandibular fractures occurring in combination with bilateral condylar fractures

represent a biomechanically unstable injury pattern with a substantial risk of malocclusion, facial asymmetry, and TMJ dysfunction if managed by closed reduction alone. Open reduction and internal fixation of both the symphysis and the condylar fractures, performed under general anaesthesia with intraoperative verification of occlusion, allows anatomical reduction of all fracture segments, restoration of posterior mandibular height, and stable fixation that permits early mobilisation and functional rehabilitation. A thorough clinical and radiographic (including CT-based) assessment is essential for accurate fracture classification and surgical planning, and a layered, nerve-sparing surgical technique is key to achieving predictable functional and aesthetic outcomes, as illustrated by the case presented.

5. Conflict of Interest and Source of Funding

The authors declare no conflict of interest. No external funding was received for this case report.

6. Consent

Informed consent was obtained from the patient for publication of this case report and any accompanying clinical images/radiographs.

REFERENCES

1. Zide MF, Kent JN. Indications for open reduction of mandibular condyle fractures. *J Oral Maxillofac Surg.* 1983;41(2):89-98.
2. Champy M, Loddé JP, Schmitt R, Jaeger JH, Muster D. Mandibular osteosynthesis by miniature screwed plates via a buccal approach. *J Maxillofac Surg.* 1978;6(1):14-21.
3. Ellis E 3rd, Throckmorton GS. Treatment of mandibular condylar process fractures: biological considerations. *J Oral Maxillofac Surg.* 2005;63(1):115-134.
4. Spiessl B, Schroll K. Gelenkfortsatzfrakturen. In: Nigst H, ed. *Spezielle Frakturen- und Luxationslehre.* Stuttgart: Thieme; 1972.
5. Loukota RA, Eckelt U, De Bont L, Rasse M. Subclassification of fractures of the condylar process of the mandible. *Br J Oral Maxillofac Surg.* 2005;43(1):72-73.
6. Kumaran S, Thambiah L. Analysis of stability of titanium miniplate osteosynthesis in mandibular

- fracture management. *J Pharm Bioallied Sci.* 2012;4(Suppl 2): S222-S225.
7. Neff A, Cornelius CP, Rasse M, Torre DD, Audigé L. The Comprehensive AOCMF Classification System: Condylar Process Fractures - Level 3 Tutorial. *Craniomaxillofac Trauma Reconstr.* 2014;7(Suppl 1): S044-S058.
 8. Kumar I, Singh V, Bhagol A, Goel M. Retromandibular approach with transmasseteric antero-parotid access for open reduction and internal fixation of subcondylar fracture: our experience. *Natl J Maxillofac Surg.* 2015;6(2):192-197.
 9. Boffano P, Roccia F, Gallesio C, Berrone S. Pediatric mandibular fractures: a systematic review. *Craniomaxillofac Trauma Reconstr.* 2014;7(3):169-176.
 10. Al-Moraissi EA, Ellis E 3rd. Surgical treatment of adult mandibular condylar fractures provides better outcomes than closed treatment: a systematic review and meta-analysis. *J Oral Maxillofac Surg.* 2015;73(3):482-493.

Cite: R. Rajendra Prasad*, Seema Yoganna, Symphyseal Mandibular Fracture with Bilateral Condylar Fractures: Open Reduction and Internal Fixation under General Anaesthesia – A Clinical Case Report, *Int. J. Med. Pharm. Sci.*, 2026, 2 (9), 235-241. <https://doi.org/10.5281/zenodo.22661098>