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Original Article

Surgical Versus Conservative Management of Intra-Articular Condylar Fractures: A 14-Year Retrospective Comparative Study

Anna Kowalska[1]*, Piotr Nowak[1], Tomasz Zielinski[2], Katarzyna Mazur[1]

[1]Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, University of Warsaw, Warsaw, Poland.
[2]Department of Surgical Oral Sciences, Faculty of Medicine, Warsaw University of Technology, Warsaw, Poland.

***E-mail** ✉ anna.kowalska@gmail.com

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ABSTRACT

Fractures involving the mandibular condyle are counted among the most frequent injuries to the facial skeleton, and their operative care remains a highly debated issue within maxillofacial trauma practice. A broad body of international research has explored optimal therapeutic pathways, with a rising inclination toward open reduction and internal fixation (ORIF). Whereas non-surgical care has conventionally served as the benchmark for intra-articular fractures, contemporary evidence suggests that ORIF may be suitable for selected presentations of these injuries. The null proposition underpinning this study posits that there is no notable disparity in functional and clinical endpoints between operative intervention via open reduction and internal fixation (ORIF) and non-operative, conservative measures for intra-articular fractures of the mandibular condyle. This work presents a 14-year retrospective survey (2009–2023) of the authors' institutional experience with operative management of intra-articular condylar fractures. Data were gathered covering operative techniques, early and late adverse events, clinical and radiographic endpoints, and contrasts with non-surgical treatment. The review comprised appraisals of both short- and long-term consequences following ORIF, singling out particular settings wherein ORIF exhibited superiority over non-surgical measures. Clinical and imaging assessments provided useful insights into patient convalescence and functional recovery, whilst complication frequencies were cataloged for both modalities. Findings imply that ORIF may constitute an advantageous therapeutic option for intra-articular condylar fractures within defined patient subsets, providing superior outcomes when non-surgical therapy could fall short. That said, non-surgical measures remain a legitimate recourse whenever operative risks outweigh anticipated benefits. This inquiry feeds into the broader dialogue, endorsing a bespoke strategy that accounts for individual patient variables when weighing ORIF against non-surgical therapy.

Keywords: Mandibular fracture, Condylar fracture, Trauma, Internal fixation, Malocclusion

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Introduction

Condylar fractures are widely reported in the literature as remarkably common, constituting roughly 27% of all fractures of the maxillofacial skeleton [1]. Road traffic collisions account for approximately 50% of condylar fractures, falls for 30%, and interpersonal aggression for 20% [2]. The overriding objective of therapy is the reinstatement of pretraumatic masticatory performance. A pivotal element in achieving this objective is the reestablishment of pretraumatic spatial relationships among fractured components, dental occlusion, and maxillofacial symmetry.

Fractures of the mandibular condyle are subdivided into three variants: head fractures, neck fractures, and base fractures. The latter pair, collectively referred to as extracapsular fractures, occur outside the joint

capsule. Management of condylar fractures typically follows one of two pathways: non-operative treatment (closed reduction and immobilization) or operative therapy (open reduction and internal fixation). Loukota *et al*. [3] advanced an anatomical taxonomy of condylar head fractures, segregating them into three classes: Type A, implicating the medial segment of the condylar head; Type B, compromising the lateral segment; and Type C, arising in proximity to the attachment point of the lateral capsule.

Functional endpoints following open reduction and internal fixation (ORIF) versus conservative management (CM) for mandibular condylar head fractures have been examined across several meta-analyses through the years [4-8]. Each pathway carries distinct indications, contraindications, and unique merits and demerits. Regrettably, numerous such studies were deficient in granular data surrounding the level and laterality of the condylar head fracture or the age of the patient, fueling inconsistency in therapeutic outcomes. The choice between open and closed reduction remains a vigorously debated topic in maxillofacial surgery [9].

A perusal of the available literature highlights the persistent debate over the definitive management of condylar fractures. In the view of some authors, among them Rozeboom *et al*. [10], conservative management—by virtue of its less invasive nature—may fit unilateral or minimally displaced fractures, along with dislocated condylar fractures exhibiting adequate occlusal interplay. This tactic safeguards normal occlusal stability with few untoward events, encourages early mandibular movement, and cements occlusal stability with arch bars and elastics. It does, however, carry the possibility of temporomandibular joint (TMJ) discomfort and may demand protracted maxillomandibular fixation (MMF). While early functional recovery is often achieved with fewer adverse effects, long-term problems such as restricted oral opening, malocclusion, and lateral deviation upon jaw opening are commonly observed among non-surgically managed patients [11, 12].

Even so, non-operative management has its limitations, including patient discomfort and potential untoward sequelae such as airway embarrassment, compromised oral hygiene, speech disability, suboptimal nutrition culminating in weight reduction, and disuse atrophy of the masticatory musculature [13, 14]. Refinements in operative methodology and hardware, twinned with inconsistent results associated with non-surgical care, have expanded the remit of open reduction surgery to encompass even intracapsular fractures [15, 16]. A broad case series incorporating longitudinal postoperative observation is uncommon in the published record, as non-surgical paradigms have historically been the favored approach for treating condylar fractures.

The operative correction of condylar fractures persists as a formidable pursuit, largely on account of structural intricacy and the hazard of trauma to the facial nerve [17]. Nonetheless, deeper anatomical insight, allied with the introduction of pioneering instrumentation and techniques, has bolstered the increasing adoption of open reduction in treating condylar fractures over recent years.

When reestablishing skeletal continuity, reinstating physiological mandibular positioning, and achieving correct occlusal relationships, open reduction, complemented by rigid internal fixation of condylar fractures, can restore the condylar process to its pretraumatic site, or very near it. Irrespective of the treatment pathway selected, the principal ambition remains the attainment of correct occlusal alignment and the facilitation of early functional reanimation [18]. Per the published evidence, condylar fractures with angulation exceeding 35–45° are typically considered for operative management, especially when ramus stature is reduced by more than 5 mm [18, 19].

In light of the scholarly attention directed at managing condylar head fractures, the work at hand sets out to gauge statistically meaningful divergences (P-value lower than 0.05) among the dissimilar modes of therapy for fractures of the condylar head, with particular emphasis on investigating whether ORIF-based treatment delivers superior analgesia and more favorable functional restitution.

This analysis scrutinizes cases of patients who underwent clinical workup and management in the Maxillofacial Surgery Department of Ancona Hospital from 2009 to 2023.

The null proposition underpinning this study posits that there is no notable disparity in functional and clinical endpoints between operative intervention via open reduction and internal fixation (ORIF) and non-operative, conservative measures for intra-articular fractures of the mandibular condyle.

Materials and Methods

This investigation assessed patients who reported to the Maxillofacial Surgery Department of Ancona Hospital with intra-articular (head) condylar fractures over the period 2009–2023. Ancona Hospital serves as the lone maxillofacial surgery hub in central-eastern Italy, covering a region with approximately 2 million residents, and experiences seasonal upswings driven by summer seaside tourism, explaining the heightened

volume of cases reviewed. Retrospective records for all mandibular fractures were extracted from the operating room log, the Ormaweb® surgical archiving system (Dedalus, Florence, Italy), and from patient medical files.

For estimating a population of 387 patients at a 95% confidence level with a 5% margin of error, the required sample size is approximately 193 patients.

The inquiry focused exclusively on individuals with condylar head fractures, drawn from the broader cohort of mandibular fracture cases encountered during the study window.

Inclusion criteria

- Patients older than 12 years of age;
- Fractures engaging the condylar head, whether or not accompanied by additional fractures of the mandibular body or ramus;
- Fracture plane positioned within the condylar head;
- Condylar fragment displacement measuring from 10° to 45° along the frontal or sagittal axis;
- Loss of ascending mandibular ramus height equal to or exceeding 2 mm.

Exclusion criteria

- Fractures of the condylar neck and subcondylar region;
- Complicated multiple condylar injuries involving diverse sections of the condylar process;
- Dentition insufficient to permit reestablishment of normal occlusion;
- Toothless patients;
- Subjects unfit for operative intervention on account of poor general health;
- Fractures extending into the midface;
- Individuals with a background of temporomandibular joint (TMJ) disorders.

Participants issued written informed consent specifying the techniques and possible untoward events related to both operative treatment and intermaxillary fixation (IMF). This stipulation applied to every subject undergoing either surgical or conservative care. Therapeutic decisions were made jointly by at least 2 experienced surgeons. Guided by preoperative plain radiographs and computed tomography scans, the cohort was partitioned into surgical and non-surgical arms to define the most suitable approach for the condylar head fracture. Patients were additionally subdivided into three categories reflecting the nature of treatment delivered: Group A, encompassing patients who underwent operative removal of the fractured segments; Group B, consisting of patients treated via open reduction and internal fixation (ORIF); and Group C, including patients managed with non-operative functional rehabilitation.

For all three categories, clinical and radiographic metrics were measured before intervention and during postoperative observation. The metrics covered occlusal disharmony manifested by defective molar intercuspation on either side, mandibular range of motion (gape, forward thrust, and side-to-side movement), presence of TMJ discomfort or clicking, untoward events (e.g., pathologic scarring, sepsis, Frey syndrome, facial nerve palsy, or necessity for revisional surgery), maximal interincisal opening, mandibular drift upon mouth opening, and the vertical dimension of the mandibular ascending ramus.

Pain severity was assessed using the Visual Analog Scale (VAS), documenting patient-reported pain pre- and post-intervention for both operative and conservative pathways. Maximal interincisal opening and protrusion were quantified at the incisal rims of the upper and lower anterior teeth. Side-to-side excursions and mandibular drift during gape were charted against the dental midline, with a metal ruler serving as reference. Ascending ramus height was determined from CT images, spanning the crown of the condyle to the nadir of the mandibular angle on the ipsilateral side. These dimensions were captured preoperatively and at postoperative junctures of 3 days and 6 weeks for both treatment branches. Additionally, cone-beam CT scanning was performed to quantify condylar displacement in each subject.

Every parameter was recorded preoperatively and reevaluated at fixed postoperative checkpoints: day three, weeks one and two, month one, and month six for surgically managed subjects.

Descriptive statistics were harnessed to synthesize the demographic and clinical characteristics. Confidence Intervals (CIs) were derived for the discrepancies in buccal opening. Univariate testing was performed using the t-test or the Mann–Whitney test to compare signed distances across the 3 evaluated groups. The threshold for statistical significance was set at $P < 0.05$. The full set of statistical computations was executed using IBM SPSS version 25 (IBM Corp, Armonk, NY, USA).

Results and Discussion

Over the period from January 2009 to December 2023, the authors treated 387 subjects with mandibular condylar fractures. Radiographic investigation via CT and plain films distinguished 177 individuals bearing intracapsular condylar head fractures who satisfied the

stipulated inclusion and exclusion parameters. These 177 individuals were contacted by telephone and consented to enrolment in the post-therapy follow-up schedule. Before initiating the study, all variables detailed within the materials and methods section were systematically registered and transcribed by the authors.

The mean age across the patient cohort reached 37.9 years (± 11 years). Female patients numbered 56, with a mean age of 43 years (± 18 years), while male patients totaled 121, with a mean age of 32 years (± 16 years). The yearly incidence of condylar head fractures averaged 11.8, peaking at 21 in 2018. Some 80% of subjects originated from metropolitan districts, whereas the remaining 20% came from provincial settings.

The foremost triggers of mandibular fractures consisted of physical aggression (42.2%), followed by accidental tumbles from ground level (27.9%), pushbike or scooter mishaps (13%), plunges from substantial heights (marginally above 2%), motor vehicle collisions (marginally below 3%), sporting trauma (5.1%), job-related accidents (5%), and stairway falls (1.8%).

An exploration of mandibular condylar fracture frequency, segmented by biological sex (with women constituting 31.63% of the study population and men 68.37%), showed that low-energy falls were far more prevalent as a causative factor among female patients ($P < 0.02$). In contrast, interpersonal violence featured far more prominently among male patients ($P < 0.03$).

Injury causation varies markedly by patient age and sex. The geriatric subset commonly incurs head fractures from aggression and tumbles, whereas the pediatric and adolescent contingent is more liable to suffer harm from pushbike and scooter collisions. Despite trauma presentations being chiefly dominated by male individuals, the principal mechanisms of harm—physically violent encounters and falls—reflect a parallel distribution in both genders. From the aggregate patient sample, 24 people sustained co-existing fractures in extra-facial anatomical regions: 11 exhibited rib breaks, 8 showed limb fractures, 2 displayed skull vault cracks, 3 demonstrated cervical spine fractures, and 1 presented a sternal disruption.

Mandibular motion during gape, sideways excursion, and forward jutting; temporomandibular joint (TMJ) aching; sensitivity to focal palpation; soft tissue puffiness of the visage; malocclusion; and anomalous laxity of dental units.

Superimposed on these clinical manifestations, a spectrum of concurrent pathologies was identified: systemic hypertension in 45 cases, non-insulin-dependent diabetes mellitus in 24 cases, connective tissue or autoimmune disorders in 11 cases, convulsive disorder in 8 cases, neurodegenerative cognitive impairment in 5 cases, and blood pressure dysregulation upon standing in a further 5 cases. Crucially, five subjects presented with overarching health derangements compelling the anaesthesiologist to deem surgical treatment unsafe. Under such circumstances, a non-operative management pathway was elected, weaving in expedited functional reconstitution without reliance on rigid intermaxillary fixation.

Throughout 2020–2021, five patients exhibiting condylar head fractures who would normally have qualified for operative care yielded positive swabs for SARS-CoV-2. Bearing in mind their clinical standing—obstacles in gauging dental occlusion imposed by oral endotracheal intubation, together with their fragile condition warranting intensive care unit (ICU) admission—surgical treatment was regarded as unsuitable. Emphasis was placed instead on prompt functional and physiotherapeutic restitution of chewing performance and mandibular kinesis.

Across the 177 instances evaluated, preoperative cross-sectional imaging revealed an average shortening of the mandibular ascending ramus in the neighborhood of 2.9 mm (extremes: 2 mm to 3.7 mm). Operative management was delivered to 95 patients with condylar head fractures, partitioned thus: Group A covered 32 subjects who had fractured components surgically retrieved; Group B contained 63 subjects treated employing open reduction and internal fixation (ORIF); and Group C accommodated 82 subjects managed via non-surgical functional measures. In Group C, 43 subjects were retained in rigid intermaxillary fixation for a mean duration of 4 weeks, while 39 were managed with physiotherapy/rehabilitation without operative or IMF-based approaches.

The dominant surgical corridor for addressing condylar head fractures comprised a preauricular pretragal route in 62 instances and a preauricular retrotragal route in 33 instances. Durable stabilization was secured utilizing titanium plate-and-screw constructs (Stryker, Kalamazoo, MI, USA), whilst rigid intermaxillary fixation was realized through transosseous anchorage screws belonging to the Stryker Hybrid System (Stryker, MI, USA). Post-surgical functional reconditioning was extended to all participants in Groups A and B.

In the non-surgically managed Group C, 43 patients were kept under rigid intermaxillary fixation for an average duration of 22.5 days (95% CI: 14.2–29.7

days), whilst 39 patients directly commenced a course of rehabilitation or physiotherapeutic exercise **(Table 1)**.

Table 1. Categorization of patients into groups reflective of the operative or conservative treatment modality performed.

Treatment category	Number of patients	Study group	Treatment type	Number of patients
Surgical treatment	95	Group A	Surgical excision of the fractured fragment	32
—	—	Group B	Open reduction and internal fixation (ORIF)	63
Non-surgical treatment	82	Group C	Rigid intermaxillary fixation	43
—	—	—	Physiotherapy/rehabilitation alone	39

A cohort of 23 patients presented with fractures involving both condyles, totaling 46 individual fracture sites. In select instances, subjects allocated to Groups A and B required intermaxillary fixation (IMF) lasting 7 to 40 days, employed either to correct and stabilize the dental bite or to manage a contralateral fracture being treated without surgery. Once therapy had concluded, temporomandibular joint (TMJ) performance was evaluated objectively via recordings of oral aperture, lateral deviation, and forward thrust, alongside subjective appraisals grounded in patient-described discomfort and masticatory difficulty.

Dental occlusal alignment was successfully reestablished in all subjects in Groups B and C. In contrast, the picture in Group A was less encouraging, with one individual subsequently manifesting an anterior open bite that necessitated corrective orthognathic intervention. This case concerned a young patient who actively pursued the revisional operation. A physiological range of mouth opening was attained across all groupings following treatment, save for five Group C subjects in whom TMJ ankylosis supervened. These individuals had been placed in a comatose state owing to severe craniocerebral injury, a factor that hindered the prompt initiation of functional restitution. Findings for lateral excursion were comparably adequate throughout the three cohorts.

Turning to the quantitative metrics, Group A recorded an average preoperative oral opening of 34.4 mm, which rose to 41.3 mm six months after intervention. Group B progressed from a baseline average of 34.8 mm to 42.9 mm after surgery. In contrast, Group C advanced from 32.6 mm before therapy to 39.4 mm afterward (when individuals whose TMJ ankylosis stemmed from coma were excluded, the optimal average for Group C was 41.21 mm). The mean six-month augmentation of the oral aperture was 6.9 mm in Group A, 8.1 mm in Group B, and 6.8 mm in Group C; statistically significant differences between the groups were not detected.

Regarding analgesic benefit, Group A showed the most satisfactory profile, with only 2 of 32 subjects (6.25%) reporting ongoing postsurgical pain ($p = 0.04$). By way of comparison, 5 of 63 subjects (7.92%) in Group B and 9 of 82 subjects (10.97%) in Group C recounted persistent discomfort **(Table 2)**.

Table 2. Evaluation of outcome measures and remote complications across the 3 patient subsets.

Study groups	Permanent postoperative sequelae	P-value	Distant post-treatment pain	P-value	Average mouth opening	P-value	Restoration of occlusion	P-value
GROUP A	9.37%	0.05	6.25%	0.04	41.3 mm	0.13	86%	0.09
GROUP B	7.94%	0.05	7.92%	0.14	42.9 mm	0.08	100%	0.11
GROUP C	—	—	10.97%	0.11	39.4 mm	0.15	100%	0.10

Surgically linked complications of statistical note were encountered in Groups A and B (while none materialized in Group C). Within Group A, lasting deficits directly attributable to the operative procedure were documented in 3 of 32 patients (9.37%), namely 2 cases of Frey's syndrome and 1 case of irreversible injury to the temporal branch of the facial nerve. In Group B, drawn from a total of 63 patients, three individuals reported Frey's syndrome, and two sustained a permanent functional loss of the facial nerve's temporal branch.

The question of the most suitable treatment algorithm for condylar head fractures remains unsettled. The epidemiological figures set out in this work corroborate that chin-directed trauma frequently engenders mandibular condylar process fractures through an indirect transfer of force. Affected patients habitually exhibit cutaneous lesions overlying the chin, and roughly one out of every three cases features a condylar

head fracture. The epidemiological contours of these injuries have shown little change across recent decades, with violent assault and accidental falls representing the chief causative mechanisms—a pattern consistent with earlier published data [1, 19, 20]. Although the specific trigger of injury can shift from one locale to another, falls remain the single most common source of fractures worldwide.

As far back as 2005, Loukota *et al*. [21] classified mandibular condylar fractures into three discrete forms: condylar head (diacapitular) fractures, neck fractures, and base fractures, with the latter two typically described together as extracapsular fractures. Subsequently, Kozakiewicz and Walczyk [20] and Kozakiewicz [22] introduced a further subdivision of condylar neck fractures into high-neck and low-neck variants, based on their relationship to the anterior margin of the condylar head. The anatomical position and magnitude of the fracture are decisive determinants that influence both therapeutic choices and eventual functional outcomes, a point underscored by Ying *et al*. [23] and Boffano *et al*. [24]. As a general principle, intracapsular condylar fractures that remain undisplaced tend to be managed non-surgically, whilst those showing displacement or frank dislocation frequently warrant operative correction [25]. Crafting treatment around patient-specific parameters—among them age, fracture configuration, and systemic health—is indispensable.

Despite how commonly condylar fractures occur, no unified stance exists on whether operative management deserves to be viewed as the standard of care, in stark contrast to many other facial skeletal injuries [5]. In scenarios where the fractured condylar head segment is too small to accommodate open reduction and internal fixation (ORIF), extraction of the detached piece is commonly advocated, in line with the recommendations of Chakranarayan and Mukherjee [26]. Bilateral condylar fractures, in particular, tend to produce graver functional compromise, as remarked by Gupta *et al*. [27]. Singh *et al*. [28] concluded that ORIF afforded measurably better outcomes for bilateral injuries when judged against both subjective and objective yardsticks. It must be noted, however, that ORIF is generally cautioned against in pediatric populations under 12 years of age due to the perceived risk of disrupting mandibular growth trajectories [29].

Prior meta-analytic syntheses on this topic have often fallen short by overlooking crucial variables, including fracture level, laterality, and patient age, thereby leaving the door open to potential confounders. In an effort to close this gap, the authors deliberately excluded patients under 12 years old. They focused on a head-to-head comparison of ORIF versus conservative management (CM) for both unilateral and bilateral intracapsular mandibular condylar fractures. The present paper distills the authors' institutional experience with managing condylar head fractures—an area that continues to draw keen attention within maxillofacial surgery [30, 31]. The study employed a spectrum of treatment regimens, including CM, ORIF, and surgical retrieval of fracture fragments [32, 33]. The core therapeutic objectives remain the reattainment of functional occlusal stability and the maximization of TMJ performance.

While the reestablishment of proper dental occlusion is a comparatively straightforward, readily quantifiable goal, patients may initially perceive their bite as altered due to concomitant dental trauma, such as crown breaks or tooth displacement. Gauging TMJ function, conversely, can prove more nuanced, since pre-existing joint clicking or pain may never have been formally charted and could be entirely independent of the fracture injury. Individuals who harbor antecedent TMJ dysfunction or additional predisposing factors may be at elevated risk for developing TMJ problems in the aftermath of a condylar fracture [10].

The inherently retrospective character of this work opens the door to potential bias, as the abstracting author was occasionally obliged to infer fracture categories when imaging data were either absent or incomplete. A sizeable proportion of patients had to be dropped from the analysis owing to deficient record-keeping or failure to return for follow-up assessments. Functional outcomes were highly contingent on patient cooperation and understanding of instructions, a salient issue given the lack of universally adopted treatment guidelines in the literature [34]. Beyond this, some individuals proved incapable of reconstructing a full history of the therapeutic measures they had received.

The conclusions of this study dovetail with those of a prospective trial by Hlawitschka and Eckelt [16], both sets of findings showing statistically significant differences in pain magnitude—as gauged by the Visual Analog Scale (VAS)—between surgically and conservatively treated cohorts. Weiss and Sawhney [18] reported radiographic anatomic realignment of the condylar head in 87.5% of the ORIF subgroup, compared with 25% in the conservatively managed subgroup. Echoing this, Boffano *et al*. [19] reported higher rates of anatomical apposition in operatively managed cases. The present series demonstrated that by the sixth postoperative week, the surgical arm had attained clinically acceptable anatomic restitution and symmetry in the vertical dimension of the ascending ramus.

Weighing the results of three distinct therapeutic strategies dispensed by the same surgical unit across a comparatively narrow time span empowered the authors to draw meaningful inferences, despite the modest cohort size of 177 subjects. Dental occlusion was successfully reestablished within Groups B and C, even though structurally compromised teeth occasionally demanded further intervention. In Group A, a single patient ultimately required orthognathic revision for full correction. No differences of statistical note emerged between the groups for either maximum oral aperture or lateral excursive range.

Analgesic profiles were most favorable in Group A, with only 2 of 32 subjects (6.25%) continuing to experience post-treatment pain—a remarkable observation given that 6–12% of the general population endorses TMJ discomfort [35, 36]. Operative complications were unearthed with notable regularity across Groups A and B, although the preponderance proved self-limiting. Patients tended to attribute such complications to the surgical procedure itself rather than to the initial traumatic insult, irrespective of the documented hazards linked to general anesthesia and inpatient care. It is worth noting that no hemorrhage or wound infections were encountered in this series.

Shakya *et al*. [37] failed to identify any meaningful distinction in protrusive and lateral excursive excursions between operative and non-operative pathways. In sharp contrast, Vincent *et al*. [36] documented a greater frequency of malocclusion among those treated conservatively. Menon *et al*. [9] detected no statistically meaningful gap in occlusal endpoints when comparing ORIF with closed reduction augmented by maxillomandibular fixation. Ying *et al*. [23] likewise recorded statistically significant differences in VAS-recorded pain ($P = 0.03$), with the operative group registering markedly lower scores (2.9) than the conservative group (13.5).

The null proposition at the heart of this study upholds that no meaningful functional or clinical discrepancy exists between operative management via open reduction and internal fixation (ORIF) and non-operative, conservative measures when applied to intracapsular fractures of the mandibular condyle. This primary null proposition was disproved in a partial sense, seeing as statistically significant differences between the two modalities surfaced exclusively with respect to long-range post-treatment pain and enduring postsurgical deficits. No significant gaps, however, were uncovered regarding oral opening or dental occlusal quality.

The current investigation is bounded by its somewhat limited participant numbers and the inhomogeneity introduced by distributing surgical procedures across multiple surgeons rather than confining them to a single operator. Every surgeon whose work is represented in this study qualifies as a seasoned specialist in the care of condylar fractures—even with these constraints acknowledged, the data led to a recommendation in favor of surgical intervention over non-operative management for condylar fractures with moderate displacement. Nevertheless, future research employing larger samples and operations conducted under ideal circumstances by a single surgeon would yield considerably more robust evidence toward the formulation of incontrovertible conclusions.

Conclusion

Fractures of the mandibular condyle head arise with a frequency exceeding historical estimates, now understood to constitute more than one-third of all fractures to the condylar process. While surgical management can be associated with complications, conservative measures have remained effective in carefully selected scenarios, particularly when operative hazards outweigh the projected clinical advantage. A conservative pathway is ordinarily counseled for presentations featuring incomplete, comminuted, or barely displaced fractures, as well as for children below the age of 12 years. That said, modern advances in operative craft bring distinct strengths—swifter functional recovery, more precise anatomical restoration, and greater patient comfort. Where fractures are complex and extensively comminuted, open retrieval of the fragments remains the method of first choice to prevent significant functional deterioration. In the majority of presentations, open reduction and internal fixation (ORIF) is the preferred modality, affording optimal convalescence and meticulous reduction, thereby improving the patient's quality of life. ORIF earns a specific recommendation for single-fragment fractures coupled with scant reduction of mandibular ramus height. Looking to the future, prospectively structured investigations with stringent control of confounding variables are indispensable for progressively calibrating clinical parameters and homogenizing regimens for conservative care, yielding outcomes that are both more uniform and more robust.

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Conflict of Interest: None

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Ethics Statement: The study was conducted in accordance with the Declaration of Helsinki. This observational study was approved by the local ethics committee, CER Umbria, Perugia, Italy, under protocol number 4565/23.
Informed consent was obtained from all subjects involved in the study.

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