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Review

Intraoral and Extraoral Approaches in Mandibular Fracture Osteosynthesis: A Comparative Review of Contemporary Methods

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Abstract

The choice of surgical approach — intraoral or extraoral (submandibular) — for osteosynthesis of mandibular fractures remains one of the most debated methodological questions in maxillofacial surgery. Each approach has a unique risk profile: intraoral access is associated with risk of postoperative infection and technical limitations of the surgical field; extraoral access — with the risk of marginal mandibular nerve injury and formation of a cosmetic defect.

The aim of this review to systematize current data on comparative effectiveness and safety of intraoral and extraoral approaches for mandibular fracture osteosynthesis and to formulate principles of rational approach selection based on clinical situation.

Methods. Systematic search in PubMed, Scopus, eLibrary.ru, CyberLeninka for the period 2000–2026, including foundational works by Risdon (1934), Champy (1976, 1978), and Schmoker (1981). 36 publications were selected.

Results. The review showed comparable rates of wound infection with intraoral and external approaches (5.9% and 10.0%; RR 0.94; 95% CI 0.63–1.39, not significant). Intraoral access is associated with fewer neurosensory complications and absence of cosmetic defect; extraoral — with better visual control of the fracture zone. Transbuccal hybrid approach combines advantages of both.

Conclusion. Approach selection in mandibular fracture osteosynthesis should rely on individual clinical situation. Intraoral access is preferred for symphysis, parasymphysis, and body fractures with intact dentition; extraoral — for angle, ramus, condylar process fractures and atrophic edentulous mandibles. Implementation of virtual 3D planning and endoscopic assistance reduces technical barriers of the intraoral technique.

Keywords: mandibular fractures, intraoral approach, extraoral approach, submandibular approach, osteosynthesis, transbuccal approach, marginal mandibular nerve.

1. Introduction

Open Reduction and Internal Fixation (ORIF) using miniplates remains the standard surgical treatment for mandibular fractures in contemporary oral and maxillofacial surgery. One of the key methodological decisions influencing the technical complexity of the procedure, complication profile, and aesthetic outcome is the choice of surgical approach. Historically, two principal approaches have been established: the intraoral (transoral) approach and the extraoral submandibular (Risdon) approach, named after the Canadian surgeon F.A. Risdon, who first described the technique in 1934 [1].

Over the past decades, both approaches have accumulated substantial evidence supporting their clinical application. The intraoral approach, developed and popularized by Michelet and Champy at the Strasbourg School between 1973 and 1978, marked the beginning of minimally invasive maxillofacial trauma surgery and eliminated visible external scarring, an important advantage in aesthetically sensitive facial regions [2,3]. Despite the inevitable external scar and the potential risk of injury to the marginal mandibular branch of the facial nerve, the extraoral submandibular approach remains an indispensable and versatile technique, providing excellent visualization of fractures involving the mandibular angle, ramus, and condylar process. The transbuccal hybrid approach, first described by Schmoker in 1981, represents a technical compromise that combines the advantages of both approaches, particularly in the management of mandibular angle fractures [4].

Despite decades of clinical experience, the optimal choice of surgical approach for a particular clinical scenario remains controversial. Available systematic reviews and meta-analyses have not demonstrated a definitive overall superiority of either approach across the full spectrum of clinically relevant outcomes, highlighting the importance of individualized surgical decision-making [5-7]. Moreover, the integration of modern digital technologies including virtual three-dimensional (3D) surgical planning, three-dimensional printing of anatomical models, and endoscopic assistance has expanded the indications for minimally invasive intraoral osteosynthesis, allowing its application in clinical situations that previously required an exclusively extraoral approach [8].

The aim of this review is to summarize current evidence regarding the comparative effectiveness and safety of intraoral and extraoral approaches for mandibular fracture osteosynthesis, analyze the complication profile associated with each technique, and formulate evidence-based principles for selecting the most appropriate surgical approach according to the specific clinical scenario.

2. Materials and Methods

Literature Research Methodology

A systematic literature search was conducted in the PubMed, Scopus, eLibrary.ru, and CyberLeninka databases covering the period from January 2015 to March 2026. The search strategy included combinations of the following keywords: intraoral approach mandibular fracture", "extraoral approach mandibular fracture", "submandibular approach", "Risdon approach", "transbuccal approach", "marginal mandibular nerve injury" as well as their Russian equivalents: "внутриротовой доступ перелом нижней челюсти", "наружный доступ остеосинтез", "трансбуккальный доступ" and "поднижнечелюстной разрез."

In addition, landmark publications were included to provide historical and methodological context, including the original works of Risdon F.A. (1934) [1], Michelet et al. (1973) [2], Champy et al. (1976, 1978) [3,9], and Schmoker (1981) [4]. After removing duplicate records and excluding studies that did not meet the scope of the review, a total of 36 publications were selected for detailed analysis. These comprised systematic reviews and meta-analyses, prospective and retrospective comparative studies, anatomical investigations of the topography of the marginal mandibular branch of the facial nerve, and technical reports describing surgical approaches.

3. Results

Historical Evolution of Surgical Approaches

The extraoral submandibular approach was first systematically described by Risdon in 1934 as a universal technique for the surgical management of mandibular fractures and neoplastic lesions of the mandible [1]. The procedure involves a 4-5 cm skin incision placed approximately 1.5-2 cm inferior to the lower border of the mandible, followed by layer-by-layer dissection through the subcutaneous tissue, platysma, and superficial layer of the deep cervical fascia, identification and preservation of the marginal mandibular branch of the facial nerve, and exposure of the lateral surface of the mandibular body. For several decades, the Risdon submandibular approach remained the standard and most widely used surgical access, particularly during the era of

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maxillomandibular fixation and before the introduction of rigid internal fixation techniques [1].

A major paradigm shift occurred in the mid-1970s with the pioneering work of Michelet and Champy [2,3,9]. In 1973, Michelet et al. described the first transoral monocortical fixation technique using miniature bone plates, establishing the foundation for modern miniplate osteosynthesis [2]. Subsequently, Champy et al. (1976, 1978) [3,9] defined the biomechanical principles of mandibular osteosynthesis and introduced the concept of the ideal lines of osteosynthesis along the superior border of the mandibular body. Their work demonstrated that stable fixation could be achieved with a single monocortical miniplate inserted through an intraoral approach without the need for prolonged maxillomandibular fixation. These studies marked the beginning of minimally invasive maxillofacial trauma surgery.

In 1981, Schmoker introduced the transbuccal hybrid approach, employing a transcutaneous trocar inserted through the cheek to facilitate screw placement in the mandibular angle while maintaining intraoral visualization of the fracture site [4]. This technique proved particularly advantageous for fractures of the mandibular angle, where purely intraoral fixation is technically demanding because of restricted surgical access and the unfavorable angle required for screw insertion.

Over the following decades, both principal approaches continued to evolve in parallel. Refinements of the extraoral approach included cosmetically favorable skin-crease incisions and minimally invasive modifications, whereas the indications for the intraoral approach expanded through the incorporation of endoscopic assistance (Lee et al., 2018), patient-specific three-dimensional (3D)-printed surgical guides, and virtual preoperative planning [10,11].

Intraoral Approach: Technique, Advantages, and Limitations

The intraoral approach involves a 3-4 cm mucosal incision made along the mucogingival junction overlying the fracture site. Following incision of the mucosa and submucosal tissues, subperiosteal dissection is performed to expose the lateral surface of the mandibular body or alveolar process. In symphyseal and parasymphyseal fractures, the fracture site is generally well visualized, allowing direct reduction and fixation. In fractures of the mandibular body, adequate mouth opening, appropriate retractors, and optimal illumination are required to achieve satisfactory exposure. Management of mandibular angle fractures through an intraoral approach is technically the most demanding because of restricted visualization and the unfavorable angle for screw insertion; in such cases, a transbuccal trocar-assisted technique is frequently employed [4,12].

The principal advantages of the intraoral approach have been consistently demonstrated in systematic reviews published over the past decade:

- Absence of an external scar, providing a major cosmetic advantage, particularly in young patients and in aesthetically sensitive facial regions [13].
- Elimination of the risk of injury to the marginal mandibular branch of the facial nerve, whereas the reported incidence of transient facial nerve paresis following the extraoral approach ranges from 0% to 20%, with an average of approximately 12% [14].
- Shorter operative time, primarily because dissection, identification, and protection of the facial nerve branches are unnecessary [15].
- Less extensive soft-tissue dissection, potentially resulting in reduced surgical trauma and faster postoperative recovery.

The limitations of the intraoral approach have also been well documented. The restricted operative field and the challenging angle for instrument and screw placement require greater surgical expertise and are associated with a steeper learning curve. Although the intraoral incision is theoretically associated with a higher risk of postoperative surgical site infection because of the oral microbial environment, contemporary systematic reviews have not demonstrated a statistically significant difference in infection rates compared with the extraoral approach [16]. In severely atrophic edentulous mandibles, the intraoral approach is often technically impractical because of insufficient soft tissue for incision placement and limited bone stock for fixation. Furthermore, in comminuted mandibular fractures, visualization of fracture fragments and accurate reduction through an intraoral approach may be difficult to achieve.

Extraoral Submandibular Approach: Technique, Advantages, and Limitations

The extraoral (Risdon) approach is performed through a 4-5 cm horizontal skin incision placed approximately 1.5-2.0 cm inferior to the lower border of the mandibular body, preferably within a natural cervical skin crease to optimize the aesthetic outcome. Layer-by-layer dissection is carried out through the subcutaneous tissue, platysma, and the superficial layer of the deep cervical fascia. At this stage, meticulous identification and superior retraction of the marginal mandibular branch of the facial nerve are essential. In a cadaveric anatomical study by Hwang et al. (2018), the nerve was located, on average, 0.5-2.0 cm below the inferior border of the mandible, although considerable interindividual anatomical variation was observed [17].

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After protecting the nerve, the cervical fascia is incised, and subperiosteal dissection is performed to expose the lateral surface of the mandibular body or angle. Contemporary modifications of the technique include placement of the incision within a natural skin crease (the so-called cosmetic incision), which significantly improves the long-term aesthetic outcome [18].

The principal advantages of the extraoral approach include:

- Excellent visualization of the fracture site, including the inferior border and posterior aspect of the mandibular body.
- Greater technical simplicity in the management of fractures involving the mandibular angle, ramus, condylar process, and comminuted fractures.
- Applicability in severely atrophic edentulous mandibles, where an intraoral approach may be technically impossible.
- Facilitation of concomitant reconstructive procedures, including bone grafting and mandibular reconstruction.
- Reduced early postoperative pain, as reported in the comparative study by Bansal et al. (2021) [19].

The major limitations of the extraoral approach are well recognized:

- Formation of a visible cervical scar measuring approximately 4-5 cm. In susceptible individuals, hypertrophic scarring or keloid formation may occur. Although contemporary skin-crease incisions improve cosmetic outcomes, they do not completely eliminate the aesthetic disadvantage.
- Risk of injury to the marginal mandibular branch of the facial nerve. According to anatomical and clinical studies, the reported incidence of transient marginal mandibular nerve paresis ranges from 0% to 20%, with an average incidence of approximately 12%, whereas permanent paresis occurs in 0-5% of patients [16,17]. Clinically, nerve dysfunction manifests as depression of the ipsilateral oral commissure, smile asymmetry, and impaired facial aesthetics, thereby adversely affecting patients' quality of life.
- Longer operative time, primarily due to the meticulous dissection required for identification and preservation of the facial nerve branches.
- More extensive soft-tissue dissection, including division of the platysma and subcutaneous tissues, resulting in greater surgical invasiveness.

Transbuccal Hybrid Approach

The transbuccal approach, first described by Schmoker in 1981, represents a technical compromise that combines the advantages of both the intraoral and extraoral approaches in the management of mandibular angle fractures [4]. The technique consists of a conventional intraoral mucosal incision for visualization of the fracture site and placement of the fixation plate, combined with a 5-mm transcutaneous puncture through the cheek using a trocar or dedicated transbuccal cannula. This access permits screw insertion perpendicular to the plane of the miniplate, thereby overcoming the principal technical limitation of the purely intraoral approach in mandibular angle fractures, namely the unfavorable angle of screw placement resulting from restricted surgical access and limited visualization.

In a prospective clinical study involving 60 patients with mandibular angle fractures, Sikora et al. (2016) demonstrated that the transbuccal approach achieved significantly greater reduction accuracy than the conventional transoral technique and was associated with a lower rate of postoperative complications [13]. The cosmetic impact of the 5-mm transcutaneous puncture is minimal and becomes virtually imperceptible after complete healing. These findings were further supported by Bansal et al. (2021), who confirmed the advantages of the transbuccal approach in the surgical management of mandibular angle fractures [19].

The principal limitations of the transbuccal technique include the requirement for specialized instrumentation, such as a transbuccal trocar or cannula, which may not be available in all surgical centers, as well as the need for advanced surgical expertise to coordinate simultaneous manipulation through both intraoral and transcutaneous access sites.

4. Discussion

Comparative Clinical Outcomes

Current systematic reviews and meta-analyses summarize the evidence base comparing intraoral and extraoral approaches. The most significant of these is a systematic review and meta-analysis by Pourdanesh et al. (2024), which included 11 direct comparative studies and 1,317 patients (937 via the intraoral approach and 380 via the extraoral approach) [15]. The surgical site infection rates were 5.9% and 10.0%, respectively, with a pooled relative risk of 0.94 (95% CI 0.63–1.39), which did not reach statistical significance. The authors concluded that the choice of surgical approach should not be dictated by the assumption of a higher infection risk associated with the intraoral technique, as contemporary data do not support this claim.

The profile of neurosensory complications differs substantially between the two methods. Sikora et al. (2016) demonstrated that the transbuccal approach is

superior to the purely transoral approach regarding reduction accuracy in mandibular angle fractures. In a comparative study [13], Bansal et al. (2021) found that the extraoral approach was associated with lower postoperative pain on day 1, whereas the intraoral approach correlated with a lower incidence of neurosensory complications [19]. This finding aligns with general anatomical logic: the intraoral approach completely eliminates the risk of contact with the marginal mandibular branch of the facial nerve, whereas the extraoral approach carries a significant risk of its injury.

A systematic review by Singh et al. (2019), analyzing 14 studies and 824 patients with mandibular body and angle fractures, demonstrated comparable rates of malocclusion (3.2% vs. 2.8%), fixation instability (1.9% vs. 2.1%), and reoperation (2.4% vs. 2.9%) for both approaches. However, aesthetic outcomes were rated significantly higher among patients undergoing the intraoral approach, with an average Patient Satisfaction Score of 9.2 vs. 6.8 on a 10-point scale ($p < 0.001$) [20].

The operative time for the intraoral approach is shorter by an average of 12–18 minutes due to the elimination of the time required to dissect and protect the branches of the facial nerve, as confirmed by several comparative studies. This effect is particularly pronounced in studies involving experienced surgeons; however, in the context of training young specialists, this difference may be neutralized.

Principles of Rational Approach Selection

Based on the current body of evidence, practical recommendations for selecting the optimal surgical approach can be formulated according to the clinical presentation:

Symphyseal and parasymphyseal fractures. The intraoral approach is considered the first-line technique. It provides adequate visualization of the fracture site through an intraoral incision, achieves superior cosmetic outcomes, and completely eliminates the risk of injury to the marginal mandibular branch of the facial nerve.

Mandibular body fractures. The intraoral approach is preferred in patients with a preserved dentition and uncomplicated fractures exhibiting minimal to moderate displacement. The extraoral approach is recommended for patients with severely atrophic edentulous mandibles, comminuted fractures, or significant soft-tissue deficiency.

Mandibular angle fractures. The transbuccal hybrid approach is regarded as the optimal treatment option. A purely intraoral technique is technically demanding because of the unfavorable angle required for screw insertion, whereas a purely extraoral approach carries the highest risk of injury to the marginal mandibular branch of the facial nerve, which courses in close proximity to the surgical incision.

Fractures of the mandibular ramus and condylar process. The extraoral approach remains the treatment of choice. Conventional intraoral fixation is generally not feasible at these anatomical sites because of limited surgical access. However, endoscopic assistance, as described by Lee et al. (2018), has expanded the indications for minimally invasive intraoral management of selected subcondylar fractures [10].

Fractures of the atrophic edentulous mandible. The extraoral approach is generally the only technically feasible option. Contemporary evidence also supports the use of patient-specific implants (PSIs) in these cases, as they may reduce surgical trauma while improving fixation accuracy and clinical outcomes [21].

Comminuted fractures and fractures associated with bone defects. The extraoral approach is preferred because it provides wide surgical exposure, facilitates accurate reduction of multiple fracture fragments, and allows simultaneous bone grafting or reconstructive procedures when required.

Trends and Future Perspectives

Advances in digital technologies and endoscopic surgery have substantially expanded the indications for minimally invasive intraoral approaches in the management of mandibular fractures. Endoscopic assistance, as described in several clinical studies published over the past decade, enables visualization of the posterior aspect of the mandibular ramus and the subcondylar region through a limited intraoral incision [17]. Consequently, the need for an extraoral approach in selected condylar and subcondylar fractures has been reduced.

Virtual three-dimensional (3D) surgical planning based on preoperative cone-beam computed tomography (CBCT), combined with precise segmentation of the mandibular canal and dental root structures, allows accurate planning of safe screw trajectories within the restricted operative field of the intraoral approach [22-26]. This technology reduces reliance on direct visualization during surgery and broadens the applicability of intraoral osteosynthesis in technically challenging fractures. Furthermore, three-dimensional printing of patient-specific mandibular models using polylactic acid (PLA) on desktop fused deposition modeling (FDM) printers enables preoperative contouring of standard fixation plates to match the patient's anatomy, thereby facilitating plate adaptation and improving surgical efficiency, particularly when using an intraoral approach [27-29].

A particularly promising area of development is the integration of artificial intelligence (AI) into preoperative surgical planning. Emerging AI-based

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applications include automatic fracture-line detection, automated segmentation of osseous and neural structures, and generation of decision-support recommendations regarding the optimal surgical approach and fixation strategy based on patient-specific anatomical and radiological data [30-36]. Although these technologies remain at an early stage of clinical implementation, their application to surgical approach selection represents an important and rapidly evolving field of research with considerable potential for future clinical practice.

3. Conclusions

Current evidence provides a balanced perspective on the comparative effectiveness of intraoral and extraoral approaches for mandibular fracture osteosynthesis. The respective advantages and limitations of each approach are largely determined by the anatomical characteristics of the clinical situation. The intraoral approach offers the advantages of avoiding visible external scarring and eliminating the risk of injury to the marginal mandibular branch of the facial nerve, although these benefits are offset by restricted surgical visualization and greater technical complexity. Conversely, the extraoral approach provides excellent exposure of the fracture site and facilitates surgical manipulation but is associated with the formation of a cervical scar and an increased risk of facial nerve injury. The transbuccal approach represents an optimal compromise for the management of mandibular angle fractures by combining the cosmetic advantages of intraoral access with improved technical feasibility for screw placement.

The integration of virtual three-dimensional (3D) surgical planning, endoscopic assistance, and patient-specific three-dimensional printed anatomical models has significantly expanded the indications for minimally invasive intraoral osteosynthesis, enabling its use in clinical scenarios that previously required an exclusively extraoral approach. Future research should focus on developing individualized decision-making algorithms for surgical approach selection based on digital preoperative planning, advanced imaging technologies, and the integration of artificial intelligence into clinical workflows.

Conflict of Interest. The authors declare that they have no conflict of interest.

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All authors have read and approved the final version of the manuscript.

AI Declaration. During the preparation of this work, the authors used Grammarly in order to improve the language, grammar, and readability of the manuscript. After using this tool, the authors reviewed and edited the content as needed and take full responsibility for the academic integrity and final content of the published article.

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Төменгі жақсүйек сынықтарының остеосинтезінде ауызішілік және сыртқы хирургиялық ену жолдары: Қазіргі заманғы әдістерге салыстырмалы шолу

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Түйіндеме

Төменгі жақсүйек сынықтарының остеосинтезінде ауызішілік немесе сыртқы (төменгі жақсүйек асты) хирургиялық ену жолдарын таңдау жақсүйек-бет хирургиясының ең көп талқыланатын әдістемелік сұрақтарының бірі болып қала береді. Аталған хирургиялық ену жолдарының әрқайсысының бірегей қауіп профилі бар.

Шолудың мақсаты: төменгі жақсүйек сынықтарының остеосинтезінде ауызішілік және сыртқы хирургиялық ену жолдарының салыстырмалы тиімділігі мен қауіпсіздігі туралы заманауи деректерді жүйелеу және клиникалық жағдайға қарай ену жолдарын ұтымды таңдау принциптерін тұжырымдау.

Әдістері. PubMed, Scopus, eLibrary.ru, CyberLeninka базаларында 2000–2026 жж. кезеңі бойынша жүйелі іздеу Risdon (1934), Champy (1976, 1978) және Schmoker (1981) фундаментальды жұмыстарын қоса жүргізілді.

Нәтижелері. Жалпы саны 11 зерттеу мен 1317 науқастың материалында ауызішілік және сыртқы хирургиялық ену жолдары кезіндегі жараның инфекциясы кездесу жиілігінің сәйкес екенін көрсетті (5,9% және 10,0%; RR 0,94; 95% СИ 0,63–1,39). Ауызішілік ену жолы нейросенсорлық асқынулар жиілігінің төмен болуымен және косметикалық ақаудың болмауымен сипатталады, ал сыртқы ену жолы — сынық аймағын жақсырақ визуалды бақылаумен және отадан кейінгі ауырсыну сезімінің азырақ болуымен ерекшеленеді. Трансбуккалды гибридті ену жолы төменгі жақ бұрышы зақымдалғанда екі тәсілдің де артықшылықтарын біріктіреді. Қазіргі заманғы үрдістер — ауызішілік ену жолының эндоскопиялық ассистенциясы және виртуалды 3D-жоспарлау — аз инвазивті техниканы қолдану аясын кеңейтуде.

Қорытынды. Төменгі жақсүйек сынықтарының остеосинтезінде хирургиялық ену жолдарын таңдау жеке клиникалық жағдайға: сынықтың орналасуы мен сипаты, хирургтың тәжірибесі, көмекші технологиялардың қолжетімділігі секілді факторларға сүйене жүргізілуі тиіс. Симфиз, парасимфиз және тіс қатары сақталған сынықтар кезінде ауызішілік еншу жолы қолайлы. Ал сыртқы ену жолы бұрыш, тармақ, өсінді айдаршығы және атрофиялаған, тіссіз жақсүйектің сынықтары кезінде қолайлы. 3D виртуалды жоспарлау мен эндоскопиялық көмектің қолжетімділігі ауызішілік ену жолында болуы мүмкін техникалық кедергілерді азайтады.

Түйін сөздер: төменгі жақ сүйегі сынықтары, остеосинтез, ауызішілік хирургиялық ену жолы, сыртқы хирургиялық ену жолы, трансбуккальды ену жолы, бет жүйкесінің шеткі тармағы.

Внутриротовой и наружный доступы при остеосинтезе переломов нижней челюсти: Сравнительный обзор современных подходов

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Резюме

Выбор хирургического доступа — внутриротового или наружного (поднижнечелюстного) — при остеосинтезе переломов нижней челюсти остается одним из наиболее обсуждаемых методологических вопросов челюстно-лицевой хирургии. Каждый из доступов имеет уникальный профиль рисков: внутриротовой доступ ассоциируется с риском послеоперационной инфекции и техническими ограничениями операционного поля, наружный — с риском повреждения краевой ветви лицевого нерва и формированием косметического дефекта.

Цель обзора: систематизировать современные данные сравнительной эффективности и безопасности внутриротового и наружного доступов при остеосинтезе переломов нижней челюсти и сформулировать принципы рационального выбора доступа в зависимости от клинической ситуации.

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Методы. Систематический поиск в базах PubMed, Scopus, eLibrary.ru, CyberLeninka за период 2000–2026 гг., с включением фундаментальных работ Risdon (1934), Champy (1976, 1978) и Schmoker (1981). Отобрано 36 публикаций — систематические обзоры и метаанализы, проспективные сравнительные клинические исследования, анатомические работы.

Результаты. Обзор показал сопоставимую частоту раневой инфекции при внутриротовом и наружном доступах (5,9% и 10,0%; RR 0,94; 95% ДИ 0,63–1,39, не значимо). Внутриротовой доступ ассоциируется с меньшей частотой нейросенсорных осложнений и отсутствием косметического дефекта, наружный — с лучшим визуальным контролем зоны перелома и меньшей послеоперационной болью. Трансбуккальный гибридный доступ объединяет преимущества обоих подходов при углу нижней челюсти. Современные тренды — эндоскопическая ассистенция внутриротового доступа и виртуальное 3D-планирование — расширяют границы применимости минимально инвазивной техники.

Выводы. Выбор доступа при остеосинтезе переломов нижней челюсти должен опираться на индивидуальную клиническую ситуацию: локализацию и характер перелома, опыт хирурга, доступность вспомогательных технологий. Внутриротовой доступ предпочтителен при переломах симфиза, парасимфиза и тела с сохраненным зубным рядом; наружный — при переломах угла, ветви, мыщелкового отростка и атрофичных беззубых челюстях. Внедрение виртуального 3D-планирования и эндоскопической ассистенции снижает технические барьеры внутриротовой техники.

Ключевые слова: переломы нижней челюсти, внутриротовой доступ, наружный доступ, поднижнечелюстной доступ, остеосинтез, трансбуккальный доступ, краевая ветвь лицевого нерва.

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