Review of Contemporary Philosophy
ISSN: 1841-5261, e-ISSN: 2471-089X
Vol 22 (1), 2023
Pp 3672 - 3686

Dental Extraction: Oral Surgery, Management, and Role of Nursing-An Updated Overview

[1]-Amal Mohammad Sahli,[2]-Asmaa Ahmed Kaabai,[3]-Awatif Wli Hakami,[4]-Meshael Soliman Alotaibi,[5]-Ghadah Ali Hashmi,[6]-Eman Humaidan Faleh Alreshidi,[7]-Ibrahim Abdulaziz S Aloumi,[8]-Dalia Abdullah Almutairi,[9]-Khaled Jazaa Alruwaili,[10]-Enas Hadi Magadi,[11]-Ahlam Mohammed Almutairi,[12]-Nadyah Abdulla Almutairi,

1. KSA, Ministry Of Health, Utaiqah Health Centre
2. KSA, Ministry Of Health, Psmmc
3. KSA, Ministry Of Health, Ahad Massarah
4. KSA, Ministry Of Health, Al Imam Abdulrahman Alfisal Hospital
5. KSA, Ministry Of Health, KING SAUD MEDICAL CITY
6. KSA, Ministry Of Health, King Khalid Hospital
7. KSA, Ministry Of Health, Dariya Hospital
8. KSA, Ministry Of Health, King Abdullah Medical Complex
9. KSA, Ministry Of Health, Northern Borders Gathering, Tarif General Hospital
10. KSA, Ministry Of Health, Hospital King Salman Bin Abd Alaziz
11. KSA, Ministry Of Health, Primary Health Care Center In Safra Al-Muthannb
12. KSA, Ministry Of Health, Primary Health Care Center In Safra Al-Muthannb

Abstract:

Background: Dental extractions are commonly performed procedures that require careful consideration of anatomical, physiological, and patient-specific factors. While advancements in dentistry emphasize tooth retention, extractions remain necessary for various clinical conditions. The procedure requires a detailed understanding of the underlying principles to ensure safe and effective execution. This article explores the fundamentals of non-surgical dental extractions, highlighting the importance of anatomy, extraction techniques, and perioperative management.

Aim: The aim of this article is to provide an updated overview of dental extractions, focusing on the principles, techniques, and management strategies, while emphasizing the role of nursing in supporting the process.

Methods: A comprehensive review of current literature and clinical practices regarding dental extractions was conducted. The review covers anatomical considerations, extraction techniques, indications, contraindications, and post-operative care. The role of nursing in supporting patients before, during, and after the procedure is also discussed.

Results: The review outlines key aspects of dental extraction, including the differences in anatomical structures between the maxilla and mandible, the importance of anesthesia techniques, and the role of sensory nerve networks. It discusses the various indications for extractions, including dental caries, pulp and periapical pathologies, periodontal disease, and impacted teeth. Contraindications, such as uncontrolled medical conditions, neurological disorders, and respiratory conditions, are also addressed.

Conclusion: Successful dental extractions require a comprehensive understanding of anatomy, extraction techniques, and patient management. The role of nursing is crucial in ensuring patient comfort, managing risks, and providing post-operative care. With careful planning and clinical expertise, dental extractions can be performed safely and effectively.

Keywords: Dental extraction, non-surgical procedure, anatomy, anesthesia, nursing role, patient management, dental care, contraindications.

Received: 05 october 2023 **Revised:** 19 November 2023 **Accepted:** 02 December 2023

Introduction:

Dental extractions are a common procedure performed by practitioners across a spectrum of experience levels in oral surgery and diverse clinical settings. Despite advancements in modern dentistry that encourage patients to retain their natural dentition for extended periods, the necessity for dental extractions persists. It is therefore imperative that practitioners conducting these procedures possess a comprehensive understanding of the fundamental principles to ensure their safe and effective execution. This article emphasizes the principles underlying non-surgical dental extractions to provide an in-depth exploration of these practices. Non-surgical tooth removal hinges on the gradual expansion of the bony socket housing the tooth. This expansion enables sufficient mobilization of the tooth, ultimately allowing its extraction from the jaw. However, dental extractions are not devoid of risks, necessitating thorough consideration of both clinical and patient-specific factors. These considerations must be discussed during the consent process to ensure informed decision-making by the patient [1]. A robust knowledge of relevant anatomy, extraction methodologies, and perioperative considerations is crucial to delivering optimal clinical care.

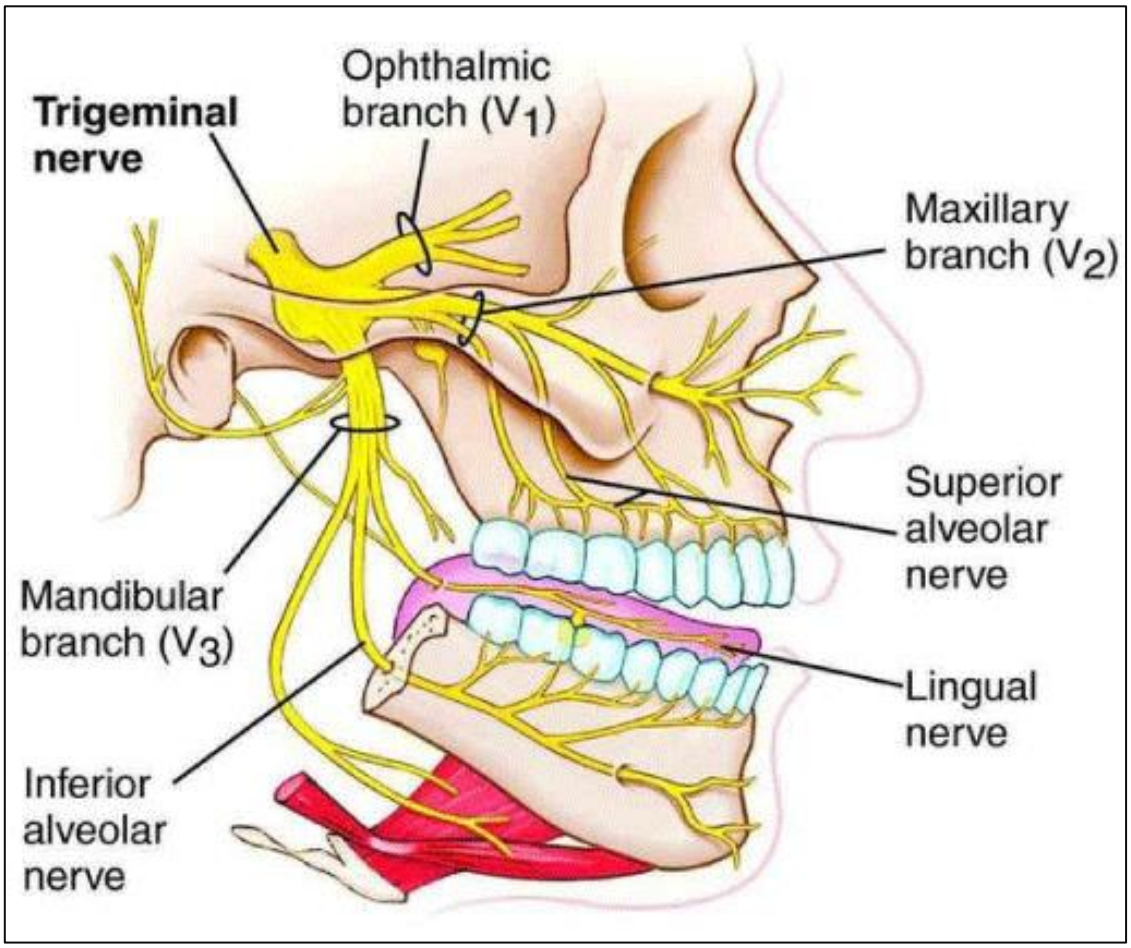

Figure 1: the innervation of the dentition by the maxillary and mandibular nerves and their subdivisions.

Anatomy and Physiology

The anatomical considerations relevant to dental extractions vary depending on the extraction site. An understanding of these anatomical structures is critical for determining appropriate anesthesia techniques and assessing the potential risks associated with the procedure.

Maxilla: The maxilla, or upper jaw, forms part of the mid-face, supporting the upper teeth along its inferior aspect and separating the oral cavity from the nasal floor and maxillary sinuses superiorly. The cortical plates of the maxilla are thinner compared to those of the mandible, with the buccal cortices being notably thinner than the palatal cortices [2]. This structural attribute allows for superior penetration of local anesthesia via the supra-periosteal infiltration technique. The thinner, softer bone of the maxilla facilitates easier expansion of the dental socket, thereby enabling fewer challenging extractions compared to the mandible [3]. Additionally, the maxilla's enhanced vascularization promotes expedited and improved healing following extractions.

Mandible: The mandible, or lower jaw, exhibits a 'horseshoe' configuration. Its horizontally curved body, ending at the mandibular angle posteriorly, supports the lower teeth. Superiorly, the mandible transitions into the vertical rami, culminating in the coronoid processes anteriorly and the condylar heads posteriorly, which articulate within the glenoid fossae of the temporal bones to form the temporomandibular joint (TMJ) [4, 5]. The mandibular bone's thicker cortices and trabecular structure, coupled with its relatively lower vascularization, often result in more challenging extractions and a slower healing process [6]. The mandibular foramen, situated medially on the mandibular rami, serves as a landmark for administering an inferior alveolar nerve block. Adjacent to this foramen is the lingula, a palpable bony protuberance crucial for effective anesthesia delivery [7].

Nerves:

A detailed understanding of the sensory nerve network supplying the teeth, surrounding bone, and soft tissues is essential for ensuring patient comfort during extractions. The trigeminal nerve (cranial nerve V) is the primary sensory nerve for the face and oral structures. It divides into three branches: the ophthalmic nerve (V1), the maxillary nerve (V2), and the mandibular nerve (V3).

- **Maxillary Nerve (V2):** This sensory nerve innervates the middle third of the face and the maxillary dentition through its superior alveolar nerve branches [8]. The posterior superior alveolar nerve supplies the molar teeth and buccal gingiva, while the anterior and middle superior alveolar nerves innervate the anterior teeth and premolars, respectively [9]. The greater palatine and nasopalatine nerves further innervate the hard palate, facilitating comprehensive anesthesia during maxillary tooth extractions. Common techniques include buccal and palatal infiltrations or regional nerve blocks.
- **Mandibular Nerve (V3):** This mixed nerve innervates the lower face, mandible, lower teeth, oral mucosa, anterior two-thirds of the tongue, chin, and lower lip. It bifurcates into anterior and posterior trunks, with the posterior trunk giving rise to the lingual and inferior alveolar nerves. The lingual nerve supplies sensation to the tongue, excluding taste, while the inferior alveolar nerve provides sensory innervation to the mandibular teeth, mucoperiosteum, lower lip, and chin [10]. The inferior alveolar nerve enters the mandible via the mandibular foramen, travels through the mandibular canal, and exits at the mental foramen as the mental nerve. Administering anesthesia at the mandibular foramen constitutes a successful inferior alveolar nerve block [11]. The lingual nerve's anatomical course, particularly its proximity to the mandibular third molar apices, is a critical consideration in third molar extractions to mitigate associated risks [12]. In conclusion, the integration of anatomical knowledge, refined extraction techniques, and thorough patient evaluation ensures the efficacy and safety of dental extractions, thereby upholding high standards of clinical practice.
- **Maxillary Sinus:** The maxillary sinuses, also referred to as antra, are air-filled cavities lined with mucosa and represent one of the four pairs of paranasal sinuses located in the skull. These sinuses communicate with the middle meatus of the nasal cavity through their ostium. Anatomically, the floor of the maxillary sinus may lie in close proximity to the apices of the upper posterior teeth, or, in some instances, the apices may extend into the sinus itself. Consequently, a potential complication associated with the extraction of

upper posterior teeth is the formation of an oro-antral communication (OAC). If this communication is not appropriately managed, it may epithelialize and progress into an oro-antral fistula (OAF) [13]. To mitigate this risk, practitioners must conduct a thorough radiographic evaluation prior to performing extractions in this region and ensure that a detailed discussion regarding potential complications occurs during the informed consent process.

- **Teeth:** An in-depth understanding of tooth anatomy is essential when preparing for a dental extraction, as several factors related to the tooth's structure influence the complexity of the procedure. The morphology of the roots must be evaluated, including their number, degree of divergence or convergence, length, and shape. Additional considerations include any anatomical communication between the roots and adjacent structures, the presence of dilaceration, and whether the roots have undergone prior treatment, such as root fillings. Furthermore, the integrity and condition of the crown require careful assessment, particularly for carious lesions, as these may impact the feasibility of removing the tooth in its entirety. Finally, the surrounding bone's condition, including any resorption due to apical pathology or periodontal disease, plays a critical role in determining the procedural complexity of a dental extraction.

Indications:

Dental extractions are performed for a wide range of clinical reasons, although the primary focus remains on preserving natural dentition wherever feasible. In situations where retention of a tooth is neither practical nor in the patient's best interest, extraction becomes the most appropriate course of action.

- **Dental Caries:** Extensive dental caries often result in insufficient sound tooth structure to support any form of restoration, rendering the tooth non-restorable. In such cases, extraction is the only viable treatment option. Notably, caries are widely recognized as the leading cause of tooth removal [14].
- **Pulpal and Apical Pathology:** Pulpal and periapical pathologies frequently arise as complications of untreated dental caries. When these conditions cannot be resolved with endodontic therapy or when the tooth would remain unrestorable post-treatment, extraction is indicated. Furthermore, patients who decline endodontic treatment may opt for tooth extraction as a definitive resolution.
- **Severe Periodontal Disease:** Advanced periodontal disease leads to significant bone loss in the maxilla or mandible. Teeth that lose the majority of their bony support often become mobile, causing discomfort and irritation. Given the limited regenerative options for bone loss, extraction is frequently recommended.
- **Fractured Teeth:** Teeth that are fractured beyond the point of effective restoration or retention necessitate extraction [15].
- **Retained Dental Roots:** Retained dental roots may result from trauma-induced crown fractures, caries, or incomplete extractions. While retention of dental roots may occasionally be warranted for prosthetic reasons or to avoid damage to adjacent structures, they pose a risk of infection and pain. Consequently, preemptive removal is often advisable [16].
- **Impacted Teeth:** Impacted teeth fail to erupt due to physical barriers, often necessitating extraction to prevent complications. These teeth, particularly mandibular third molars, upper canines, and lower premolars, may also pose a risk of cystic changes within the follicle. Decisions regarding prophylactic extraction versus radiographic monitoring should involve patient consultation. National guidelines typically govern the indications for mandibular third molar extractions [17–19].
- **Supernumerary Teeth:** Supernumerary teeth, or extra teeth beyond the normal series, frequently occur in the anterior maxilla and may cause eruption failure, displacement, crowding, or pathology. Removal is often indicated if retention does not provide clinical benefits [20].
- **Orthodontic Extractions:** Extractions for orthodontic purposes are commonly performed to create space within the dental arch, facilitating proper alignment. These extractions are planned in coordination with an orthodontist [21].
- **Pre-Prosthetic Extractions:** Extractions may be undertaken to enhance the fit of a prosthesis or to remove teeth with poor prognoses that might later compromise the suitability of the prosthesis [22].

- **Tooth in a Fracture Line:** Mandibular fractures involving teeth within the fracture line necessitate clinical and radiographic evaluation. Teeth posing an infection risk, inhibiting fracture healing, or fractured themselves are often removed during surgical fixation [23].
- **Teeth with Associated Pathology:** Teeth associated with jaw pathologies, such as cysts or malignancies, may require extraction as part of the overall management strategy [24].
- **Prior to Radiotherapy:** Patients scheduled for head and neck radiotherapy undergo a comprehensive dental evaluation to identify teeth with poor prognoses. Extracting such teeth preemptively minimizes the risk of osteoradionecrosis, a severe complication associated with post-radiotherapy extractions [25].

Contraindications

Dental extractions, although common, may not always be immediately indicated in certain clinical scenarios. Absolute contraindications are rare, even in cases involving acutely symptomatic teeth. However, patient optimization and a careful risk-benefit analysis are critical before proceeding. This discussion should thoroughly address the patient's medical history and the specific circumstances of the planned extraction.

- **Uncontrolled Medical Conditions Impacting Dental Extractions:** Patients presenting with uncontrolled medical conditions should ideally undergo stabilization before undergoing dental extractions. Communication with the patient's medical team or general practitioner is essential to achieve adequate management of their health condition. Once their condition is stabilized, a reassessment for dental extraction can be conducted.
- **Neurological Conditions:** Conditions such as poorly controlled epilepsy present significant risks during dental procedures, particularly the potential for aspiration or injury if a seizure occurs during treatment [26]. Patients with cerebrovascular disease or hypertension are at elevated risk for strokes. It is essential to evaluate their history for prior transient ischemic attacks (TIAs). In cases of increased stroke risk due to unmanaged conditions, stabilization is recommended before extraction. Furthermore, many such patients may be on anticoagulant therapy, necessitating appropriate measures to manage bleeding risks.
- **Respiratory Conditions:** Respiratory disorders like chronic obstructive pulmonary disease (COPD) do not categorically contraindicate dental extractions. However, patients with these conditions often prefer being treated in a seated position to mitigate discomfort caused by breathlessness when reclined [27]. In addition, sedation may pose risks due to respiratory depression, and comprehensive pre-sedation assessments are necessary to evaluate these risks effectively.
- **Cardiovascular Conditions:** Cardiovascular diseases (CVDs) encompass a range of conditions, including ischemic heart disease, hypertension, dysrhythmias, and infective endocarditis (IE). While IE prophylaxis with antibiotics was widely recommended before 2008, recent guidelines suggest that the risk associated with dental extractions is overestimated. However, each case requires individualized consultation with the patient's cardiologist to determine the need for pre-procedural antibiotic prophylaxis [28].
- **Renal Impairment:** Severe renal impairment complicates the management of dental extractions. These patients face an elevated risk of bleeding, infection, and other complications. Invasive procedures should be minimized, and prophylactic antibiotics may be warranted to mitigate infection risks. For renal transplant recipients or patients with advanced disease, immunosuppression adds another layer of complexity, requiring coordination with the renal care team to ensure safe extraction protocols.
- **Immunocompromised Patients:** Immunocompromised individuals are at increased risk of systemic infections following invasive dental treatments like extractions. Prophylactic antibiotics are not universally indicated due to limited evidence supporting their effectiveness in preventing postoperative infections. Each case requires individual evaluation, with consultation from relevant medical teams to tailor an appropriate management plan. Additionally, hematological disorders, hepatic dysfunction, and diabetes pose unique challenges, such as heightened bleeding tendencies and susceptibility to infection, necessitating similar precautionary measures and multidisciplinary collaboration.

Medical Factors:

Antiresorptive Agents:

Antiresorptive medications, including bisphosphonates and denosumab, are widely utilized to manage osteoporosis, malignancy-related hypercalcemia, multiple myeloma, Paget's disease, and other skeletal abnormalities [29]. These agents inhibit bone remodeling, potentially impairing the healing process of an extraction socket. The subsequent development of a non-healing socket with exposed bone is referred to as medication-related osteonecrosis of the jaw (MRONJ) [30]. To mitigate MRONJ risk, comprehensive dental evaluations are advised before initiating antiresorptive therapy to address any teeth with a poor prognosis. However, instances where extractions become necessary during or after treatment require detailed discussions weighing the risks and benefits with the patient. Bisphosphonates can be administered orally or intravenously, necessitating detailed documentation of the drug type, administration method, and duration of use to determine MRONJ risk. Prolonged use exceeding five years, concurrent steroid therapy, and advanced age are notable risk factors [31]. Drug holidays are not recommended for bisphosphonates, as their cumulative effects persist even when doses are omitted. When extraction is unavoidable after initiating antiresorptive therapy, a comprehensive history and consultation with the patient's medical team are imperative. Informed consent and structured follow-up are essential components of patient management.

Steroid Use

Steroid therapy, prescribed for various conditions, can compromise wound healing, an essential consideration during dental extractions. Research suggests that doubling the steroid dose prior to extractions may offset adrenal suppression; however, this strategy depends on the steroid type and dosage. Collaborating with the prescribing physician may be prudent when managing such cases.

Anticoagulants and Antiplatelet Drugs

Anticoagulants and antiplatelets are commonly prescribed medications, necessitating an in-depth understanding of their implications for dental procedures. Decision-making regarding the omission of such medications should balance the potential systemic risks against the likelihood of manageable oral bleeding. Current evidence does not support routinely discontinuing these medications, as bleeding is generally controllable with local hemostatic measures [32]. Warfarin, a widely used anticoagulant, requires individualized management based on the patient's international normalized ratio (INR). Patients with an INR below 4.0 can safely undergo dental extractions in primary care settings, whereas those exceeding 4.0 should be treated in secondary care [32]. INR readings, valid within 72 hours of the procedure, provide a reliable measure of bleeding risk. With the advent of novel oral anticoagulants (NOACs), warfarin usage has diminished, yet NOAC management lacks standardized INR-equivalent testing. Consequently, clinical judgment plays a central role in these cases. Local measures such as oxidized cellulose materials and sutures are effective in minimizing post-extraction bleeding.

Radiotherapy

Radiotherapy, particularly targeting the head and neck region, predisposes patients to osteoradionecrosis (ORN), a condition resembling MRONJ characterized by non-healing bone exposed to the oral cavity [33]. Pre-treatment dental evaluations are vital to minimize this risk. Rigorous risk-benefit discussions with the patient are mandatory, and referral to a specialist may be warranted to optimize treatment outcomes.

Tooth-Specific Factors

Proximity to Vital Structures

The anatomical relationship of a tooth to vital structures, such as the inferior dental nerve (IDN), is a significant consideration when evaluating the feasibility of dental extractions, particularly for mandibular third molars. Radiographic indicators suggesting proximity of the mandibular third molar roots to the IDN include banding across the roots, loss of cortication of the IDN, and deviation of the nerve's path. For cases requiring detailed evaluation, cone beam computerized tomography (CBCT) provides precise visualization and enhanced assessment of the tooth's position relative to the IDN. In instances where the

risk of IDN injury is considerable, coronectomy has emerged as a viable alternative to total extraction. This technique involves the removal of the tooth's coronal portion below the level of the cementoenamel junction, ensuring that the roots are retained at least 3 mm below the surrounding bone level. Coronectomy offers an effective means to minimize nerve damage while addressing the patient's clinical needs [34]. The proximity of teeth to the antral sinuses is another crucial factor, particularly in maxillary extractions, as it poses a risk of creating an oroantral communication (OAC). This complication may arise when the root apex invades the sinus, with radiographic features such as sinus floor deviation, discontinuity of the sinus floor, and long roots visibly extending into the antral space serving as warning signs. In cases where a tooth is acutely symptomatic, the potential for OAC may not contraindicate extraction. Instead, comprehensive preoperative discussions ensuring informed patient consent are essential to address risks and outline management strategies.

Equipment

The careful selection of appropriate equipment for each extraction scenario and patient is fundamental to achieving efficient, safe, and minimally traumatic outcomes. It is imperative for clinicians performing dental extractions to have comprehensive knowledge of the available equipment and make informed choices suited to each procedure. While the subsequent description is not exhaustive, it highlights key instruments commonly employed during dental extractions, along with their specific applications.

Dental Anesthesia Equipment:

Administering anesthesia is a critical step in facilitating dental extractions. The essential components for local anesthesia delivery include a syringe, needle, and plunger. Both the syringe casing and plunger can be disposable or reusable. The needle is dual-ended, with one end puncturing the anesthesia cartridge and the other piercing the mucosa. Dental needles are available in three standard lengths: extra-short, short (approximately 21 mm), and long (approximately 32 mm), with the latter suited for block injections. Needle diameter is expressed as gauge; smaller diameters correspond to higher gauge values. Common gauges include 25, 27, and 30, though evidence suggests no perceivable pain difference between gauges, and the 30-gauge needle is no longer recommended for clinical use [35]. Local anesthesia options include formulations such as lidocaine 2% with 1:80,000 adrenaline, articaine 4% with 1:100,000 adrenaline, and prilocaine 3% with felypressin. Adrenaline acts as a vasoconstrictor, extending the duration of anesthetic contact with neural fibers [37]. The choice of formulation depends on clinical requirements and patient-specific factors, supported by varying levels of evidence regarding potency [36].

- **Elevators**: Elevators are instrumental in severing the periodontal ligament and lifting the tooth coronally, enabling easier application of forceps or facilitating tooth avulsion [38]. These tools should be applied perpendicular to the tooth's long axis, with the inner aspect of the elevator tip on tooth tissue and the outer aspect on the alveolar bone. This ensures the fulcrum action does not disturb neighboring teeth [39].
- **Coupland Elevators**: Coupland elevators, available in three sequential widths (Couplands 1, 2, and 3), allow for progressive socket expansion and tooth elevation. Depending on the available space, these elevators may be used sequentially or individually.
- **Warwick James Elevators**: Warwick James elevators, available in straight, left-curved, and right-curved forms, are ideal for smaller spaces. Their curved variants are employed in a scooping motion for specific applications, such as maxillary third molars. Correct placement along the tooth’s root curvature enables effective distal displacement for extraction.
- **Cryers**: Cryers are sharply tipped elevators with a triangular design, effective for elevating root apices. They are particularly useful when one root is absent, allowing for secure placement against the remaining root apex to facilitate its removal via rotational movements.
- **Luxators**: Luxators, resembling elevators but with a sharper tip, aim to sever the periodontal ligament and gradually expand the alveolar socket. By advancing apically along the tooth with side-to-side motion, luxators create space for atraumatic extractions, preserving bone for future implant placement [40, 41].
- **Forceps**: Dental extraction forceps consist of three main parts: the handle, hinge, and beaks, with designs adapted for specific teeth. Maxillary forceps have parallel beaks, while mandibular ones have perpendicular

beaks. Multi-rooted teeth necessitate pointed beaks to engage furcations. Specialized variants, such as cowhorn forceps, effectively grip deeply rooted or severely damaged teeth. Proper forceps selection and apical placement minimize crown fractures and improve extraction outcomes [42].

- **Scalpel**: The 15-blade scalpel is frequently used in dental procedures due to its fine tip, suitable for intraoral and peri-oral incisions. The 15c-blade offers similar functionality in smaller areas [43].
- **Surgical Handpiece and Burs**: Surgical handpieces, preferred for bone removal during complex extractions, avoid air expulsion, thereby reducing the risk of surgical emphysema. Surgical burs, cooled with sterile saline, come in round and fissure types. Round burs facilitate smooth buccal bone removal, while fissure burs assist in crown and root sectioning.
- **Additional Considerations**: Effective extractions require supplementary equipment, including personal protective gear, suction systems, and adequate lighting, ensuring optimal clinical outcomes and patient safety.

Personnel

Preoperative patient assessment for dental extraction should ideally be conducted by the dentist who will perform the procedure. However, this is not always feasible in secondary care settings. The dental extraction itself is exclusively performed by the dental surgeon, while the dental assistant plays a pivotal role in supporting the procedure. The assistant ensures that all necessary equipment is prepared and handed over at the appropriate moments during the extraction. During the extraction, the dental assistant's contributions are invaluable in maintaining optimal surgical site visibility through effective suction and soft-tissue retraction. Additionally, if adequately trained, the assistant can provide postoperative instructions to patients. After the procedure, the surgeon must safely remove and dispose of sharp instruments, while the dental assistant or the decontamination team should sterilize or appropriately discard any remaining equipment.

Preparation

Prior to a dental extraction, a comprehensive consultation with the patient is essential. Ideally, this consultation and the actual treatment should occur on separate occasions to allow the patient sufficient time to consider their decision. During the consultation, a detailed medical history must be recorded, encompassing all medical conditions, medications (both prescribed and over-the-counter), and allergies. Any significant factors derived from the medical history should be explored thoroughly as they may influence the timing or feasibility of the procedure. In some cases, assessing the patient's weight is prudent to determine the maximum safe dosage of local anesthesia. A definitive diagnosis is required before considering tooth extraction. Clinicians must investigate the patient's symptoms, identify the causative tooth, and present the extraction as a treatment option only when necessary. This approach minimizes unnecessary extractions, especially in cases of facial pain mimicking dental pain [45]. Once a diagnosis is confirmed, all viable treatment options should be discussed with the patient. If the patient consents to extraction, a detailed discussion of the risks—such as pain, bleeding, bruising, swelling, infection, and less common complications—should take place. Site-specific risks, including injury to the inferior dental nerve (IDN) or the formation of an oroantral communication (OAC), should also be explained. Although these complications are rare, the clinician must assess and communicate the patient's individual risk levels. Written consent should be obtained and re-confirmed on the day of the procedure. Further investigations may be necessary, such as obtaining radiographs that include the apex of the tooth or performing cone-beam computed tomography (CBCT). Any additional imaging or diagnostic procedures should involve a complete consent discussion. In cases where medical factors necessitate consultation with the patient's healthcare team, these discussions must be completed well in advance of the procedure. Patients should be informed promptly if any medications require adjustment or suspension before the extraction. On the day of treatment, the clinician must review prior records, confirm consent, and communicate the required equipment to the dental assistant, ensuring thorough preparation for the procedure.

Technique or Treatment

Anesthesia

The choice of anesthesia should align with the location of the tooth to be extracted. For maxillary teeth, a combination of buccal and palatal infiltration using a short needle with lidocaine or articaine is typically sufficient. For mandibular teeth, an inferior dental nerve block, supplemented with buccal infiltration, is commonly employed using a long needle. Supplementary intraligamentary infiltrations may also be utilized for additional anesthesia, wherein a short or extra-short needle administers the anesthetic into the periodontal ligament (PDL) space [46]. Although lidocaine is the preferred anesthetic agent for nerve blocks due to concerns over articaine's neurotoxicity, existing evidence does not conclusively support these concerns [47]. After administering anesthesia, adequate time—up to five minutes for IDN blocks—should be allowed for it to take effect. Pain perception should be tested using a dental probe applied to the PDL space. Patients should feel pressure but no sharp pain; otherwise, supplementary anesthesia should be administered.

Luxation and Elevation

Different teeth require varying approaches, but most extractions involve some degree of luxation or elevation. These steps may precede the application of forceps or independently facilitate tooth removal. Luxators are applied in an apical direction along the tooth's long axis, while elevators are used perpendicularly to lever the tooth coronally out of the socket. The selection of instruments should be guided by the clinical and radiographic characteristics of the tooth. The goal of luxation and elevation is to sufficiently mobilize the tooth and widen the PDL space, enabling easier avulsion or forceps application. In cases of crown fracture, these instruments may also aid in removing root fragments from the socket.

Forceps

The appropriate forceps must be selected based on the tooth being extracted. To minimize the risk of crown fracture, the forceps should be positioned as apically as possible. Removal is achieved through a combination of rotational and buccolingual movements, which progressively widen the PDL space and facilitate tooth extraction.

Achieving Hemostasis

After tooth removal, a gauze roll or bite pack should be placed over the socket, and the patient should apply firm pressure for at least five minutes. Hemostasis must be confirmed before the patient is discharged. If bleeding persists, local hemostatic agents should be employed. In instances where the outlined techniques fail to achieve tooth removal, a surgical approach may be required.

Complications

Dental extractions, like any surgical intervention, inherently carry risks that must be thoroughly communicated to patients during pre-procedure consultations. Common complications include postoperative pain, bleeding, bruising, swelling, and infection. Additionally, potential damage to adjacent structures, such as neighboring teeth—especially those with restorations—should always be disclosed. Site-specific risks, including oroantral communication and inferior dental nerve (IDN) injury, require explicit discussion when relevant.

Pain

Post-extraction pain is a frequent postoperative occurrence. Over-the-counter analgesics, such as paracetamol and ibuprofen, are typically effective in managing this discomfort and may be used in combination for enhanced efficacy [48][49]. For patients experiencing unresolved pain, a comprehensive pain history and clinical evaluation are essential. In the absence of other diagnoses, conservative management and reassurance regarding the typical resolution period of 3 to 7 days are advisable [50]. In certain cases, stronger analgesics, such as opioids or corticosteroids, may be prescribed [51]. A prevalent cause of postoperative pain is alveolar osteitis, commonly known as dry socket, resulting from the premature breakdown of the blood clot in the extraction site [52]. Patients may initially experience pain

relief, followed by a resurgence within 1 to 3 days post-extraction. This condition is often accompanied by a noticeable loss of the blood clot, halitosis, or a bad taste [53]. Treatment involves irrigating the site with saline and applying a medicated dressing, such as Alvogyl, which provides local analgesic, antibacterial, and obtundent effects [54]. Post-extraction pain may also involve the temporomandibular joint, typically presenting as myofascial discomfort. Such cases often resolve with conservative measures over time.

Bleeding

Postoperative bleeding is a normal consequence of tooth extraction. Patients with medical histories predisposing them to prolonged bleeding should be identified and managed according to established guidelines. Persistent bleeding, unresponsive to local pressure, may require the application of local hemostatic agents or the use of tranexamic acid [55]. Patients must receive clear instructions to seek prompt professional care if bleeding persists despite home management efforts.

Bruising

Bruising is a potential postoperative outcome, more commonly observed following surgical extractions than simple ones [56]. It typically resolves within a few days, but patients should be informed of this possibility in advance to allay unnecessary concern.

Swelling

Post-extraction swelling, while more prevalent with surgical procedures, can also occur following simple extractions. Swelling generally subsides within 3 to 7 days. However, facial swelling may indicate a postoperative infection. In such cases, it is vital to assess for systemic infection signs and ensure airway patency. Patients should be reassured about the normality of mild swelling but must also be educated on identifying symptoms of infection warranting professional evaluation.

Infection

The possibility of postoperative infection must be communicated to patients. Although this is a significant risk, current evidence does not support the routine use of prophylactic antibiotics [57]. Severe infections, albeit rare, constitute one of the more critical complications of dental extractions.

Damage to Adjacent Teeth

The risk of injuring adjacent teeth, particularly those with restorations, underscores the importance of meticulous preoperative planning and careful surgical technique. Avoiding the application of excessive force near heavily restored teeth minimizes this risk.

Inferior Dental Nerve Injury (IDN)

IDN injury predominantly occurs during mandibular third molar extractions but can occasionally involve second molars due to their anatomical proximity to the nerve. Patients must be informed about the potential for temporary or permanent sensory alterations affecting the lip, cheek, tongue, and teeth. The incidence of IDN injury ranges from 0.35% to 8.4%, with permanent damage being uncommon [58]. Should such an injury occur, close follow-up during the initial recovery period is crucial. While most cases resolve within 6 to 8 weeks, complete recovery is ideally achieved within two months, as the likelihood of permanent deficits increases beyond this period [59].

Oroantral Communication (OAC)

OAC, most frequently associated with maxillary molar extractions, arises due to the proximity of the tooth's roots to the sinus floor or accidental displacement of root fragments into the sinus. Small defects (<2 mm) often close spontaneously and may be managed conservatively. Larger defects (>2 mm), if left untreated, risk epithelialization and development into oroantral fistulas (OAF), potentially leading to sinusitis. Surgical intervention is required for such defects, ideally within 24 hours of occurrence [13].

Wrong-Site Tooth Extraction

The extraction of an incorrect tooth is a highly regrettable error in dental practice, often attributable to poor communication, inadequate referrals, or operator fatigue [60]. While this list does not encompass all possible complications, it highlights the most commonly encountered issues that should be covered during routine consent discussions with patients.

Clinical Significance

A comprehensive understanding of the principles outlined is essential for performing routine oral surgical procedures. Dental extractions are fundamental treatments that all qualified dentists must competently provide. This necessitates a thorough grasp of the indications and contraindications for extractions, alongside relevant medical considerations. Furthermore, proper preoperative preparation, selection of appropriate instruments, and familiarity with their use are critical for successful outcomes. The theoretical insights provided in this discussion should serve as a foundation for the ongoing acquisition of practical expertise.

Role of Nursing:

Nurses play an essential and multifaceted role in dental extractions, ensuring that procedures are conducted safely, efficiently, and with the utmost attention to patient care. They contribute to various stages of the procedure, from preoperative preparation to postoperative care, working closely with dentists and other healthcare professionals to provide comprehensive support. One critical responsibility of dental nurses is to verify patient details and confirm allergies, ensuring patient safety and compliance with medical protocols. By double-checking the specific tooth extracted and collaborating with the dentist, nurses play a pivotal role in preventing procedural errors. Techniques like counting teeth aloud and cross-referencing with the consent form are integral to this verification process, highlighting the collaborative nature of dental procedures. This task is particularly crucial in minimizing risks associated with wrong-site surgery, a rare but significant complication. During the procedure, dental nurses are responsible for several technical and supportive tasks that streamline the extraction process. Four-handed dentistry, a technique that emphasizes coordinated teamwork, is a cornerstone of efficient dental care. Nurses assist by providing the dentist with the appropriate instruments promptly, retracting soft tissues, ensuring optimal lighting, and using suction to maintain a clear surgical field. This synchronization not only enhances the efficiency of the procedure but also improves patient outcomes by minimizing intraoperative delays and complications. Another significant responsibility of dental nurses is the decontamination of instruments following the procedure. Adherence to cross-infection control protocols is paramount to ensure the safety of both patients and the dental team. By following stringent sterilization and decontamination practices, nurses help prevent infections, a potential postoperative complication of extractions. Furthermore, dental nurses are expected to monitor hemostasis, the cessation of bleeding, after the procedure. While it is ultimately the dentist's responsibility to confirm hemostasis, nurses provide an additional layer of vigilance, especially in patients at higher risk of prolonged bleeding due to medical conditions or anticoagulant use.

Postoperative care is another area where nursing staff play a vital role. Dental nurses are often responsible for delivering clear and concise postoperative instructions to patients. This guidance typically includes advice on managing bleeding, controlling pain, and recognizing signs of potential complications such as infection or dry socket. Clear communication at this stage is essential to empower patients and reduce the likelihood of adverse outcomes. Beyond their clinical responsibilities, dental nurses contribute to administrative aspects of patient care. For example, they coordinate appointment scheduling to accommodate patients with specific medical needs, such as morning slots for individuals on anticoagulant therapy or those with memory impairments. This attention to detail ensures that patient care is both individualized and efficient. The broader dental team also benefits from the expertise of nursing staff. By being aware of potential complications and how to manage them, nurses can triage patient concerns effectively, whether over the phone or in person. Their ability to identify and escalate critical issues to clinicians ensures that patients receive timely and appropriate care. In summary, the role of nursing in dental extractions is multifaceted, encompassing clinical, administrative, and educational responsibilities.

Through their expertise and collaboration with dentists and the broader healthcare team, dental nurses contribute significantly to patient safety, procedural efficiency, and positive clinical outcomes. Their work is an indispensable component of modern dental care, reflecting the essential role of interprofessional teamwork in healthcare.

Conclusion:

Dental extractions are essential procedures in dentistry, often necessary for treating dental caries, pulp and apical pathology, periodontal disease, and various other conditions where tooth retention is not feasible. These procedures can be non-surgical and are typically performed with the goal of minimizing patient discomfort and risk. The safety and success of dental extractions depend largely on the clinician's understanding of relevant anatomy, extraction techniques, and the management of the perioperative period. Anatomical knowledge is critical for performing extractions safely. Differences between the maxilla and mandible, including variations in bone structure, vascularization, and proximity to vital structures, significantly influence the choice of anesthesia and extraction techniques. The maxilla's thinner bone structure facilitates easier extractions, while the mandible's thicker cortices present more challenges, especially in areas like the mandibular foramen, which requires precise anesthesia to avoid complications. Additionally, a thorough understanding of the trigeminal nerve's sensory distribution helps in administering effective pain relief. Indications for dental extraction vary, but the most common include advanced dental caries, pulp and periapical pathologies, and severe periodontal disease. Impacted or fractured teeth, retained dental roots, and teeth associated with other pathologies may also require removal. The decision to proceed with extraction should always be made with careful patient consultation, ensuring that the procedure is the most appropriate course of action. Contraindications for extractions should also be carefully considered. Patients with uncontrolled medical conditions, neurological disorders, and respiratory issues require stabilization and close coordination with their medical teams before undergoing extractions. Special care should also be taken with immunocompromised patients, those with cardiovascular conditions, and those undergoing treatments like chemotherapy, which can increase the risk of complications. The role of nursing in dental extractions is integral. Nurses provide preoperative care, assist with anesthesia management, and support postoperative recovery. They ensure that patients are informed, comfortable, and well-managed throughout the procedure. By focusing on these key aspects, dental extractions can be performed with minimal risk, leading to optimal patient outcomes.

References:

1. Arya R, Jadun S, Shah A. An evaluation of patient informed consent for dental extractions. Prim Dent J. 2022 Sep;11(3):98-103.
2. Porto OCL, Silva BSF, Silva JA, Estrela CRA, Alencar AHG, Bueno MDR, Estrela C. CBCT assessment of bone thickness in maxillary and mandibular teeth: an anatomic study. J Appl Oral Sci. 2020;28:e20190148.
3. Devlin H, Horner K, Ledgerton D. A comparison of maxillary and mandibular bone mineral densities. J Prosthet Dent. 1998 Mar;79(3):323-7.
4. Breeland G, Aktar A, Patel BC. StatPearls [Internet]. StatPearls Publishing; Treasure Island (FL): Apr 1, 2023. Anatomy, Head and Neck, Mandible.
5. Chang CL, Wang DH, Yang MC, Hsu WE, Hsu ML. Functional disorders of the temporomandibular joints: Internal derangement of the temporomandibular joint. Kaohsiung J Med Sci. 2018 Apr;34(4):223-230.
6. Saka B, Wree A, Henkel KO, Anders L, Gundlach KK. Blood supply of the mandibular cortex: an experimental study in Göttingen minipigs with special reference to the condyle. J Craniomaxillofac Surg. 2002 Feb;30(1):41-5.
7. Choi DY, Hur MS. Anatomical review of the mandibular lingula for inferior alveolar nerve block. Folia Morphol (Warsz). 2021;80(4):786-791.
8. Somayaji KS, Rao MK. Anatomy and clinical applications of the maxillary nerve in dentistry: a literature review. Dent Update. 2012 Dec;39(10):727-30, 733-5.
9. Shafique S, M Das J. StatPearls [Internet]. StatPearls Publishing; Treasure Island (FL): Jun 5, 2023. Anatomy, Head and Neck, Maxillary Nerve.

10. Ghatak RN, Helwany M, Ginglen JG. StatPearls [Internet]. StatPearls Publishing; Treasure Island (FL): May 1, 2023. Anatomy, Head and Neck, Mandibular Nerve.
11. Kim C, Hwang KG, Park CJ. Local anesthesia for mandibular third molar extraction. J Dent Anesth Pain Med. 2018 Oct;18(5):287-294.
12. Fagan SE, Roy W. StatPearls [Internet]. StatPearls Publishing; Treasure Island (FL): May 8, 2023. Anatomy, Head and Neck, Lingual Nerve.
13. Khandelwal P, Hajira N. Management of Oro-antral Communication and Fistula: Various Surgical Options. World J Plast Surg. 2017 Jan;6(1):3-8.
14. Broers DLM, Dubois L, de Lange J, Su N, de Jongh A. Reasons for Tooth Removal in Adults: A Systematic Review. Int Dent J. 2022 Feb;72(1):52-57
15. Aida J, Ando Y, Akhter R, Aoyama H, Masui M, Morita M. Reasons for permanent tooth extractions in Japan. J Epidemiol. 2006 Sep;16(5):214-9.
16. Nayyar J, Clarke M, O'Sullivan M, Stassen LF. Fractured root tips during dental extractions and retained root fragments. A clinical dilemma? Br Dent J. 2015 Mar 13;218(5):285-90.
17. Suri L, Gagari E, Vastardis H. Delayed tooth eruption: pathogenesis, diagnosis, and treatment. A literature review. Am J Orthod Dentofacial Orthop. 2004 Oct;126(4):432-45.
18. Wali GG, Sridhar V, Shyla HN. A study on dentigerous cystic changes with radiographically normal impacted mandibular third molars. J Maxillofac Oral Surg. 2012 Dec;11(4):458-65.
19. Sarica I, Derindag G, Kurtuldu E, Naralan ME, Caglayan F. A retrospective study: Do all impacted teeth cause pathology? Niger J Clin Pract. 2019 Apr;22(4):527-533.
20. Garvey MT, Barry HJ, Blake M. Supernumerary teeth--an overview of classification, diagnosis and management. J Can Dent Assoc. 1999 Dec;65(11):612-6.
21. Araújo TM, Caldas LD. Tooth extractions in Orthodontics: first or second premolars? Dental Press J Orthod. 2019 Aug 01;24(3):88-98.
22. Fernández-Barrera MÁ, Medina-Solís CE, Casanova-Rosado JF, Mendoza-Rodríguez M, Escoffié-Ramírez M, Casanova-Rosado AJ, Navarrete-Hernández Jde J, Maupomé G. Contribution of prosthetic treatment considerations for dental extractions of permanent teeth. PeerJ. 2016;4:e2015.
23. Taysi M, Yildirim S. Should the teeth in the line of jaw fractures be extracted? J Istanb Univ Fac Dent. 2015;49(1):61-65.
24. Nyimi BF, Yifang Z, Liu B. The Changing Landscape in Treatment of Cystic Lesions of the Jaws. J Int Soc Prev Community Dent. 2019 Jul-Aug;9(4):328-337.
25. Thorn JJ, Hansen HS, Specht L, Bastholt L. Osteoradionecrosis of the jaws: clinical characteristics and relation to the field of irradiation. J Oral Maxillofac Surg. 2000 Oct;58(10):1088-93; discussion 1093-5.
26. Pick L, Bauer J. [Dentistry and epilepsy]. Nervenarzt. 2001 Dec;72(12):946-9.
27. Devlin J. Patients with chronic obstructive pulmonary disease: management considerations for the dental team. Br Dent J. 2014 Sep;217(5):235-7.
28. Thornhill MH, Gibson TB, Yoon F, Dayer MJ, Prendergast BD, Lockhart PB, O'Gara PT, Baddour LM. Antibiotic Prophylaxis Against Infective Endocarditis Before Invasive Dental Procedures. J Am Coll Cardiol. 2022 Sep 13;80(11):1029-1041.
29. Landesberg R, Eisig S, Fennoy I, Siris E. Alternative indications for bisphosphonate therapy. J Oral Maxillofac Surg. 2009 May;67(5 Suppl):27-34.
30. Nicolatou-Galitis O, Schiødt M, Mendes RA, Ripamonti C, Hope S, Drudge-Coates L, Niepel D, Van den Wyngaert T. Medication-related osteonecrosis of the jaw: definition and best practice for prevention, diagnosis, and treatment. Oral Surg Oral Med Oral Pathol Oral Radiol. 2019 Feb;127(2):117-135.
31. Bansal H. Medication-related osteonecrosis of the jaw: An update. Natl J Maxillofac Surg. 2022 Jan-Apr;13(1):5-10.
32. Carter G, Goss AN, Lloyd J, Tocchetti R. Current concepts of the management of dental extractions for patients taking warfarin. Aust Dent J. 2003 Jun;48(2):89-96; quiz 138.
33. Chronopoulos A, Zarra T, Ehrenfeld M, Otto S. Osteoradionecrosis of the jaws: definition, epidemiology, staging and clinical and radiological findings. A concise review. Int Dent J. 2018 Feb;68(1):22-30.

34. Martin A, Perinetti G, Costantinides F, Maglione M. Coronectomy as a surgical approach to impacted mandibular third molars: a systematic review. Head Face Med. 2015 Apr 10;11:9.
35. Al-Moraissi EA, Al-Selwi AM, Al-Zendani EA. Do length and gauge of dental needle affect success in performing an inferior alveolar nerve block during extraction of adult mandibular molars? A prospective, randomized observer-blind, clinical trial. Clin Oral Investig. 2021 Aug;25(8):4887-4893.
36. St George G, Morgan A, Meechan J, Moles DR, Needleman I, Ng YL, Petrie A. Injectable local anaesthetic agents for dental anaesthesia. Cochrane Database Syst Rev. 2018 Jul 10;7(7):CD006487.
37. Becker DE, Reed KL. Local anesthetics: review of pharmacological considerations. Anesth Prog. 2012 Summer;59(2):90-101; quiz 102-3.
38. Bussell MA, Graham RM. The history of commonly used dental elevators. Br Dent J. 2008 Nov 08;205(9):505-8.
39. Mamoun J. Use of elevator instruments when luxating and extracting teeth in dentistry: clinical techniques. J Korean Assoc Oral Maxillofac Surg. 2017 Jun;43(3):204-211.
40. Sambrook PJ, Goss AN. Contemporary exodontia. Aust Dent J. 2018 Mar;63 Suppl 1:S11-S18.
41. Sharma SD, Vidya B, Alexander M, Deshmukh S. Periotome as an Aid to Atraumatic Extraction: A Comparative Double Blind Randomized Controlled Trial. J Maxillofac Oral Surg. 2015 Sep;14(3):611-5.
42. McKenzie WS. Principles of Exodontia. Oral Maxillofac Surg Clin North Am. 2020 Nov;32(4):511-517.
43. Chandra S, Podder I, Chatterjee M, Field L. Anatomy and Applications of the #15 Scalpel Blade and Its Variations. J Cutan Aesthet Surg. 2018 Apr-Jun;11(2):79-82.
44. Gowans K, Patel M, Lewis K. Surgical Emphysema: A Rare Complication of a Simple Surgical Dental Extraction Without the Use of an Air-Driven Rotor. Dent Update. 2017 Mar;44(3):217-8, 220.
45. Renton T. Tooth-Related Pain or Not? Headache. 2020 Jan;60(1):235-246.
46. Meechan JG. Intraligamentary anaesthesia. J Dent. 1992 Dec;20(6):325-32.
47. Aps J, Badr N. Narrative review: the evidence for neurotoxicity of dental local anesthetics. J Dent Anesth Pain Med. 2020 Apr;20(2):63-72.
48. Weil K, Hooper L, Afzal Z, Esposito M, Worthington HV, van Wijk AJ, Coulthard P. Paracetamol for pain relief after surgical removal of lower wisdom teeth. Cochrane Database Syst Rev. 2007 Jul 18;2007(3):CD004487.
49. Gazal G, Al-Samadani KH. Comparison of paracetamol, ibuprofen, and diclofenac potassium for pain relief following dental extractions and deep cavity preparations. Saudi Med J. 2017 Mar;38(3):284-291.
50. Seymour RA, Blair GS, Wyatt FA. Post-operative dental pain and analgesic efficacy. Part I. Br J Oral Surg. 1983 Dec;21(4):290-7.
51. Cho H, Lynham AJ, Hsu E. Postoperative interventions to reduce inflammatory complications after third molar surgery: review of the current evidence. Aust Dent J. 2017 Dec;62(4):412-419.
52. Houston JP, McCollum J, Pietz D, Schneck D. Alveolar osteitis: a review of its etiology, prevention, and treatment modalities. Gen Dent. 2002 Sep-Oct;50(5):457-63; quiz 464-5.
53. Garola F, Gilligan G, Panico R, Leonardi N, Piemonte E. Clinical management of alveolar osteitis. A systematic review. Med Oral Patol Oral Cir Bucal. 2021 Nov 01;26(6):e691-e702.
54. Supe NB, Choudhary SH, Yamyar SM, Patil KS, Choudhary AK, Kadam VD. Efficacy of Alvogyl (Combination of Iodoform + Butylparaminobenzoate) and Zinc Oxide Eugenol for Dry Socket. Ann Maxillofac Surg. 2018 Jul-Dec;8(2):193-199.
55. Jaiswal P, Agrawal R, Gandhi A, Jain A, Kumar A, Rela R. Managing Anticoagulant Patients Undergoing Dental Extraction by using Hemostatic Agent: Tranexamic Acid Mouthrinse. J Pharm Bioallied Sci. 2021 Jun;13(Suppl 1):S469-S472.
56. Yao J, Lee KK, McGrath C, Wu YN, Li KY, Mattheos N. Comparison of patient-centered outcomes after routine implant placement, teeth extraction, and periodontal surgical procedures. Clin Oral Implants Res. 2017 Apr;28(4):373-380.
57. Singh Gill A, Morrissey H, Rahman A. A Systematic Review and Meta-Analysis Evaluating Antibiotic Prophylaxis in Dental Implants and Extraction Procedures. Medicina (Kaunas). 2018 Dec 01;54(6)
58. Sarikov R, Juodzbalys G. Inferior alveolar nerve injury after mandibular third molar extraction: a literature review. J Oral Maxillofac Res. 2014 Oct-Dec;5(4):e1.

59. Bhat P, Cariappa KM. Inferior alveolar nerve deficits and recovery following surgical removal of impacted mandibular third molars. J Maxillofac Oral Surg. 2012 Sep;11(3):304-8.
60. Jan AM, Albenayan R, Alsharkawi D, Jadu FM. The prevalence and causes of wrong tooth extraction. Niger J Clin Pract. 2019 Dec;22(12):1706-1714.

الملخص:

الخلفية :تعتبر عمليات استخراج الأسنان من الإجراءات الشائعة التي تتطلب مراعاة دقيقة للعوامل التشريحية والفسيولوجية والعوامل الخاصة بكل مريض. في حين أن التقدم في طب الأسنان يركز على الحفاظ على الأسنان، فإن الاستخراج لا يزال ضرورياً لعدد من الحالات السريرية. يتطلب الإجراء فهماً دقيقاً للمبادئ الأساسية لضمان تنفيذ آمن وفعال. يستعرض هذا المقال أساسيات عمليات استخراج الأسنان غير الجراحية، مع التركيز على أهمية التشريح وتقنيات الاستخراج والإدارة المحيطية للعملية.

الهدف :يهدف هذا المقال إلى تقديم لمحة محدثة حول عمليات استخراج الأسنان، مع التركيز على المبادئ والتقنيات واستراتيجيات الإدارة، مع التأكيد على دور التمريض في دعم العملية.

الطرق :تم إجراء مراجعة شاملة للأدبيات والممارسات السريرية الحالية المتعلقة باستخراج الأسنان. تغطي المراجعة الاعتبارات التشريحية، تقنيات الاستخراج، الدلالات، موانع الاستخدام، والعناية بعد العملية. كما يتم مناقشة دور التمريض في دعم المرضى قبل وأثناء وبعد الإجراء.

النتائج :تستعرض المراجعة الجوانب الرئيسية لعملية استخراج الأسنان، بما في ذلك الفروق في الهياكل التشريحية بين الفك العلوي والسفلي، وأهمية تقنيات التخدير، ودور شبكات الأعصاب الحسية. كما تناقش المراجعة الدلالات المختلفة لاستخراج الأسنان، مثل تسوس الأسنان، الأمراض اللبية واللاباكيّة، أمراض اللثة، والأسنان المطمورة. كما يتم تناول موانع الاستخدام مثل الحالات الطبية غير المسيطر عليها، الاضطرابات العصبية، والحالات التنفسية.

الاستنتاج :تتطلب عمليات استخراج الأسنان الناجحة فهماً شاملاً للتشريح، تقنيات الاستخراج، وإدارة المرضى. يعد دور التمريض حيوياً في ضمان راحة المريض، وإدارة المخاطر، وتقديم العناية بعد العملية. مع التخطيط الدقيق والخبرة السريرية، يمكن إجراء عمليات استخراج الأسنان بأمان وفعالية.

الكلمات المفتاحية :استخراج الأسنان، إجراء غير جراحي، التشريح، التخدير، دور التمريض، إدارة المرضى، العناية بالأسنان، موانع الاستخدام.