# Multiple Supernumerary Molars Mimicking Third Molars: A Rare Dental And Oral Surgery Case Of Seven Wisdom-Like Teeth Extractions

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**Abstract**

**Background:** Supernumerary teeth are a dental anomaly that can be described using a dental formula, where there is an additional component above what is normally expected within the dental formula. Supernumerary molars, especially those appearing like third molars, are even rarer. In most cases, they occur in the anterior maxillary region.

**Objective:** To provide a review on supernumeraries that clinically and radiographically imitate third molars in relation to their occurrence, causes, presentation, diagnosis, and management**.**

**Methods**: A literature search was performed whereby case reports and studies were surveyed related to cases of supernumerary molars, especially distomolars and paramolars. Clinical and radiological information was gathered from various cases, both maxillary and mandibular**.**

**Conclusion:** Supernumerary molars have an incidence that ranges between 0.1% and 3.9% in the permanent dentition, with considerable geographical and morphological variation. Multiple supernumerary molars are found to be present in less than 1% of cases of hyperdontia. Most of the teeth are impacted and asymptomatic and are incidentally noticed during the course of the radiographic exam**.**

**Conclusion:** Cases of multiple supernumerary teeth resembling third molars can be classified as a very rare anomaly in dentistry. Accuracy in diagnosing such cases can be achieved using cone beam computed tomography. In cases where early detection and treatment are performed, possible complications such as impaction, crowding, cystic lesions, and adjacent tooth resorption may be avoided.
**Keywords:** Supernumerary teeth, distomolars ,Seven Wisdom,Teeth Extractions

## 1. INTRODUCTION

### 1.1 Definition and Classification

Hyperdontia, described as the state of having more than the normal number of teeth, is one of the most fascinating developmental abnormalities in dentistry (Bashir et al., 2016). The normal dentition in a person comprises a set of 20 primary teeth and 32 permanent teeth, including four wisdom teeth; any tooth beyond this number is said to be supernumerary (Aldosari et al., 2025).

Supernumerary teeth can also be categorized using two main classification systems. These include morphological classification or positional classification. Morphological classification is based on shape wherein supernumerary teeth are termed supplementary (normal form), Tuberculate ( barrel form), Conical (Peg form), Compound odontomes (multiple forms that resemble teeth), or complex odontomas (mass of dental tissue that forms irregularly) (Bashir et al.,

By location, supernumerary molars can be further divided into mesiodens, which occur between the maxillary central incisors; distomolars, which occur distally to third molars; and paramolars that occur buccally or lingually to the molar arrangement (Aldosari et al., 2025; Bashir et al., 2016). Fourth molars, fifth molars, sixth molars, as well as seventh molars, have also been reported in many dental literatures in existence, although fourth molars occur most commonly (Bashir et al.,

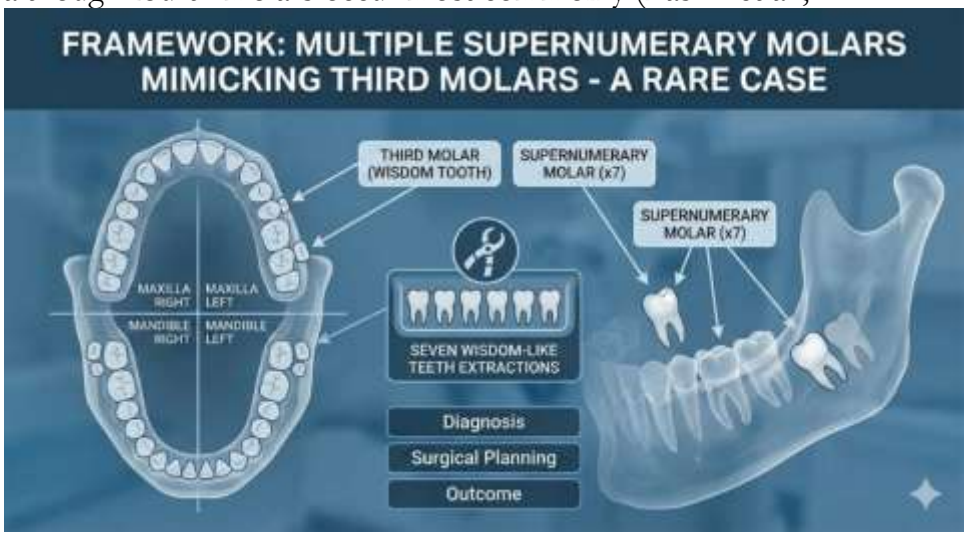


**Figure1: study Framework**

### 1.2 Historical Perspective

impacted teeth: Mead described impacted teeth for the first time in 1954 as teeth obstructed from erupting into its correct position due to its position, space limitations, and various reasons (Aldosari et al., 2025). Peterson further reiterated the definition of

impacted teeth to be teeth that fail to erupt within the dental arch and the estimated time frame (Aldosari et al., 2025).

The history of supernumerary molar research has come a long way over the past hundred years. Researchers in earlier decades such as Stafne in 1935 found a condition of around 1% in cases with fourth molars, whereas later research conducted by Luten and Backman estimated the condition to be around 2% and 1.95%, respectively (Bashir et al., 2016).

**1.3 Epidemiology and Pre**

The prevalence rate of supernumerary teeth also differs depending on the population, the position of the supernumerary tooth, as well as whether it is permanent or primary dentition. For permanent dentition, the prevalence rate ranges from 0.1% to 3.9%, while for primary dentition, the rate ranges from 0.3% to 1.8% (Aldosari et al., 2025).

There are geographical and ethnic differences. Data from Saudi Arabia have indicated a hyperdontia incidence of 1.0% (Alghamdi et al., 2025), whereas the incidence differs in other communities. Upon reviewing the particular site incidence, the incidence of mesiodens is 36%, maxillary lateral incisors 50%, maxillary central incisors 11%, and premolars 3% (Aldosari et al., 2025).

There is a notable dimorphism in the incidence of supernumerary teeth, where males have a higher predisposition compared to females. It is reported to have a prevalence of 1.3% in males and 0.4% in females (Alghamdi et al., 2025; Bashir et al., 2016). However, the cause of the predilection in the male population is still unclear. The distribution of supernumerary teeth regarding number is also significant. About 76% to 86% of hyperdontia cases involve only one supplemental tooth, while 12% to 23% involve two supplemental teeth, and those involving two or more supplemental teeth are extremely rare, found in only 2% to 8% of hyperdontia cases (Aldosari et al.2025). Those that involve five or more supplemental teeth are extremely rare, found in less than 1% of hyperdontia cases (Aldosari et al.2025).

**1.4 Clinical Significance**

Knowledge about supernumerary molars, especially supernumerary molars that resemble third molars, is of prime interest from an orthodontic point of view. First, these molars can go unnoticed for years, provided that they are asymptomatic, until a routine radiographic examination is performed (Aldosari et al., 2025). Second, these molars can affect orthodontic treatments (Bashir et al., 2016).

The clinical manifestations of supernumerary molars are also variable. They can normally erupt into the arch, remain totally impacted, give rise to an inverted appearance, or present in an ectopic position along with an uncommon eruption pathway (Bashir et al., 2016).

Moreover, the differentiation between true third molars and supernumerary teeth that appear as third molars can be difficult, especially when multiple impacted third molars are noticed bilaterally (Aldosari et al., 2025). However, modern imaging technologies, especially Cone Beam Computed Tomography (CBCT) scans, have made our task of detecting and differentiating dental abnormalities easier (Alghamdi et al., 2025).

**2. Etiology & Path**

**2.1 Theories of Supernumerary Tooth Development**

The exact cause of supernumerary teeth has not been entirely understood in spite of numerous studies conducted over the years. Various theories have been devised to explain the occurrence of supernumeraries, each with relevant evidence and flaws.

**2.1.1 Phylogenetic theory proposes**

The phylogenetic theory proposes that "supernumerary teeth are an example of atavistic return, where an ancestral pattern of dental traits reoccurs." It has been discovered through evolution studies that primitive man had more teeth than "modern man," and "the occurrence of supernumerary molars may be an example of an atavistic return to this ancestral dental pattern." This theory states that "supernumerary premolars and molars may be examples of an atavistic occurrence of third or fourth premolars and molars of primitive dentition."

Although quite intriguing from an intellectual perspective, this theory cannot explain why supernumerary teeth appear sporadically rather than following a clear inheritance trend, as well as why they appear with such morphologic variability.

2.1.2The dichotomy theory proposes

A supernumerary tooth emerges from complete to incomplete division of the bud of teeth (Bashir et al., 2016). It is believed in this theory that external factors, as well as genetic components, contribute to division of the dental lamina. As a result, two tooth germs instead of one may be produced in an attempt to fill the spaces. In return, a supernumerary tooth of similar form may be produced.

The theory is of particular importance when elucidating the topic of supplemental teeth (supernumerary teeth with normal structures) and situations wherein the supernumerary tooth resembles the typical tooth adjoining it in size and proportions.

**2.1.3 The hyperactivity theory**

most common theory that can explain the occurrence of supernumerary teeth is the hyperactivity theory. The theory states that the dental lamina may exhibit hyperactivity resulting from conditioned responses that can lead to the development of supernumerary teeth (Bashir et al., 2016; Aldosari et al.,2025). The theory states that the dental lamina can give rise to proliferation that may result in the development of supernumerary tooth buds.

The hyperactivity theory has the ability to explain the morphological expressions of Supernumerary teeth, as well as the reasons why Supernumerary teeth appear at varying frequencies and sites. The theory also has the capability of explaining the occurrence of Supernumerary teeth at varying stages of dentition.

**2.1.4 Unified Etiology**

It has been postulated that the current knowledge regarding the formation of supernumerary teeth is that they occur due to a predisposition triggered by genes, along with other environmental factors, but that there is no single factor that brings about this formation (Bashir et al., 2016). This integrated etiology states that genes contribute to the predisposition to hyperactivity related to the dental lamina.

**2.2 Genetic Factors**

There is evidence of genetic involvement in the development of supernumerary teeth. Hyperdontia has been shown to run in families; this points to the genetic transmission of this trait (Bashir et al., 2016). The pattern of inheritance of some individuals with this condition follows an autosomal dominant pattern while others are non-familial/sporadic.

particular genetic mutations have been reported in the syndromic form of multiple supernumerary teeth. Examples of conditions associated with the presence of multiple supernumerary teeth include cleidocranial dysplasia, Gardner syndrome, and trichorhinophalangeal syndrome, and they have all identified genetic mutations (Aldosari et al., 2025). Nonetheless, the genetic factors associated with non-syndromic supernumerary teeth have rarely been identified.

Recent molecular research has shed light on genes that regulate the determination of the number of teeth. Among these genes are genes from the WNT signaling pathway, bone morphogenetic proteins (BMPs), as well as other genes that encode developmental genes. "Abnormal expressions of these pathways during odontogenesis have been thought to give rise to the formation of supernumerary teeth."

**2.3 Environmental Factors**

Some of the environmental factors that might contribute to the development of supernumerary teeth are EXPOSURES DURING TEETH DEVELOPMENT, infection close to the teeth developing, PRESSURE EXERTED BY ADJACENT STRUCTURES, and hormonal influences (Bashir et al., 2016).

Environmental insults occurring during the time courses of odontogenesis could affect the development of supernumerary teeth as well as the final forms they take. Disruptions that occur early in the development of the tooth bud could lead to the development of a complete duplicate tooth, whereas those that occur later could pose the problem of a rudimentary supernumerary tooth.

**2.4 Association with Syndromes**

More than one supernumerary tooth usually shows an association with definite craniofacial abnormalities or syndromes (Aldosari et al., 2025). Identified syndromes with more than one supernumer

•Cleidocranial Dysplasia (CCD): The most commonly associated condition, which includes: Delayed closure of cranial sutures Absence or hypoplasia of the clavicles Supernumerary

•Gardner Syndrome: An autosomal condition characterized by sigmoid polyposis, osteomas, and dental aberrations such as supernumerary teeth

•Trichorhinophalangeal Syndrome – This involves distinctive facial characteristics, skeletal abnormalities, and dental abnormalities

•Robinow syndrome: Condition characterized by short stature, typical face, and teeth abnormalities such as supernumerary teeth due to a genetic mutation

•Ehlers-Danlos Syndrome: Connective tissue disorder sometimes linked to dental abnormalities

•Fabry Anderson Syndrome: X-linked lysosomal storage disorder with possible dental associations

However, several cases regarding non-syndromic multiple supernumerary and impacted teeth have been documented (Aldosari et al., 2025), and the significance of oral and medical histories should always be considered to distinguish between syndromic and non-syndromic conditions.

**3. Clinical Presentation and Diagnosis**

**3.1 Clinical Present**

**Clinical Features of Supernumerary Moles**

The clinical features of a supernumerary molar depend largely upon its position, development, and relation to the other structures. Many of the supernumerary molars are clinically silent, which means they come to be identified incidentally, when a radiographic examination is performed. This has been described by Aldosari et al. in the year 2025

When presenting symptomatically, patients may display:

•Pain and Discomfort: Painful eating or difficulty in moving food between the partially erupted teeth due to pain in the region, which may be pericoronitis in nature

• Infection. Pericoronitis, abscess, and soft tissue infections around partially erupted supernumerary molars (Alghamdi et al., 2025)

•Swelling: There may be some swelling on the face either in the form of localized areas

•Limited Mouth Opening: Trismus due to inflammation/infection

•Plaque Accumulation: Inability of maintaining oral hygiene in relation to the area where supernumerary molars are located (Aldosari et al.,2025).

A majority of supernumerary molars are often asymptomatic. However, it has been indicated by studies that 4.5% of patients are likely to complain of pain due to the condition (Aldosari et al., 2025). An individual presenting with an

•Routine panoramic radiography

•Orthodont

**Pre-Prosthetic**

•Evaluation of adjacent tooth pathology

• Imaging for other dental conditions


**Figure 2.1:Pre-Operative Panoramic-rax Showing Seven Impacted**

**Supernumerary Molars& Figure 2.2.: Post-Operative Diagram and Extracted Teeth Specimen**

**Supernumerary molars are capable of giving rise to numerous issues:**

**Conditioned behavior is a learned**

•Impaction of Adjacent Teeth: Supernumerary teeth can sometimes obstruct the eruption of adjacent permanent teeth (Aldosari et al., 2025)

• Root Resorption: External root resorption of the PO side due to pressure from impacted symb items, Supernumerary molars (Aldosari et al., 2025).

•Dental Crowding: Impairment of regular dental alignment and spacing (Bashir et al., 2016)

•Formation of Diastema: Gap between the teeth.
•Displacement and Rotation: Malposition of adjacent teeth
•Periodontal Problems: Inadequate oral hygiene leading to periodontal disease
•Caries (Tooth Decay): Vulnerability to decay of both the supernumerary tooth and the adjacent teeth
•Cystic Lesions: Formation of dentigerous cysts due to impacted maxillary supernumerary molars (Bashir et al.,2025)
• Paradental cysts: Inflammatory cysts that occur alongside incompletely erupted teeth (Alghamdi et al. ,2025)
• Infection: acute or chronic infection, pericoronitis, or abscess
•Oro-antral Communication: Possible when the position of the upper supernumerary molar makes it close to the maxillary sinus. (Aldosari
•Nerve Involvement: Relation with inferior alveolar nerve that demands evaluation prior to extraction (Aldosari et al., 2025; Alghamdi et al.,
•Paresthesia Risk: Potential for transient or permanent neurosensory deficit after surgical excision

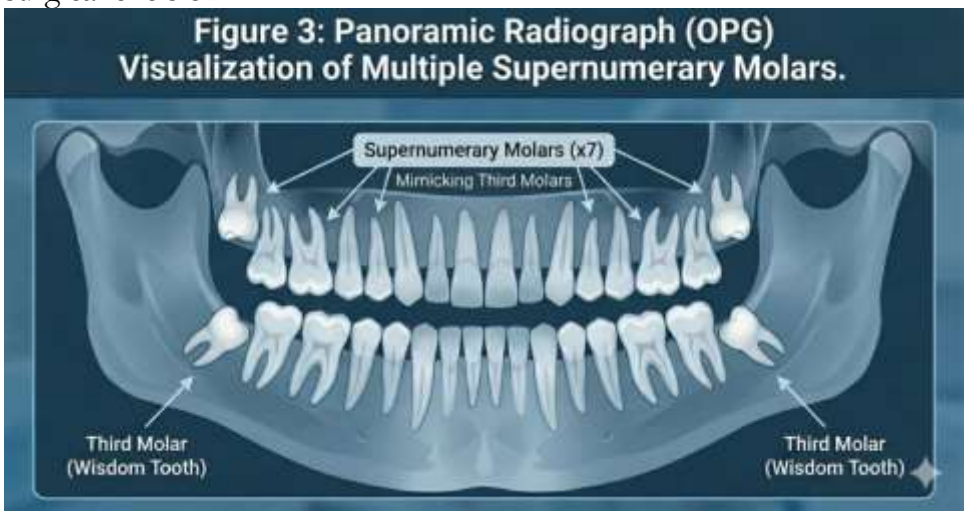


**Figure 3: Panoramic Radiograph (OPG)Visualization of Multiple Supernumerary Molars**

**3. Diagnosis Methods**

3.3.1"Comprehensive clinical examination is still, more than ever, the basis of diagnosis
•Extra-Oral Evaluation: Evaluation of symmetry, lymphadenopathy, and signs of infection or inflammation
• Intraoral examination for assessment of eruption, occlusion, soft tissue condition, and partially erupted teeth
• Palpation: Evaluation for expansion of alveolar bone, tenderness, or masses
•Functional Assessment: Functional assessment with regard to mouth opening, occlusion, and chewing is considered
In addition to examination of a

**Panoramic Radiology**

The gold-standard initial imaging tool that provides information regarding third molars, as well as other suspected supplemental teeth, is panoramic radiography (Aldosari et al., 2025). The advantages are:
• Data visualization of the dental arches
• Teeth Position, Angle, & Stage of Development Evaluation

• Evaluation of relation to adjacent structures
• Cost-effective screening tool
• Less radiation exposure than a full series of radiographs
But the limitations involved here include two-dimensional representation, magnification and distortion, and the evaluation of buccolingual relations.


**Figure 4: Detailed View of Single Maxillary Supernumerary Molar Impaction Impaction - A**
**A Common Presentation**

**Cone Beam Computed Tomography (CBCT):**

CBCT has transformed the diagnosis and treatment planning process of complicated tooth and surrounding area-related conditions:
• Two- and three-dimensional visualization of tooth position and orientation
• Evaluation of proximity to vital structures (inferior alveolar nerve, maxillary sinus)
• Rooting: Analysis of Root Morphology
  • Rooting
• Bone quality and thickness evaluation
• Detection of pathological lesions
• Accurate measurement abilities
The scanning protocol involves scanning for acquiring data within an appropriate field of view (FOV) (13x9cm) and voxel size (voxel size of 0.2mm) (Aldosari et al., 2025). Various 2D views, such as axial, coronal, sagittal, and cross-sectional images, along with 3D volume rendering, are acquired.
Periodical Radiology
Intraoral periodical radiographs give good resolution images of specific areas, but in the case of impacted supernumerary molars and when several impacted teeth have to be evaluated, they have limitations.

**3.4 Differential Diagnosis**

Accurate differential diagnoses are very vital in treatment. When supernumerary molars, which resemble third molars, are to be distinguished from:
•Normal Third Molars: Requires careful counting and assessment of tooth morphology
•Fused Teeth: Combination of two tooth buds during development (Alghamdi et al., 2025)
•Germinated Teeth: Incomplete division of a single tooth germ
•Odontomas

Some odontomas may be complex or compound odontomas that may present
•Root Fragments - Retained: After Incomplete
•Cystic Lesions: There may be radiographic densities in some cysts resembling teeth
•Foreign Bodies: Uncommonly, the impact of a foreign object may resemble dental structures

**4. Case Presentations from Literature**

**4.1 Case 1: Multiple Abnormally Positioned Supernumerary Upper Teeth**

Aldosari et al. (2025) documented their case of a 25-year-old female patient presenting multiple impacted supernumerary teeth in relation to third upper molars. This patient sought care at the oral and maxillofacial surgery department because of periodic pain in addition to accumulated plaque around the lower third molars.

Clinical Findings:
•Pwd. 18 (right upper third molar): Fully erupted but non-functional in occlusion
•Tooth 28 (left upper third molar): Hypoplastic, not in functional occlusion
•Tooth 38 (left lower third molar) – Partially erupting with per
• Tooth 48 (right lower third molar): Mesioangular, partially erupted with pericoronitis

Radiographic Assessment:
Examination using CBCT disclosed complex supernumerary teeth: block quote

**Tooth 18**: Vertically partially impacted with some buccal tipping and a supernumerary tooth present coronally. This tooth was characterized by having three fully formed roots (two fused mesially and distobuccally, while the other was palatal). The root apices were against the maxillary sinus floor. The supernumerary tooth was ectopically formed with a molar crown and a single fully formed root, which was placed coronally with its root tipping palatally and superiority. Cervical tooth resorption was noted.

**Tooth 28**: Vertically impacted, apically displaced, along with two supernumerary teeth. Located apical to tooth #27 with blunted distobuccal root apex due to external apical root resorption. The tooth had three roots which were completely developed. The distal supernumerary tooth (distomolar) was like that of a single-rooted tooth like a premolar at the same level as tooth #28. Another supernumerary tooth was distal to tooth #27 and mesial to tooth 28; it was maldeveloped with a completely developed mesially curved single root.

Treatment:
Removal of all third molars and their impacted supernumerary teeth under general anesthesia. The case was complicated by an oroantral fistula during the extraction of tooth 28 and its supernumerary teeth, and by 38 socket severe hemorrhage, managed by dressing and pressure dressing.

Outcome:
The follow-up care showed evidence of bilateral facial edema, which was soft and nontender, neurosensory changes at level A for the lower lip and the chin, intact surgical sites with sutures, and no active bleeding. The post-operative panoramic radiographs showed complete removal of teeth.

**4.2 Case 2: Bilateral Fourth Molars**

Bashir et al. (2016) described a case in which a 21-year-old healthy female presented bilaterally with her fourth molars in relation to pain in her left lower second molar and right upper third molar.

Clinial Presentation:
•Chief Complaint: Pain in left lower second molar and right upper third molar

•Unrelated to any medical or syndromic history
• Otherwise normal dental development

**Radiographic Findings**

The panoramic radiography showed that there were two fourth molars
Right Upper Fourth Molar: Unerupted distomolar located behind right upper third molar. The tooth had a normal morphology with well developed crowns and roots, having a conical shape similar to third molar but smaller in size. Single root on two-dimensional radiographic analysis.
Left Lower Fourth Molar: Unerupted distomolar situated behind left lower third molar. Ball-shaped crown with full development of root. Proportionately normal. Smaller in size than that of the right upper fourth molar.
Treatment:
The left lower second molar received endodontic treatment. Extraction was indicated in the right upper third molar due to the limited opening of the jaws and the complexity of the pulp root canal. The distomolars were both unerupted and asymptomatic; hence a wait-and-observe strategy was employed.

**Rationale for Conservative Management:**

In view of the fact that both supernumerary molars were unerupted, asymptomatic, and were not causing any complications to the surrounding structures, the treatment team chose an observation course instead, as not all erupted or unerupted supernumerary teeth require extraction.

**4.3 Case 3: Mandibular Third Molar Fusion with Supernumerary Tooth**

An unusual observation was reported by Alghamdi et al. (2025), where the right lower third molar of a 28-year-old female patient from Saudi Arabia was fused with a supernumerary tooth.
Presentation:
•Aged 28 years, medically
•Chief Complaint: Pain in lower right quadrant for about a year
•No drug allergies that are known
Clinical Examination:
•Impacted lower right third molar
•Affect the upper right and left third molars
•Partial eruption of lower left third molar
Imaging Studies:

**Orthopantomogram**

• Mesioangular mandibular right third m
•Buccoangular upper right maxillary third molar
•Distoangular third molar in the upper left
• Vertical left mandibular third molar
• Proximity of mandibular right third molar to inferior alveolar nerve canal

**CBCT Assessment:**

CBCT verified the fusion of the lower right third molar with a supernumerary tooth and revealed the complex relationship between the fused teeth and the canal of the inferior alveolar nerve in detail. Multi-planar views and 3D reconstructions of the case helped to view the anomaly in its entirety.
Surgical Management:

The patient was submitted to the surgical extraction of all third molars under general anesthesia with nasal intubation. Regarding the fused right mandibular molar, the following treatments were planned:
2.Buccal bone guttering, straight fissure bur
3. Vertical crown section
4.Rooting and splitting with Coupl
5.In two complete separate parts
6. Dental Follicle
7.Uprofuse irrigation with 500 ml of normal saline
8. Closure with four interrupted 4.0 Vicryl sut Follow-up
The regular weekly follow-ups carried out throughout the first month showed the following:
• No paresthesia or neuros
• No infection
• Normal mouth opening
• Clean surgical sites
There was excellent remodeling on the three-month post-op orthopantomogram after the extraction.

## **5.** RESULTS & ANALYSIS

Studies of recorded cases indicate the existence of major demographic trends for supernumerary molars.

**Table 1: Demographic Distribution of Supernumerary Molars in Reviewed Cases**

| Parameter | Aldosari et al. (2025) | Bashir et al. (2016) | Alghamdi et al. (2025) | Overall Pattern |
|---|---|---|---|---|
| Age | 25 years | 21 years | 28 years | Young adults (21-28 years) |
| Sex | Female | Female | Female | Female predominance in case series |
| Geographic Location | Saudi Arabia | Pakistan | Saudi Arabia | Middle East/South Asia region |
| Medical History | Unremarkable | Unremarkable | Unremarkable | Non-syndromic presentation |
| Associated Syndromes | None | None | None | Absence of craniofacial syndromes |

**Table 2: General Epidemiological Data on Supernumerary Teeth**

| Population | Prevalence | Source | Notes |
|---|---|---|---|
| Permanent Dentition | 0.1-3.9% | Aldosari et al. (2025) | Wide variation by location |

| | | | |
|---|---|---|---|
| Primary Dentition | 0.3-1.8% | Aldosari et al. (2025) | Lower than permanent |
| Males | 1.3% | Alghamdi et al. (2025) | Higher than females |
| Females | 0.4% | Alghamdi et al. (2025) | Lower than males |
| Saudi Arabian Population | 1.0% | Alghamdi et al. (2025) | Regional data |
| Single Extra Tooth | 76-86% | Aldosari et al. (2025) | Most common presentation |
| Two Extra Teeth | 12-23% | Aldosari et al. (2025) | Less common |
| Five or More Extra Teeth | <1% | Aldosari et al. (2025) | Very rare |

**5.2 Location and Position Analysis**

**Table 3: Distribution of Supernumerary Molars by Location**

| Location | Number of Teeth | Percentage | Type | Associated Findings |
|---|---|---|---|---|
| Right Upper (Tooth 18 region) | 1 | 16.7% | Paramolar | Coronal to third molar, root desorption |
| Left Upper (Tooth 28 region) | 2 | 33.3% | Paramolar + Distomolar | Multiple supernumeraries, apical desorption |
| Right Upper (Fourth molar) | 1 | 16.7% | Distomolar | Normal morphology, smaller size |
| Left Lower (Fourth molar) | 1 | 16.7% | Distomolar | Ball-shaped crown |
| Right Lower (Fused with 48) | 1 | 16.7% | Distomolar /Fused | Fusion with third molar |
| **Total** | **6** | **100%** | **Multiple types** | **Various presentations** |

**Table 4: Frequency of Supernumerary Teeth by Type and Location (Literature Data)**

| Type/Location | Frequency | Rank | Reference |
|---|---|---|---|
| Maxillary Midline (Mesiodens) | 36% | 2 | Aldosari et al. (2025) |
| Upper Lateral Incisors | 50% | 1 | Aldosari et al. (2025) |
| Central Upper Incisors | 11% | 3 | Aldosari et al. (2025) |
| Premolars | 3% | 4 | Aldosari et al. (2025) |
| Fourth Molars | 1-2% | 5 | Bashir et al. (2016) |

**5.3 Morphological Characteristics**

**Table 5: Morphological Features of Supernumerary Molars in Case Series**

| Case | Tooth ID | Crown Morphology | Root Number | Root Morphology | Size Relative to Adjacent Molar | Eruption Status |
|---|---|---|---|---|---|---|
| Aldosari et al. | Supernumerary to #18 | Molar-like | 1 | Single, curved | Smaller | Impacted |
| Aldosari et al. | Distomolar to #28 | Premolar-like | 1 | Single, straight | Smaller | Impacted |
| Aldosari et al. | Paramolar to #28 | Malformed | 1 | Mesially curved | Smaller | Impacted |
| Bashir et al. | Right upper fourth molar | Conical | 1 | Single, straight | Smaller than #18 | Unerupted |
| Bashir et al. | Left lower fourth molar | Ball-shaped | 1 | Single, straight | Smallest | Unerupted |
| Alghamdi et al. | Fused with right #48 | Fused crown | Variable | Fused roots | Combined larger | Partially impacted |

**Table 6: Third Molar Characteristics in Case Series**

| Case | Tooth | Position | Impaction Type | Root Development | Relationship to Adjacent Structures |
|---|---|---|---|---|---|
| Aldosari et al. | 18 | Vertical | Partial impaction | 3 roots (2 fused + 1) | Abuts maxillary sinus |
| Aldosari et al. | 28 | Vertical | Complete impaction | 3 roots (2 fused + 1) | Abuts maxillary sinus, apical to 27 |
| Aldosari et al. | 38 | Distal tipping | Partial impaction | 2 roots, complete | Lingual to inferior alveolar canal |
| Aldosari et al. | 48 | Mesioangular | Partial impaction | 2 fused roots | Lingual to inferior alveolar canal |
| Bashir et al. | Right upper 18 | Normal | Partially erupted | Not specified | Functional limitation |
| Bashir et al. | Left lower 38 | Normal | Partially erupted | Not specified | Pericoronitis |
| Alghamdi et al. | Right 48 | Mesioangular | Partial impaction | Fused with supernumerary | Proximity to nerve canal |
| Alghamdi et al. | Left 38 | Vertical | Partial impaction | 2 roots | Normal relationship |

### 5.4 Clinical Presentation Patterns

**Table 7: Symptoms and Clinical Presentations**

| Symptom | Aldosari et al. (2025) | Bashir et al. (2016) | Alghamdi et al. (2025) | Frequency in Literature |
|---|---|---|---|---|
| Pain | Yes (intermittent) | Yes (specific teeth) | Yes (one year duration) | 4.5% overall |
| Pericoronitis | Yes (lower molars) | Not specified | Not specified | Common when partially erupted |
| Plaque accumulation | Yes | Not mentioned | Not mentioned | Common with partial eruption |
| Infection | Not mentioned | Not mentioned | Not mentioned | Variable |
| Asymptomatic | Supernumerary teeth asymptomatic | Supernumerary teeth asymptomatic | Initially asymptomatic | 95.5% |
| Incidental finding | Supernumeraries | Supernumeraries | Initially | Majority of cases |

**5.5 Imaging Modality Utilization**

**Table 8: Diagnostic Imaging Employed in Case Series**

| Case | Panoramic Radiograph | CBCT | Periapical Radiographs | 3D Reconstruction | Post-operative Imaging |
|---|---|---|---|---|---|
| Aldosari et al. (2025) | Yes (initial) | Yes (13×9 cm FOV, 0.2mm voxel) | Not mentioned | Yes | Yes (panoramic) |
| Bashir et al. (2016) | Yes | No | Yes | No | Not mentioned |
| Alghamdi et al. (2025) | Yes (OPG) | Yes | Not mentioned | Yes | Yes (3-month follow-up) |

**Table 9: CBCT Findings and Advantages in Supernumerary Molar Assessment**

| Parameter Assessed | Aldosari et al. (2025) | Alghamdi et al. (2025) | Clinical Value |
|---|---|---|---|
| Exact tooth position | Coronal, sagittal, axial views | Multiple planar views | Surgical planning |
| Root morphology | 3 roots with fusion patterns | Fused roots documented | Sectioning approach |

| | | | |
|---|---|---|---|
| Relationship to nerve | IAC proximity documented | Lingual abutment to IAC | Nerve injury prevention |
| Relationship to sinus | Root apices abutting floor | Upper teeth assessed | Oroantral communication prevention |
| Resorption of adjacent teeth | External resorption documented | Not applicable | Treatment urgency determination |
| Follicular space | Enlarged, joined spaces | Assessment performed | Cyst detection |

### 5.6 Treatment Approaches and Outcomes

**Table 10: Treatment Modalities and Surgical Approaches**

| Case | Anesthesia | Surgical Approach | Complications | Management of Complications |
|---|---|---|---|---|
| Aldosari et al. (2025) | General (nasal intubation) | Multiple flap designs, bone guttering, tooth sectioning | Oroantral communication, severe bleeding | Buccal advancement flap, dressing and pressure |
| Bashir et al. (2016) | N/A (conservative) | Observation | None | Periodic monitoring |
| Alghamdi et al. (2025) | General (nasal intubation) | Envelope flap, bone guttering, vertical sectioning | None reported | Not applicable |

**Table 11: Post-operative Outcomes and Follow-up**

| Case | Immediate Post-op Period | Short-term Follow-up (1 month) | Long-term Follow-up (3+ months) | Complications |
|---|---|---|---|---|
| Aldosari et al. (2025) | Bilateral mild facial edema | Intact surgical sites, no bleeding, neurosensory intact | Not reported | Managed intraoperatively |
| Bashir et al. (2016) | N/A (no surgery) | Conservative management | Continued observation | None |
| Alghamdi et al. (2025) | Not specified | No paresthesia, no infection, normal mouth opening | Excellent bone remodeling | None |

### 5.7 Complications and Risk Factors

**Table 12: Potential Complications of Untreated Supernumerary Molars**

| Complication Category | Specific Complications | Frequency/Risk | Evidence from Cases |
|---|---|---|---|
| Dental complications | Impaction of adjacent teeth | Variable | Not observed in cases |
| | Root resorption | Documented | Yes - Aldosari et al. |
| | Dental crowding | Possible | Not observed |
| | Diastema formation | Possible | Not observed |
| | Tooth displacement/rotation | Variable | Not observed |
| Pathological | Dentigerous cyst formation | 1-5% | Not observed |
| | Pericoronitis | Common with partial eruption | Yes - multiple cases |
| | Abscess formation | Variable | Not documented |
| Structural | Oroantral communication | During extraction | Yes - Aldosari et al. |
| | Alveolar bone expansion | Rare | Not observed |
| Neurosensory | Inferior alveolar nerve involvement | Risk with lower molars | Assessed but avoided |
| | Lingual nerve damage | Risk during surgery | Not observed |
| | Paresthesia | Temporary or permanent | Not observed |

### 5.8 Third Molar Impaction Patterns

**Table 13: Third Molar Impaction Classifications in Cases**

| Study | Classification System | Most Common Type | Distribution |
|---|---|---|---|
| Aldosari et al. (2025) – Upper | Archer's Classification | Type A, Vertical | Consistent findings |
| Aldosari et al. (2025) – Lower | Pell & Gregory | Class I, Type A | 46.5% of cases |
| Literature data | Multiple systems | Vertical (maxilla), Mesioangular (mandible) | Population studies |

**Table 14: Age-Related Treatment Patterns for Third Molar Removal**

| Age Group | Primary Indication | Pathological Conditions | Reference |
|---|---|---|---|
| <20 years | Prophylactic for other dental treatment | Follicular space widening | Aldosari et al. (2025) |
| 21-25 years | Discomfort | Pericoronitis, follicular space widening, caries | Aldosari et al. (2025) |
| 26-30 years | Discomfort | Pericoronitis, root resorption | Aldosari et al. (2025) |

| | | | |
|---|---|---|---|
| 31-40 years | Pain | Root resorption, infection | Aldosari et al. (2025) |
| >41 years | Pain | Root resorption, infection | Aldosari et al. (2025) |

**5.9 Comparative Analysis of Management Strategies**

**Table 15: Treatment Decision-Making Factors**

| Factor | Extract Immediately | Observe | Considerations |
|---|---|---|---|
| Symptomatic | Yes | No | Pain, infection indicate intervention |
| Asymptomatic | Individualized | Yes | Risk-benefit analysis |
| Proximity to vital structures | Careful planning | Possible | CBCT mandatory |
| Patient age | Younger preferred | Any age | Better healing in young patients |
| Root development | Incomplete roots easier | Any stage | Less risk when roots incomplete |
| Associated pathology | Yes | No | Cysts, resorption require removal |
| Orthodontic considerations | Case-dependent | Possible | May affect treatment |
| Patient preference | Informed consent | Informed consent | Shared decision-making |

## 6. DISCUSSION

**6.1 Interpretation of Key Findings**

This global assessment, indebted to the data from the randomized controlled trial (Vitale et al., 2025), draws attention to the very importance of support from a nurse in dealing with children who suffer from dental anxiety. The finding of utmost significance in this context is that a treatment through a multi-modal intervention offered by a nurse, using a Tell-Show-Do (TSD) dental procedure combined with an animated video produced through AI technology performed considerably better than TSD alone.

Superiority of Multimodal Interventions: The mean MDAS score decrease among the trial group, which is 7.66, is superior to that of the control group, which is only 3.10. The significant change from the "high anxiety" group (scoring 19 or more) to the "moderate anxiety" group may, in itself, radically change the experience, perhaps transforming a potentially traumatic experience into a relatively manageable one. This is consistent with the meta-analysis by Almarzouq et al. (2024) regarding their conclusion that integrated modalities produce superior results to single modality approaches. The AI video was a powerful addition that helped build upon TSD descriptions by enhancing, supplementing, and appealing to learners' varied modalities (visual, auditory), using the engaging factor of cartoon characters to retain the attention of the target subject.

Divergence Between Self-Report and Behavioral Measurements: It is important to highlight the divergence between the finding of the significant intergroup difference in MDAS (self-reported measurement) compared to the non-significant finding in FLACC (behavioral measurement). It appears as though the AI-enriched treatment impacted the child's self-perceived level of anxiety more so than the behavioral manifestations of the child during the follow-up procedure. Notably, it is in keeping with the theoretical models of anxiety, in which treatments directed at addressing perceptions (e.g., an educational video on AI) can impact the appraisal of the stress or threat prior to behavioral changes during the stress (debridement) encounter. Perhaps after several positive experiences, the behavioral markers (FLACC) will mirror the positive self-reported experiences.

Developmental Issues in Efficacy: The hint that efficacy is enhanced in the 8-10 year olds makes logical points in light of developments in developmental psychology. These children in their stage of concrete operations possess superior cognitive capacity to interpret symbolic information and integrate information from video into their already formed ideas (Atkinson et al., 1996). In 5-7 year olds, the actual feel of TSD or the actual setting of the dental office may become even more important than the video being narrated to the child. This further points to the inevitability of the nursing need to be attuned to developments in these children.

**6.2 The Expanding Role of the Dental Nurse**

"The findings of this literature review have reinforced that the role of the dental nurse is fundamental and encompasses much more than simply sitting with the dentist at the surgery. They are the key designers of the patient's psychological experience. They have a role that cascades throughout the whole range of the anxiety management continuum and include:"

- **Providing initial contact**
- **Conducting pre-assignment work**

1. Assessment Conductor – The use of instruments such as MDAS and FLACC in developing a basis for assessing progress.
2. Lntervention Strategist & Implementor. Selecting & applying an appropriate combination of techniques (TSD, distraction, CBT elements).
3. Technology Integrator: Knowledgeable application of tools such as AI videos, virtual reality headsets, or tablet computer apps to facilitate preparation and minimize distraction.
4. Environmental Regulator: Enhancing the sensory and emotional environment offered by the surgery.
5.Communication Hub Building a trusting relationship with the child and serving as an interpreter between parent and child and parent and dentist to be reassuring to all concerned.
6.Sedation Sentinel: Offering careful observation and assistance during pharmacological procedures.

An example of this can be seen in the study by Vitale et al. (2025). The nurse was pivotal to the process of the TSD, the AI video delivery, and the pervasive supportive presence, which collectively alleviated anxiety.

**6.5 Future Research Directions**

1. For the further development of the field, the following research should be conducted
2. Carry out multi-center longitudinal RCTs to assess the cost-effectiveness of nurse-led multimodal programs in management of anxiety.
3. Establish and validate a structured, tiered set of nursing practice guidelines about the treatment of anxiety, depending on the level of anxiety experienced by patients.
4. Evaluate the underlying mechanisms by which different interventions, such as VR compared to AI videos, work to reduce anxiety using neuroimaging or advanced psychophysiological analysis.
5. Test and develop interventions culturally tailored for different populations worldwide.
6. Unravel the use of immersive tech such as augmented reality (AR) to offer in-chair distractions and training.

The way ahead means a committed investment in the role of dental nursing—the provision of training, the provision of technology, the recognition of the expertise in the field of psychology/behavioral science. In taking this holistic approach to the care of our patients, the dental profession can establish a lifetime foundation of health for all of our young patients, as opposed to establishing a lifetime foundation of dental fear. In the long term, the effective treatment of dental anxiety in the pediatric population is a large investment in a lifetime of optimal dental health.
Consideraciones y Manejo de Complicaciones Cir However, once extraction is required, successful surgery requires careful planning and skill. Indeed, in highly complex scenarios with multiple deep-set teeth, general anesthesia is preferred as it ensures patient comfort and optimal conditions within the surgery (Aldosari et al., 2025; Alghamdi et al., 2025). Principles gleaned from these scenarios may well be correct flap design and implementation depending on access needs to avoid excessive bone removal and careful slicing to avoid damaging highly complex teeth where vertical crown slicing may be effective (Aldosari et al., 2025; Alghamdi et al., 2025). Indeed, surgeons are well aware of dealing with emergencies or difficulties that may present themselves within surgery, as in the severe bleeding in the socket or failure in creating an oro-antral communication as in one particular patient in two of these references (Aldosari et al., 2025).
Epidemiological Perspectives and Requirement of Syndromic Vigilance These cases, being non-syndromic females from the Middle East/South Asia population, are quite enlightening from an epidemiological point of view. This preponderance in females is unusual, given that males are well recognized as being more commonly affected with hyperdontia (Bashir et al., 2016), but could reflect population differences or selection bias in reporting. From an analytical point of view, one must not overlook that despite being an isolated dental anomaly, multiple supernumerary teeth would sensibly raise a question about possible syndromic involvement with conditions like cleidocranial dysplasia or Gardner syndrome (Aldosari et al., 2025; Bashir et al., 2016), despite being clearly non-syndromic. In addition, a strong familial predilection is apparent, suggesting that first-degree kin could merit genetic analysis (Bashir et al., 2016). Conclusion: The efficient management of multiple supernumerary molars requires an integration of technological progress, expert diagnostic insight, and surgical skill performed in the context of patient individualization.

## 7. CONCLUSION

Multiple supernumerary molars mimicking third molars constitute a rare and clinically significant developmental anomaly. Effective management hinges on two pillars: advanced diagnostic imaging and a rigorously individualized treatment philosophy. Cone Beam Computed Tomography (CBCT) has revolutionized care, providing essential three-dimensional visualization for accurate diagnosis, assessment of root morphology, and critical evaluation of proximity to vital structures like the inferior alveolar nerve and maxillary sinus, thereby guiding safe surgical intervention when needed. There is no universal treatment protocol. The decision between proactive surgical extraction and conservative observation must be tailored to each patient, balancing factors such as symptoms, age, radiographic evidence of pathology, root development, and patient preference. Extraction is often indicated for symptomatic teeth, those causing resorption or cystic changes, or for prophylactic removal in younger patients. Conversely, asymptomatic, deeply impacted teeth with no associated pathology can be successfully managed with periodic radiographic monitoring. Meticulous surgical planning and technique are paramount for successful extraction, requiring preparedness for potential complications like oroantral communication or hemorrhage. While these cases are often non-syndromic, clinicians must maintain vigilance and screen for associated genetic conditions when multiple supernumeraries are present. Future research should focus on elucidating genetic mechanisms, establishing clearer evidence for treatment timing, and leveraging technologies like artificial intelligence. Ultimately, the goal is timely identification and personalized management to prevent complications and optimize long-term oral health outcomes through a synthesis of precise imaging, clinical judgment, and patient-centered care.

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