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DIAGNOSIS AND INDICATIONS FOR THE EXTRACTION OF THIRD MOLARS

Upgrade 2023

(EXTRACTION OF THIRD MOLARS)

ANNEXES

APPENDIX 1. PICO QUESTIONS

P1

Clinical Problem: In which patients with 3Ms with associated pathology is a better clinical evolution (fewer complications) obtained when extraction is performed or when a conservative therapeutic attitude (clinical and radiological controls) is carried out?		
Patient	Intervention/Comparison	Result
Patients with 3Ms presenting associated pathology.	Extraction 3Ms vs. conservative approach (clinical and radiological controls)	Complications
Clinical Question PICO: IN WHICH PATIENTS WITH 3Ms PRESENTING ASSOCIATED PATHOLOGY (PERICORONARITIS, CYSTES, DISTAL CRIES 2nd MOLAR, 2M PERIODONTAL PATHOLOGY, MANDIBULAR FRACTURE) IS BETTER CLINICAL EVOLUTION (FEWER COMPLICATIONS) OBTAINED WHEN EXTRACTION IS PERFORMED OR WHEN A CONSERVATIVE THERAPEUTIC ATTITUDE (OBSERVATION) IS CARRIED OUT?		
Type of Question: THERAPEUTIC (INDICATIONS)		

P2

Clinical Problem: Do patients with an included 3M and high root development have different postoperative morbidity than those with less root development?		
Patient	Intervention/Comparison	Result
Patients with 3Ms included	Different degrees of root development	Postoperative morbidity (pain, edema, paresthesias, infections or dry alveolitis)
Clinical Question PICO: DO PATIENTS WITH 3Ms INCLUDED AND HIGH RADICULAR DEVELOPMENT HAVE DIFFERENT POST-OPERATIVE MORBILITY THAN THOSE WITH LESS RADICULAR DEVELOPMENT?		
Question Type: FORECAST		

P3

Clinical Problem: Are there preoperative clinical and radiological criteria that relate to the degree of surgical difficulty in patients with indication for 3M removal (low operative time and low morbidity)?		
Patient	Intervention/Comparison	Result
Patients with indications for 3M removal	Clinical and radiological criteria	Degree of surgical difficulty (time and VAS)
Clinical Question PICO: ARE THERE CLINICAL, RADIOLOGICAL AND OPERATIVE CRITERIA RELATING TO THE DEGREE OF SURGICAL DIFFICULTY IN PATIENTS WITH 3M EXTRACTION INDICATION (LOW OPERATIVE TIME AND LOW MORBILITY)?		
Question Type: THERAPEUTIC		

P4

Clinical Problem: Do patients with periodontal probing of 4 mm or more distal to the 2M who have (or have not) had the 3M removed have a higher incidence of generalized periodontitis compared to those with a periodontal pocket < 4 mm?		
Patient	Intervention/Comparison	Result
Patients with a periodontal pocket other than the 2M and who have the 3M extracted.	Periodontal pocket size (≥ 4 mm or < 4 mm)	Generalized periodontal disease
Clinical Question PICO: DO PATIENTS WITH A PERIODONTAL POCKET ≥ 4 MM. IN DISTAL 2M WHO HAVE (OR HAVE NOT) HAD 3M REMOVED HAVE A HIGHER INCIDENCE OF GENERALIZED PERIODONTAL DISEASE COMPARED TO THOSE WITH A PERIODONTAL PROBING < 4 MM?		
Question Type: FORECAST		

P5

Clinical Problem: Does 3M extraction produce greater benefits in the resolution of anterior crowding (with or without orthodontic treatment) than a conservative therapeutic approach?		
Patient	Intervention/Comparison	Result
Patient with 3M presenting with anterior crowding	Extraction of 3M vs. conservative attitude	Improvement of anterior crowding
Clinical Question PICO: DOES EXTRACTION OF THE 3M PRODUCE GREATER BENEFITS IN THE RESOLUTION OF THE PREVIOUS TACKING (WITH OR WITHOUT ORTHODONTIC TREATMENT) THAN A CONSERVATIVE THERAPEUTIC ATTITUDE?		
Question Type: THERAPEUTIC		

P7

Clinical Problem: Do denture-bearing patients who undergo 3M extraction have more associated morbidity than those who do not undergo extraction?		
Patient	Intervention/Comparison	Result
Patients with dental prostheses and with a 3M	Extraction of 3M vs. conservative attitude	Associated morbidity
PICO Clinic Question: DO PATIENTS WITH DENTAL PROSTHESIS WHO HAVE THE 3M EXTRACTED HAVE MORE ASSOCIATED MORBILITY THAN THOSE WHO DO NOT HAVE THE 3M EXTRACTED?		
Question Type: FORECAST		

P8

Clinical Problem: In patients undergoing 3M extraction, does the presence or absence of risk factors influence their postoperative quality of life?		
Patient	Intervention/Comparison	Result
Patients having the 3M extracted	Existence of risk factors vs. non-existence of risk factors	Postoperative quality of life
Clinical Question PICO: DO RISK FACTORS IN PATIENTS UNDERGOING 3M EXTRACTION INFLUENCE THEIR QUALITY OF LIFE (OHIP (ORAL HEALTH RELATED QUALITY) CRITERIA) POST-OPERATIVE?		
Question Type: FORECAST		

P9

Clinical Problem: Do patients with 3M without associated pathology benefit from its removal compared to abstention?		
Patient	Intervention/Comparison	Result
Asymptomatic patients with 3Ms	Extraction vs. conservative attitude	Best prognosis
PICO Clinical Question: DO PATIENTS WITH 3M WITHOUT ASSOCIATED PATHOLOGY BENEFIT FROM THEIR EXTRACTION COMPARED TO ABSTENTION?		
Question Type: FORECAST		

P10

Clinical Problem: Is age (over or under 25 years) a factor related to the occurrence of morbidity associated with 3M removal?		
Patient	Intervention/Comparison	Result
Patients older or younger than 25 years of age with 3M	Early 3M extraction vs. late extraction	Morbidity associated with extraction
Clinical Question PICO: IS AGE (OVER OR UNDER 25 YEARS OF AGE) A FACTOR RELATED TO THE APPEARANCE OF MORBILITY ASSOCIATED WITH 3M EXTRACTION?		
Question Type: FORECAST		

P11

Clinical Problem: Do patients with a 3M in total intraosseous inclusion benefit from extraction? What are the guidelines to follow in patients with 3Ms in total intraosseous inclusion in whom extraction is not performed to avoid complications?		
Patient	Intervention/Comparison	Result
Patients with a 3M in total intraosseous inclusion.	Extraction vs. conservative approach (Therapeutic Guidelines)	Lower complication rate
Clinical Question PICO: DO PATIENTS WITH A 3M IN TOTAL INTRA OSEAN INCLUSION BENEFIT FROM EXTRACTION? WHAT ARE THE GUIDELINES FOR PATIENTS WITH 3MS IN TOTAL INTRA OSEAN INCLUSION WHEN EXTRACTION IS NOT PERFORMED TO AVOID COMPLICATIONS?		
Question Type: THERAPEUTIC		

P12

Clinical Problem: In patients with a 3M when is a CT scan recommended to prevent clinical and/or surgical complications?		
Patient	Intervention/Comparison	Result
Patients with 3M included	Performing a CT scan	Avoid complications
Clinical Question PICO: IN PATIENTS WITH 3M INCLUDED WHEN IS IT RECOMMENDED TO PERFORM A COMPUTERIZED TOMOGRAPHY TO PREVENT CLINICAL AND/OR SURGICAL COMPLICATIONS?		
Question Type: DIAGNOSTIC		

P13

Clinical Problem: In which patients can the position of the 3M be related to the likelihood of future clinical symptomatology or presence of pathology relative to those who remain asymptomatic?		
Patient	Intervention/Comparison	Result
Patients with 3M	3M position	Future complications (preoperative symptomatology)
Clinical Question PICO: DO PATIENTS WITH 3M HAVE DIFFERENT DEGREES OF SYMPTOMATOLOGY IN RELATION TO 3M POSITION?		
Question Type: FORECAST		

P14

Clinical Problem: In patients at high risk for intraoperative NDI injury, coronectomy has less morbidity than complete removal of the 3M?		
Patient	Intervention/Comparison	Result
Patients with 3M and high risk of intraoperative NDI injury.	Coronectomy vs. complete exodontia	Reduced morbidity and potential for NDI injury
Clinical Question PICO: IN PATIENTS AT HIGH RISK OF INTRAOPE- RATORY INJURY OF THE NDI, IS CORONECTOMY LESS LIKELY THAN COMPLETE EXTRACTION OF THE 3M?		
Question Type: FORECAST		

P15

Clinical Problem: What is the variation in economic costs of 3M extraction in relation to the level where patient care occurs (primary care versus hospital care)?		
Patient	Intervention/Comparison	Result
Patients with 3M who are indicated for removal.	Private vs. public center	Cost of the intervention
Clinical Question PICO: WHAT VARIATION IN ECONOMIC COSTS DOES 3M EXTRACTION HAVE IN RELATION TO THE LEVEL OF PATIENT CARE (PRIMARY CARE VS. HOSPITAL CARE)?		
Type of Question: EPIDEMIOLOGICAL		

P16

Clinical Problem: What is the variation in economic costs of 3M extraction in relation to the training (generalist or specialist) of the practitioner?		
Patient	Intervention/Comparison	Result
Patients with 3M who are indicated for removal.	General vs. specialized training	Cost of surgery
Clinical Question PICO: WHAT VARIATION IN ECONOMIC COSTS DOES 3M EXTRACTION HAVE REGARDING THE TRAINING (GENERALIST OR SPECIALIZED) OF THE PROFESSIONAL?		
Type of Question: EPIDEMIOLOGICAL		

P17

Clinical Problem: What is the variation in cost-benefit of prophylactic 3M removal versus therapeutic forbearance based on periodic clinical and radiographic controls?		
Patient	Intervention/Comparison	Result
Patients with 3M	Prophylactic extraction vs. conservative therapeutic attitude (periodic clinical and radiological controls).	Efficiency
Clinical Question PICO: WHAT IS THE VARIATION IN COST-BENEFIT OF PROFILACTIC EXTRACTION OF 3M VS. THERAPEUTIC ABSTENTION BASED ON PERIODIC CLINICAL AND RADIOGRAPHIC CONTROLS?		
Type of Question: EPIDEMIOLOGICAL		

ANNEX 2. BIBLIOGRAPHY AND SEARCH CRITERIA

practice guidelines in the SNS: I+CS. No. 2006/01.
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ANNEX 2.1 GENERAL BIBLIOGRAPHY

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- **Chapter "Scope and objectives".**

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• Chapter "Glossary and abbreviations".

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ANNEX 2.2 BIBLIOGRAPHY OF THE PEAK QUESTIONS AND SEARCH CRITERIA

Q1: In which 3M patients with associated pathology is a better clinical evolution (fewer complications) obtained when extraction is performed or when a conservative therapeutic approach (clinical and radiological controls) is carried out?

"molar, third/pathology"[MAJR] AND (periodontitis OR pericoronitis OR "occlusal caries" OR "odontogenic cysts" OR "associated pathologies" OR "Jaw Cysts"[MeSH Terms]) OR "Mandibular Neoplasms/etiology"[MeSH Terms] AND "Osteomyelitis/etiology" [MeSH Terms]

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Q2: Do patients with a 3M included, and high root development, present different postoperative morbidity than those with less root development?

"Recovery AND ("Third molar extraction" OR "Third molar surgery" OR "Removal Third Molar" OR "Molar, Third/surgery"[MAJR])

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- Q3: Are there preoperative clinical and radiological criteria related to the degree of surgical difficulty in patients with indication for 3M removal (low operative time and low morbidity)?**
- "Molar, Third/surgery"[MAJR] AND "surgical difficulty".
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fluence third molar extraction and postoperative pain? J Oral Maxillofac Surg. 2017;75:484-90.

Q4: Do patients with periodontal probing of 4 mm or more distal to the 2M who have (or have not) had the 3M removed have a higher incidence of generalized periodontitis compared to those with a periodontal pocket < 4 mm?

(periodontal pocket [mesh] OR "periodontal attachment loss" [MeSH] OR "periodontal healing" OR "periodontal probing depth" OR "periodontal defects") AND (molar, third/surgery [MESH] AND "second molar")

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tematic review and meta-analysis on the effectiveness of xenograft to prevent periodontal defects after mandibular third molar extraction. *Med Oral Patol Oral Cir Bucal.* 2021;26:e414-21.

Q5: Does 3M extraction produce greater benefits in the resolution of anterior crowding (with or without orthodontic treatment) than a conservative therapeutic approach?

(molar, third [MeSH] OR "removal third molar") AND ("lower anterior teeth crowding" OR "mandibular incisor crowding" OR "dental arch crowding")

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- Q6: In patients without anterior crowding, does 3M extraction contribute to the maintenance of anterior tooth alignment?**
(molar, third [mesh] OR "removal third molar") AND ("lower anterior teeth crowding" OR "mandibular incisor crowding" OR "dental arch crowding")
1. Rygh P; Moyers RE. Force systems and tissue responses to forces in orthodontics and facial orthopedics. In: Moyers RE ed. *Handbook of orthodontics*. 4th Edition. Chicago: Year Book Medical Publishers, 1988:306-11.
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third molars on lower anterior teeth crowding and relapse after orthodontic treatment: A systematic review. *Sci World J.* 2014;2014:615429.

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Q7: Do patients with a dental prosthesis who undergo 3M extraction have more associated morbidity than those who do not undergo extraction?

"molar, third"[mesh] AND ("dental abutments" OR "bridge abutment" OR "denture, partial, fixed*" OR "denture,partial, removable")

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Q8: In patients undergoing 3M extraction, does the presence of risk factors influence their postoperative quality of life?

"molar, third"[mesh] AND "quality of life"[mesh].

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- de Paiva HN; Falci SGM; Galvão EL. Third molar removal and its impact on quality of life: Systematic review and meta-analysis. *Qual Life Res.* 2018;27:2477-89.
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 15. Intercollegiate S, Network G. 13 Management of Unerupted and Impacted Third Molar Teeth.
- Q9: Do patients with 3M without associated pathology benefit from removal compared to abstention?** ("prophylactic removal" OR retention) AND ("asymptomatic impacted third molar" OR "disease-free third molars" OR "asymptomatic impacted wisdom teeth" OR ("asymptomatic diseases"[mesh] AND "molar, third"[mesh]))
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- (SIGN Guideline No 43). 2000. <https://www.scot-tishdental.org/library/management-of-unerupted-and-impacted-third-molar-teeth/>.
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- (age[ti] OR "age factors"[mesh]) OR germenectomy) AND morbidity AND "third molar extraction".
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- ("prophylactic removal" OR "surgical removal" OR "extraction" OR "retention") AND impacted third molar ((Surveillance[ti] OR "Watchful monitoring" [ti] OR Retention [ti]) AND "Molar, Third" [Mesh]) OR "Retained asymptomatic third molar" [Mesh] OR "Retained asymptomatic third molar" [Mesh])
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Q12: In 3M patients, when is CT scanning recommended to prevent clinical and/or surgical complications?

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Q13: In which patients can the position of the 3M be related to the possibility of future clinical symptomatology or presence of pathology with respect to those who remain asymptomatic?

"Molar, Third [Mesh] AND ("third molar position" OR "third molar angulation" OR "angular position" OR "position of third molars" OR "position of the lower third molar" OR "positions" OR "angulations")

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Q14: In patients at high risk of intraoperative NDI lesion, does coronectomy have less morbidity than complete removal of the 3M?

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"molar, third"[majr] AND (Economics[mesh] OR costs)

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Q16: What is the variation in economic costs of 3M extraction in relation to the training (generalist or specialized) of the professional?

"molar, third"[majr] AND (Economics[mesh] OR costs)

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Q17: What is the variation in cost-benefit of prophylactic 3M removal versus therapeutic abstention based on periodic clinical and radiographic controls?

"molar, third"[majr] AND (Economics[mesh] OR costs)

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ANNEX 3. GLOSSARY AND ABBREVIATIONS

Fully erupted third molar: erupted molar, at occlusal level and with attached gingiva surrounding its entire circumference (1, 2).

Partially erupted third molar: partially visible molar, it can also be clinically invisible, but it has a connection with the oral cavity and is detectable when probing the perio-dental sulcus of the adjacent molar (1, 2).

Unerrupted third molar: molar that is neither visible nor detectable by probing the adjacent tooth (1, 2).

Retained tooth (ICD 10 code K01.0): tooth not erupted after the normal age of eruption (approximately after the age of 25 years).

- Primary retention: interruption of the eruption of a tooth that has not yet erupted into the oral cavity and for which it is not possible to

identify a physical barrier, position or normal development.

- Inclusive tooth: unerupted tooth covered totally or partially by soft tissues or jawbone.

Impacted tooth (ICD 10 code K01.1):

- The tooth is impacted against another tooth or bone so that future eruption is impossible.
- The tooth may be partially erupted or unerupted.

Asymptomatic tooth: clinical situation in which the third molar exhibits no symptoms of pathology.

Pathology-free tooth: clinical situation in which the third molar does not cause or exhibit symptoms or signs of pathology.

Prophylactic extraction: indication for extraction when there is no pathology and it is asymptomatic.

Mandibular nerves: Inferior dental nerve Lingual nerve

Pericoronaritis: infection of the soft tissue around the crown of the tooth. It can be acute or chronic (3).

- Acute pericoronaritis (ICD 10 code K05.22): it is associated with trismus, extraoral inflammation and purulent exudation of the gingival area and the mucosa covering the 3M. In many cases, intermittent pain, dysphagia and fever appear.
- Subacute pericoronaritis: characterized by local and continuous pain. Inflammation is only intraoral and is frequently associated with purulent exudate from the gingival area and overlying mucosa and a bad taste in the mouth. Mouth opening may be difficult, but not restricted, and no general symptoms are present.
- Chronic pericoronaritis (ICD 10 code K05.32): exhibits mild symptoms commonly associated with pus draining from the gingival area and mucosa.

thing that covers the 3M (operculum).

Pericorony follicle: reduced epithelium of the tissue covering the dental crown, which may be the origin of a dentigerous cyst.

Dry alveolitis (ICD 10 code K10.3) is a very painful infection that usually appears approximately three days after extraction. The clot is absent from the socket and the bone surfaces are exposed. The typical signs of infection (fever, swelling, redness) are not present.

Late infection: swelling, pain and pus in the operative area that appears after one week (when the stitches are removed), after the tooth has been removed.

Oroantral or buccosinusal communication: pathological condition characterized by a solution of continuity between the oral cavity and the maxillary sinus as a consequence of the loss of soft tissues (buccal and sinus mucosa) and hard tissues (teeth and maxillary bone).

Osteotomy: cutting or sectioning of the bone.

Ostectomy: removal or exeresis of bone.

Odontosection: division of teeth at different levels and in different fragments to facilitate extraction.

Infraosseous or subcrestal defect: defined as a pathological sulcus in which the base of the defect is apical to the alveolar bone crest.

Pell and Gregory classification: based on the relations of the 3M with the 2M, with the ascending branch of the mandible or the tuberosity of the maxilla, and with the relative depth of the 3M with the maxillary bone.

Winter's classification: Assesses the position of the 3M in relation to the longitudinal axis of the 2M (mesioan- gular, horizontal, vertical, distoangular, inverted).

OR (Odds Ratio): It is a risk indicator obtained as a quotient of chances.

VAS: Visual Analog Scale (VAS). It consists of a 10 cm long horizontal or vertical line between two points with the expressions "no pain" and "maximum pain imaginable". The patient marks on the line the point corresponding to the pain he/she suffers.

Cone Beam Computed Tomography (CBCT): diagnostic radiological test that consists of a cone beam tomography and allows obtaining sectioned images of an area of the body (CBCT).

ABBREVIATIONS

3M - Third Molar
3Ms - Third Molars 2Ms
- Second Molar 2Ms -
Second Molars 1M -
First Molar
1Ms - First molars OPG -
Orthopantomography
CT - Computed Tomography
CBCT - Computed Tomography - Computed
Tomography
NDI - Lower Tooth Nerve IDN -
Lower Tooth Nerve IDC - Lower
Tooth Canal NL - Lingual Nerve
GPC - Clinical Practice Guidelines
GPCs - Clinical Practice
Guidelines
NHS - National Health Service of the United
Kingdom
NICE - National Institute for Health and Clinical
Excellence (United Kingdom)
vs. - Versus
PS - Probing depth
QoL - Quality of Life
OHROoL - Oral Health Impact QoL (Oral Health
Impact on Quality of Life)
OHIP - Oral Health Impact Profile
RCT - Randomized Clinical Trial
RCT - Randomized Clinical Trial P
- PICO Question
CD - Compact Disc

ANNEX 4. CONFLICT OF INTEREST

All authors of this guide declare that they have no conflicts of interest.



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