A Comprehensive Proforma for Evaluation of Mandibular Third Molar Impactions

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Abstract We have developed a simple, but comprehensive proforma for evaluating mandibular third molar impactions and formulating a proper treatment plan. This proforma is aimed at residents in Oral and Maxillofacial Surgery, to help them during their initial phase, in evaluating and treating impacted mandibular third molars. This comprehensive proforma will help them to analyse third molar impactions, assess and anticipate the difficulty, judge intraoperative problems they might encounter, and evaluate the patient at post operative follow-up.

Keywords Third molar · Impaction · Evaluation · Proforma

Introduction

Case history taking plays an important part in arriving at a proper diagnosis and formulating the ideal treatment plan.

The importance of keeping accurate and complete medical records should never be underestimated. They provide chronological evidence of the evaluation and treatment of patients, are essential for the legal protection of both the patient and health care provider, and provide the means to assess the quality of care [1].

This proforma is aimed at residents in Oral and Maxillofacial Surgery, to help them during their initial phase, in evaluating and treating impacted mandibular third molars. The comprehensive proforma will help them analyse third molar impactions, assess and anticipate the difficulty, judge intraoperative problems they might encounter and evaluate the patient at post-operative follow up. The proforma is also a valuable aid in retrospective analysis of cases.

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PROFORMA

OPNo.....

Date.....

Name.....

Address.....

Date of Birth..... Age/Sex.....

Occupation.....

Presenting Complaint:

History of Present Illness:

.....

Past Medical History:

.....

Past Dental History:

.....

Personal History:

.....

EXTRA ORAL EXAMINATION

Extra Oral swelling: Yes/No (If yes – describe)

TMJ Examination: Tenderness/Clicking/Creptus/Deviation/any other abnormality(specify)

Rima oris : Macrostomia/ Normal / Microstomia

CLINICAL EXAMINATION

Elasticity of the cheek

Tongue : Macroglossia/Normal/Microglossia (specify if any other abnormality noticed)

Mouth opening:mm

Trismus : Present/Absent

Eruption status of third molar: Erupted/Partially erupted/Non Erupted

Tooth/Teeth being treated:

Type of Impaction: Soft tissue/Bony

Periodontal status

Third molar

Second molar

Pulpal Status (Caries & Vitality)

Third Molar

Second molar

Restorative status of third molar:

Pericoronitis Yes/No

Position & Thickness of the External Oblique Ridge:

Reason for extraction

Pericoronitis

Periodontitis

Associated Cyst/Tumour

Caries

Prosthetic reasons

Orthodontic reasons

Involvement in fracture line

Prior to orthognathic surgery

INVESTIGATIONS

Routine Blood Investigations:.....

RADIOGRAPHS

Intra Oral Periapical Radiograph

Ortho Pan Tomography

CT

CBCT

INTERPRETATION OF RADIOGRAPH

Bone Sclerosis: Yes/No

Tooth Lock: Yes/No

Shape of Crown:

Root formation : completed/not completed

Number of roots

Ankylosis: Yes/No

Hypercementosis: Yes/No

Width of the Periodontal Ligament Space: Less/Normal/Increased

Bone loss distal to third molar: Yes/No

Root pattern: Long & slender/Short & stout

Divergence of roots: Yes/No

Bulbosity of roots: Yes/No

Dilaceration: Yes/No

Follicular Space: Present/Absent

WINTER'S WAR LINES (1926)

White/Amber/Red

Length of Red Line :mm

WHARFES ASSESSMENT (MacGregor 1985)

Total Score:

PELL & GREGORY'S CLASSIFICATION (1933)A. Relation of the tooth to the ramus of the mandible & 2nd molar

Class I

Class II

Class III

B. Relative depth of the third molar in bone

Position A

Position B

Position C

C. The position of the long axis of the impacted mandibular third in relation to the long axis of the second molar (Winter's Classification)

1. Vertical

2. Horizontal

3. Inverted

4. Mesioangular

5. Distoangular

6. Buccoangular

7. Linguoangular

Any of these may also occur in

a. Buccal version

b. Lingual version

c. Torsi version

RELATIONSHIP TO THE INFERIOR ALVEOLAR CANAL (Howe & Poynton -1960 , Rood & Shehab 1990)

1. Related but not involving the canal

Separated

Adjacent

Superimposed

2. Related to changes in the canal

Darkening of the root

Dark & bifid root

Narrowing of the root

Deflected root

3. Related with changes in the canal

Interruption of lines

Converging canal

Diverted canals

DIFFICULTY INDEX**MODIFIED PEDERSON'S SCORING (1988)**

Spatial relationship	Relation with Ramus	Relative Depth
Mesioangular –1	Class I–1	Position A –1
Vertical –2	Class II –2	Position B –2
Horizontal –3	Class III –3	Position C –3
Distoangular –4		

Difficulty score:.....

Slightly difficult 3–4

Moderately difficult 5–6

Very difficult 7–10

PROCEDURE

Type of Anesthesia : LA/ LA + Sedation/ GA

Sedation (if used) : Oral/ Inhalational/ IV

LA Administered :

Incision & flap

Terence Ward

Modified Ward

Envelope

Other types (specify)

Bone cutting technique used : Bur/ Chisel

Odontectomy - Yes/No

Delivery of tooth: Forceps/ Elevator

Duration of Surgery:.....

Closure

Styptics used: Abgel/Bone wax/others

Sutures used : Absorbable/ Non absorbable

PERIOPERATIVE ASSESSMENT

Patient cooperation Good/Adequate/Poor

Mouth opening Satisfactory/Not satisfactory

Gag Reflex Yes/No

Adequate pain control achieved Yes/No

Pain Rating Scale: Numeric Rating Scale (NRS) **Modified Parant Scale (1997)**

Easy I - extraction requiring forceps only

Easy II - extraction requiring osteotomy only

Hard III - extractions requiring osteotomy and coronal section

Difficult IV - complex extractions (requiring root resection)

Post Operative Medication

Antibiotics used: Yes/No if yes Type, dose & duration

Corticosteroids: Yes/No if yes Route: Oral/ Local/ IM/ IV, Type & dose.....

Analgesics used : Yes/No if yes, Type, dose & duration

Enzyme preparations: Yes/No

Post Operative review1st visit.....Date & time (no of days post op)

Oedema : Yes/ No

Wound Healing status

Dehiscence of socket : Yes/ No

Trismus : Yes/No

Dry socket : Yes/No

Paresthesia : Yes/ No, If Yes: Mental/ Lingual/ Both

Any other associated symptom

2nd visit (if required)Date & time

Name & Signature of the

Operating Surgeon

Discussion

Proper clinical examination is necessary for recording a methodical and elaborate history.

The pertinent facts are discussed below in the order as they appear in the proforma.

Patients with TMJ disturbances will have difficulty in keeping the mouth open and will complain of aching pain and may necessitate the usage of mouth prop to keep the mouth open. Microstomia, macroglossia and inelastic, chubby cheeks, limit the surgical access and space and thus make the procedure difficult. The mouth opening should be measured both preoperatively and post-operatively. Any trismus present pre operatively should be recorded so as

not to confuse with any post-operative trismus, if at all, it occurs. The presence of the external oblique ridge in close association with the tooth makes the extraction of the third molar difficult.

Radiographic evaluation includes not just the tooth but also the surrounding structures. The presence of thick sclerotic bone makes removal of greater amount of bone necessary and also chances are that the tooth might fracture during elevation. If the crown of the third molar is locked against that of the second molar then tooth division will be necessary. Teeth with incomplete root formation are easier to extract than those with completed roots. Bulbous roots make the impaction difficult. Dilacerated roots have to be given extreme care while elevating. Long and slender roots

fracture more easily as compared to short and stout roots [2]. Santamaria and Arteagoitia [3] specifically tested 14 radiographic variables in relation to surgical difficulty and found that angulation, relative position of the ramus of mandible to the third molar, application depth, follicle size, periodontal ligament width and relationship to second molar were all predictive of prolonged operating time. Peterson et al. [4] also linked increased bone density (measured radiographically) to age and increased surgical difficulty.

Winter's WAR lines [5] should be traced and the length of the Red line is an indicator of the difficulty of the impaction. The longer the Red line, the more difficult is the impaction. Winter had originally classified impacted third molars, based on their angulation, into, Vertical, Mesio-angular, Horizontal and Distoangular and this was expanded by MacGregor [6] in 1985 to WHARFE which includes the Winters lines along with other factors and has been used in several studies to assess the difficulty. WHARFE assessment is a time consuming procedure and has been made optional in this proforma.

Classification of the impaction is done based on Pell and Gregory's classification [7, 8].

The relationship with the inferior alveolar nerve should be carefully assessed based on the radiographic signs and patient be warned of possible injury to the nerve if the case satisfies any of the radiologic criteria [9, 10]. Close relationship of the roots with the inferior alveolar nerve may warrant odontectomy so as to prevent injury to the nerve during delivery from the socket. Many studies have reported the frequency of nerve injury during the removal of third molars and most indicate that inferior alveolar nerve function is disturbed after 4–5 % of procedures (range 1.3–7.8 %). Most patients will regain normal sensation within a few weeks or months and less than 1 % (range 0–2.2 %) has a persistent sensory disturbance [11].

Coronectomy is a preferable technique for patients who run a risk of injury to the inferior alveolar nerve during third molar surgery. The technique of coronectomy is defined as removing the crown of a tooth but leaving the roots untouched, so that the possibility of nerve damage is reduced [12, 13].

Based on The Pederson's Scoring [14], those cases with a score of 7–10 are always best done under General anesthesia. Perioperative assessment of patient cooperation is essential so that the surgeon can make appropriate changes in his management style. Start the procedure only when the surgeon is sure about adequate anesthesia, as the inadequate anesthesia initially will cause the patient to be uncooperative and apprehensive.

Pain perceived by the patient can be assessed by asking the patient to describe the experience by rating the pain on a scale of 1–10 (Numeric Rating Scale) [15].

Parant's scale [16] assesses the difficulty of the case, post operatively. The difficulty assessment score obtained from this scale should be checked against that done by Pederson's scoring, preoperatively. Chandler and Laskin [17], suggested that pre-operative assessment of surgical difficulty was unreliable and the best measure was that made during the procedure. A post-operative measure of difficulty is usually found to correlate best with difficulty of the surgery.

The number of sutures and the type of suture material used and suturing done should be recorded. The mouth opening, presence of paresthesia, residual oedema, wound dehiscence or dry socket if any, post-operative pain etc. should be evaluated at review visit.

This is a straight-forward specifically customized proforma and can be used routinely for the assessment of all mandibular third molar impactions and makes documentation, diagnosis and treatment planning easy, for residents who are starting out on their journey to become maxillofacial surgeons. This proforma helps in better documentation and communication between professionals.

The proforma also provides additional important medicolegal benefits when records are requested for investigations, litigation, or assessment of compensation as everything is documented in a systematic, methodical and transparent manner. Even if notes are missing or members of the staff have moved on, the database can provide all the required information.

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