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# The Impactof Multiple Suture Closure Technique on Oral Health-Related Quality of Life (OHRQoL) Following Mandibular Third Molar Surgery

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## SUPPLEMENTARY DOCUMENTS

**Table 1. Day 7 OHIP-14 Quality of Life for Multiple Suture Closure Technique.**

| Variable | Category | No Impact n (%) | Moderate Impact n (%) | Severe Impact n (%) | Total n (%) | p-value |
|---|---|---|---|---|---|---|
| Age (years) | | | | | | |
| | ≤20 | 1(2.1%) | 2(4.3%) | 1(2.1%) | 4(8.5%) | 0.617 |
| | 21–30 | 7(14.9%) | 14(29.8%) | 1(2.1%) | 22(46.8%) | |
| | 31–40 | 4(8.5%) | 12(25.5%) | 1(2.1%) | 17(36.2%) | |
| | >40 | 0(0%) | 4(8.5%) | 0(0%) | 4(8.5%) | |
| | **Total** | 12(25.5%) | 32(68.1%) | 3(6.4%) | 47(100%) | |
| Sex | | | | | | |
| | Male | 4(8.5%) | 14(29.8%) | 1(2.1%) | 19(40.4%) | 0.133 |
| | Female | 8(17.0%) | 18(38.3%) | 2(4.3%) | 28(59.6%) | |
| | Total | 12(25.5%) | 32(68.1%) | 3(6.4%) | 47(100%) | |
| Marital Status | | | | | | |
| | Single | 9(19.1%) | 18(38.3%) | 3(6.4%) | 30(63.8%) | 0.265 |
| | Married | 3(6.4%) | 14(29.8%) | 0(0%) | 17(36.2%) | |
| | Total | 12(25.5%) | 32(68.1%) | 3(6.4%) | 47(100%) | |
| Religion | | | | | | |
| | Christian | 12(25.5%) | 31(66%) | 3(6.4%) | 46(97.9%) | 1.000 |
| | Muslim | 0(0%) | 1(2.1%) | 0(0%) | 1(2.1%) | |
| | **Total** | 12(25.5%) | 32(68.1%) | 3(6.4%) | 47(100%) | |
| Education | | | | | | |

  

| | | | | | | |
|---|---|---|---|---|---|---|
| | Primary | 0(0%) | 1(2.1%) | 0(0%) | 1(2.1%) | 0.831 |
| | Secondary | 0(0%) | 3(6.4%) | 0(0%) | 3(6.4%) | |
| | Tertiary | 12(25.5%) | 27(57.4%) | 3(6.4%) | 42(89.4%) | |
| | None | 0(0%) | 1(2.1%) | 0(0%) | 1(2.1%) | |
| | **Total** | 12(25.5%) | 32(68.1%) | 3(6.4%) | 47(100%) | |
| Occupation | | | | | | |
| | Level I | 0(0%) | 3(6.4%) | 0(0%) | 3(6.4%) | 0.435 |
| | Level II | 1(2.1%) | 6(12.8%) | 0(0%) | 7(14.9%) | |
| | Level III | 2(4.3%) | 8(17%) | 0(0%) | 10(21.3%) | |
| | Level IV | 2(4.3%) | 7(14.9%) | 0(0%) | 9(19.1%) | |
| | Level V | 7(14.9%) | 8(17%) | 3(6.4%) | 18(38.3%) | |
| | **Total** | 12(25.5%) | 32(68.1%) | 3(6.4%) | 47(100%) | |
| Ethnicity | | | | | | |
| | Non-Edo Indige-nous | 7(14.9%) | 11(23.4%) | 2(4.3%) | 20(42.6%) | 0.256 |
| | Edo Indigenous | 5(10.6%) | 21(44.7%) | 1(2.1%) | 27(57.4%) | |
| | Total | 12(25.5%) | 32(68.1%) | 3(6.4%) | 47(100%) | |

## APPENDIX I

## INFORMED CONSENT FORM

**TITLE OF RESEARCH:** The impact of multiple suture closure technique on oral health-related quality of life (OHRQoL) following mandibular third molar surgery.

**NAME OF RESEARCHER:** Dr Ogboh, Chiedu Benz, a Senior Registrar in the Department of Oral and Maxillofacial Surgery, University of Benin Teaching Hospital (UBTH), Benin City.

**SPONSPORSHIP:** The research will be self-sponsored.

**PURPOSE OF RESEARCH:** The aim of the study is to evaluate the impact of multiple suture technique on OHRQoL following mandibular third molar surgery.

**PROCEDURES:** This will involve participant's exposure to peri-apical radiographs to assess the type of impaction and to calculate the difficulty index. Trans-alveolar extraction under local anaesthesia for all patients will be performed by a single surgeon. The procedures will be performed under sound hygienic conditions. This will involve the use of sterile aprons for surgeons and patients, sterile surgical handpieces and surgical instruments.

The surgical procedure will be same for all participants and multiple closure technique will be placed for all participants. Sutures will be placed at the anterior relieving incision, distal relieving incision, and the interdental papilla distal to the mandibular second molar using 3-0 silk sutures.

Pre-operative/baseline pain score, maximum mouth opening, facial width measurement on the side planned for impacted third molar surgery will be evaluated/measured and same measurements will be taken on day 1, day 3, day 7 and one month after surgery and recorded in the appropriate appendices. Self-administered Oral Health Impact Profile-14 (OHIP-14) questionnaire will be used to assess OHRQoL at baseline and on day1, day 3, day 7 and one month after surgery.

All patients will be given 500mg amoxicillin manufactured by Beechem and 400mg metronidazole manufactured by May and Baker 8 hourly per oral for five days except patients that are allergic to penicillin and will be placed on 250mg erythromycin 6 hourly. Tablet Diclofenac potassium 50mg by Novartis twice daily will be administered orally as the analgesic for five days. Post extraction instructions will be given to all participants.

**COMPENSATION:** Participants will not be paid for participating in this research but in the event of injury resulting from this study, medical treatment will be provided by the researcher.

**BENEFITS:** Relief from pain, improve mouth opening and chewing capacity, prevention of spread of infection, relief from swelling, improve patient's self-esteem and Quality of Life.

**DISCOMFORT AND RISKS FROM THE PROCEDURE:** Pain, swelling, temporal restriction of mouth opening along with decreased chewing capacity, sensory nerve damage, dry socket, infection, iatrogenic damage to adjacent second molar, iatrogenic mandibular fracture and temporomandibular dislocation.

**PERIOD OF TIME REQUIRED:** The timing for the procedure is less than an hour but subsequent review visit will be less than 20 minutes.

**CONFIDENTIALITY AND ANONYMITY:**Any data or questions will remain confidential with regard to participants' identity.

The data collected from participants will be analyzed and findings from the analysis will enable the Oral and Maxillofacial Surgeon evaluate the impact of multiple suture technique on OHRQoL following mandibular third molar surgery.

I certify that I have been adequately informed and that I fully understand the explanations for the research and I voluntarily give the researcher permission for the procedure.

I have been given an opportunity to ask whatever questions I might have, and all questions and enquiries have been answered to my satisfaction.

I further understand that I am free to withdraw my consent and terminate my participation at any time I so wish.

…….. …… ……

Participant Signature Date

I, the undersigned, have fully defined and explained the research to the above participants.

…… ……..

Name of Researcher Researcher's Signature/Date

I was present when the study was explained to the participants and by my observation it was clearly understood by the patients.

…… ……

Name of Witness Signature/Date

**CONTACT ADDRESSES:**

| | |
|---|---|
| Dr Ogboh, Chiedu Benz.<br>Senior Registrar,<br>Department of Oral and Maxillofacial Surgery, University of Benin Teaching Hospital (UBTH),<br>Benin City, Edo State, Nigeria.<br>Phone No:08023328233, 08033988329<br>Email: drbenz2004@gmail.com | Ethics and Research Committee,<br>University of Benin Teaching Hospital (UBTH),<br>Benin City, Edo State, Nigeria.<br>Phone No: 07063331337. |

**APPENDIX II**

**ORAL HEALTH IMPACT PROFILE-14 (OHIP-14)**

This questionnaire contains questions regarding the condition of your teeth.

To answer each question, tick one of the following possible answers.

| Questions | Never<br>0 | Hardly ever<br>1 | Occasionally<br>2 | Fairly often<br>3 | Very often<br>4 |
|---|---|---|---|---|---|
| Q1. Have you been self-conscious because of your teeth, mouth or dentures? | | | | | |
| Q2. Have you had painful aching in your mouth? | | | | | |
| Q3. Have you had difficulty doing your usual jobs because of problems with your teeth, mouth or dentures? | | | | | |
| Q4. Have you had trouble pronouncing any words because of problems with your teeth, mouth or dentures? | | | | | |
| Q5. Have you found it uncomfortable to eat any food because of problems with your teeth, mouth or dentures? | | | | | |
| Q6. Have you been totally unable to function because of problems with your teeth, mouth or dentures? | | | | | |
| Q7. Have you been a bit irritable with other people because of problems with your teeth, mouth or dentures? | | | | | |
| Q8. Have you been embarrassed because of your teeth, mouth or dentures? | | | | | |
| Q9. Have you felt tense because of problem with your teeth, mouth or dentures? | | | | | |
| Q10. Have you had to interrupt meals because of problems with your teeth, mouth or dentures? | | | | | |
| Q11. Have you felt that life in general was less satisfying because of problems with your teeth, mouth or dentures? | | | | | |
| Q12. Has your diet been unsatisfactory because of problems with your teeth, mouth or dentures? | | | | | |
| Q13. Have you found it difficult to relax because of problems with your teeth, mouth or dentures? | | | | | |
| Q14. Have you felt that your sense of taste has worsened because of problems with your teeth, mouth or dentures? | | | | | |

## APPENDIX III

## VISUAL ANALOGUE SCALE (VAS)

### Instructions:

Please indicate your present level of pain by marking a circle across the point that corresponds with the level of your pain. Utmost accuracy and honesty are required.

0cm "No pain"

**APPENDIX IV**

**PROFORMA A (PRE-OPERATIVE ASSESSMENT)**

Serial No: …… Hospital No: ……...

A. BIODATA

Age ---------- Sex ---------- Marital Status ---------- Tribe ---------- Religion ----------

Social Habits: Alcohol consumption [ ], Tobacco use [ ], Others [please specify] ----------

Address----------

Educational Background: None [ ] Primary [ ] Secondary [ ] Postsecondary [ ]

Others (specify) ----------

Occupation ----------

Phone No. ---------- E-mail Address ----------

**B. CLINICAL ASSESSMENT**

i) Site of impacted mandibular third molar tooth extracted: Right side [ ] Left side [ ]

ii) Indication for Extraction:

Pericoronitis [ ]

Dental Caries [ ]

Periodontal disease [ ]

Prosthetic reasons [ ]

Orthodontic reason [ ]

Others Specify

**C) RADIOGRAPHIC ASSESSMENT**

a) WINTER"S CLASSIFICATION:

Mesioangular[ ]

Distoangular[ ]

Vertical [ ]

Horizontal [ ]

b) PELL AND GREGORY (RAMUS RELATION)

Class I [ ]

Class II [ ]

Class III [ ]

c) PELL AND GREGORY (OCCLUSAL RELATION)

Position A [ ]

Position B [ ]

Position C [ ]

d) PEDERSON DIFFICULTY INDEX:

Mild (3-4) [ ]

Moderate (5-6) [ ]

Severe (7-10) [ ]

**D) DURATION OF THE PROCEDURE FROM THE TIME OF INCISION TO WHEN THE LAST SUTURE WAS PLACED: ----------**

**APPENDIX V**

**PROFORMA B**

**BASELINE MEASUREMENTS (30 MINUTES PRIOR TO SURGERY)**

**SECTION 1; TRISMUS**

**MAXIMUM INTERINCISAL DISTANCE (MID) IN MILLIMETER (CM)**

| MID ASSESSMENT IN CM | 1ST | 2ND | TOTAL | AVERAGE |
|---|---|---|---|---|
| READINGS | | | | |

**SECTION 2; FACIAL WIDTH**

| LANDMARKS | TP | TC | LA | TOTAL | AVERAGE |
|---|---|---|---|---|---|
| READINGS | | | | | |

TP = most posterior point on the midline of tragus to soft tissue pogonium.

TC = most posterior point on the midline of tragus to the most lateral point on the corner of the mouth.

LA = Lateral canthus of the eye to the most inferior point on the angle of the mandible.

**SECTION 3**

**VISUAL ANALOGUE SCALE (VAS)**

VAS score Reading ----------

**APPENDIX VI**

**PROFORMA C**

**DAY 1 POST-OPERATIVE EVALUATION OF PARAMETERS**

SERIAL NO……. HOSPITAL NO…….

SECTION 1; TRISMUS

**MAXIMUM INTERINCISAL DISTANCE (MID) IN MILLIMETER (CM)**

| MID ASSESSMENT IN CM | 1ST | 2ND | TOTAL | AVERAGE |
|---|---|---|---|---|
| READINGS | | | | |

**SECTION 2; FACIAL WIDTH**

| LANDMARKS | TP | TC | LA | TOTAL | AVERAGE |
|---|---|---|---|---|---|
| READINGS | | | | | |

TP = most posterior point on the midline of tragus to soft tissue pogonium.

TC = most posterior point on the midline of tragus to the most lateral point on the corner of the mouth.

LA = Lateral canthus of the eye to the most inferior point on the angle of the mandible.

**SECTION 3**

**VISUAL ANALOGUE SCALE (VAS)**

VAS score Reading ----------

**APPENDIX VII**

**PROFORMA D**

**DAY 3 POST-OPERATIVE EVALUATION OF PARAMETERS**

SERIAL NO……. HOSPITAL NO…….

SECTION 1; TRISMUS

**MAXIMUM INTERINCISAL DISTANCE (MID) IN MILLIMETER (CM)**

| MID ASSESSMENT IN CM | 1ST | 2ND | TOTAL | AVERAGE |
|---|---|---|---|---|
| READINGS | | | | |

**SECTION 2; FACIAL WIDTH**

| LANDMARKS | TP | TC | LA | TOTAL | AVERAGE |
|---|---|---|---|---|---|
| READINGS | | | | | |

TP = most posterior point on the midline of tragus to soft tissue pogonium.

TC = most posterior point on the midline of tragus to the most lateral point on the corner of the mouth.

LA = Lateral canthus of the eye to the most inferior point on the angle of the mandible.

**SECTION 3.**

VISUAL ANALOGUE SCALE (VAS)

VAS score Reading ----------

**APPENDIX VIII**

**PROFORMA E**

DAY 7 POST-OPERATIVE EVALUATION OF PARAMETERS

SERIAL NO……. HOSPITAL NO…….

SECTION 1; TRISMUS

**MAXIMUM INTERINCISAL DISTANCE (MID) IN MILLIMETER (CM)**

| MID ASSESSMENT IN CM | 1ST | 2ND | TOTAL | AVERAGE |
|---|---|---|---|---|
| READINGS | | | | |

**SECTION 2; FACIAL WIDTH**

| LANDMARKS | TP | TC | LA | TOTAL | AVERAGE |
|---|---|---|---|---|---|
| READINGS | | | | | |

TP = most posterior point on the midline of tragus to soft tissue pogonium.

TC = most posterior point on the midline of tragus to the most lateral point on the corner of the mouth.

LA = Lateral canthus of the eye to the most inferior point on the angle of the mandible.

**SECTION 3**

**VISUAL ANALOGUE SCALE (VAS)**

VAS score Reading ----------

**APPENDIX IX**

**PROFORMA F**

**ONE MONTH POST-OPERATIVE EVALUATION OF PARAMETERS**

SERIAL NO……. HOSPITAL NO…….

SECTION 1; TRISMUS

**MAXIMUM INTERINCISAL DISTANCE (MID) IN MILLIMETER (CM)**

| MID ASSESSMENT IN CM | 1ST | 2ND | TOTAL | AVERAGE |
|---|---|---|---|---|
| READINGS | | | | |

**SECTION 2; FACIAL WIDTH**

| LANDMARKS | TP | TC | LA | TOTAL | AVERAGE |
|---|---|---|---|---|---|
| READINGS | | | | | |

TP = most posterior point on the midline of tragus to soft tissue pogonium.

TC = most posterior point on the midline of tragus to the most lateral point on the corner of the mouth.

LA = Lateral canthus of the eye to the most inferior point on the angle of the mandible.

**SECTION 3**

**VISUAL ANALOGUE SCALE (VAS)**

VAS score Reading ----------

**APPENDIX X**

**POST EXTRACTION INSTRUCTIONS**

**Operation Day**

1) Go home and rest and do not be involved in any strenuous exercise.

2) Continue to swallow your saliva (i.e., avoid spitting out) for the next 24 hours.

3) Do not disturb the extraction site with your tongue or fingers.

4) Avoid taking any hot food or beverages for the next 24 hours.

5) Avoid alcohol and smoking for the next 24 hours.

6) All these rules are important to prevent bleeding; but if bleeding commences again, apply gauze or a clean handkerchief to the site and hold for 30 minutes. If bleeding persists, please report to the accident and emergency department of the hospital.

7) Commence the use of your medications.

**The following day**

1) Commence on the use of warm saline mouthwash. Take a stainless-steel cup, half-filled with warm water, add a level-full teaspoon of salt and shake gently to dissolve. Take some quantity of the water into the mouth and hold the water at the extraction site until water cools. Repeat every 3 hours for the next one week.

2) Try and eat normally and ensure routine mouth exercise.

3) Report to the clinic on day 1-, 3-, 7- and one-month post operatively; but in case of any complaint any other day, report to the clinic immediately.

4) Your doctor's phone number is 08023328233.

## APPENDIX XI

### Author Information

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### Ethical Approval

Ethical approval for this study was obtained from the Ethics and Research Committee of the University of Benin Teaching Hospital (UBTH) with Protocol Number ADM/E22/A/VOL.VII/14734 and written consent were obtained from all eligible patients who participated in the study.

### Authors Contributions

Dr. Chiedu Benz Ogboh (Corresponding Author) was responsible for the overall conceptualization of the study and the formulation of the research design. Dr Chiedu coordinated patient recruitment, performed the surgical procedures, and oversaw comprehensive data acquisition. Dr Chiedu also played a central role in the interpretation of findings and undertook the drafting, revision, and finalization of the manuscript. All activities were carried out under the close supervision of Prof Esezobor Peter Egbor ensuring adherence to methodological standards and alignment with the study's scientific objectives.

Prof Esezobor Peter Egbor provided critical oversight throughout the entire course of the research. Their contributions included offering comprehensive methodological guidance, ensuring adherence to sound scientific principles, and providing consistent mentorship from study conception through data interpretation and manuscript writing. Their expertise, diligence, and sustained involvement were instrumental in maintaining the quality, coherence, and overall integrity of the research.

Dr Sylvanus Okey Ugwueze and Dr Aimuamwosa Dannis Osagie contributed meaningfully to the conduct of the study by assisting with patient follow-up assessments, supporting systematic data collection, participating in the literature review process, and aiding in the execution of statistical analyses. Their involvement helped ensure the accuracy, completeness, and methodological soundness of the research data and its interpretation.