

ANTERIOR ESTHETICS REHAB
EVIDENCE BASED DENTISTRY ROUNDS
PROSTHODONTICS
8B-1
9/30/2020



ROUNDS TEAM

- **GROUP LEADER: DR. TOBUREN**
- **SPECIALTY LEADER: DR. KEESLER**
- **PROJECT TEAM LEADER: CAROLYN PATT**
- **PROJECT TEAM PARTICIPANTS:**
 - **D1: GRIFFIN SWENSON**
 - **D2: ZACHARY QUAM**
 - **D3: MELISSA DRAB**



PATIENT: D.

- 55 YEARS OLD
- FEMALE
- HISPANIC
- CHIEF COMPLAINT: “I WANT TO FIX THE PROBLEMS IN MY MOUTH”
- COMP EXAM VISIT: 6/19/19

MEDICAL HISTORY

- ASTHMA
 - WELL CONTROLLED
 - ALBUTEROL
- DENTAL ANXIETY
 - 7 ON CORAH SCALE
- ALLERGIES
 - NITROFURANTOIN (HIVES)



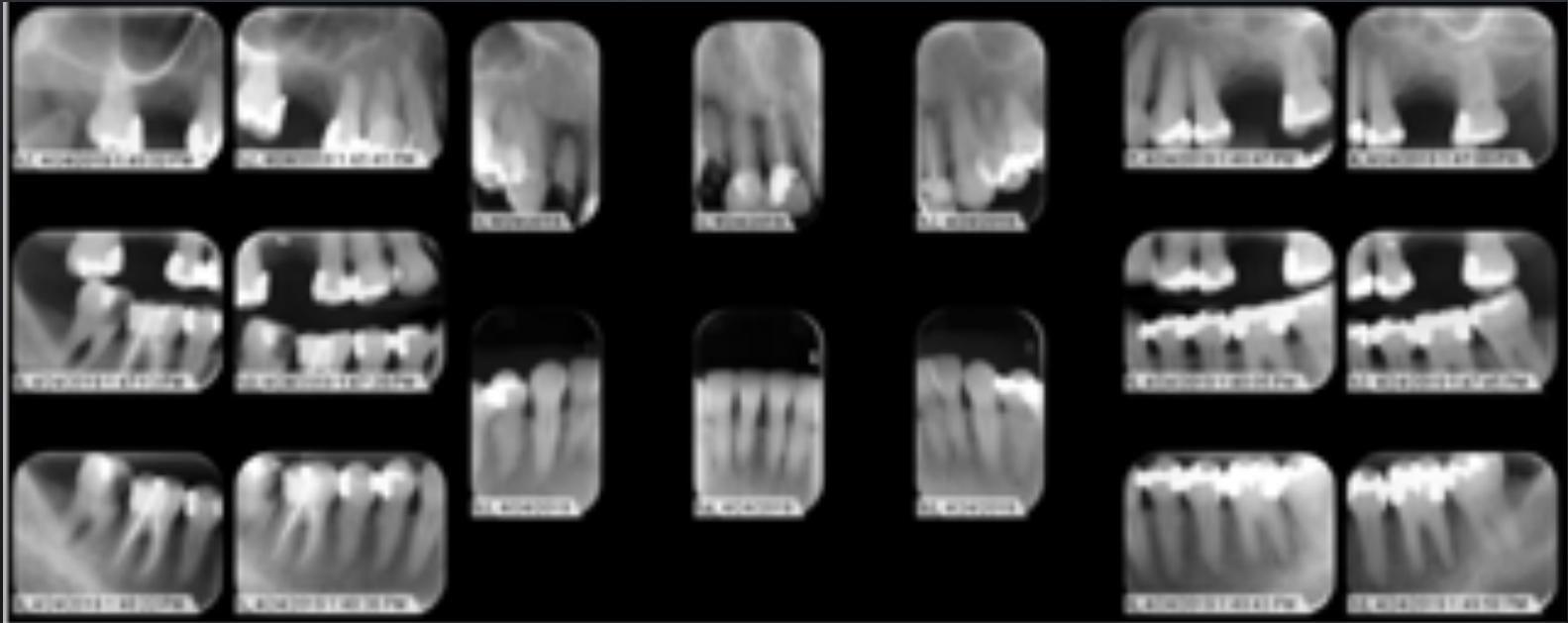
DENTAL HISTORY

- PT CLAIMED TO HAVE BEEN UNDER THE CARE OF A DENTIST IN THE LAST 6 MONTHS AT COMP EXAM, 1-2 YEARS SINCE LAST CLEANING
- HAS HAD RCT, EXTRACTIONS, HEAVILY RESTORED DENTITION
- CLAIMS TO BRUSH TWICE A DAY, NEVER FLOSSES
- EXPRESSED DENTAL ANXIETY DURING COMP EXAM

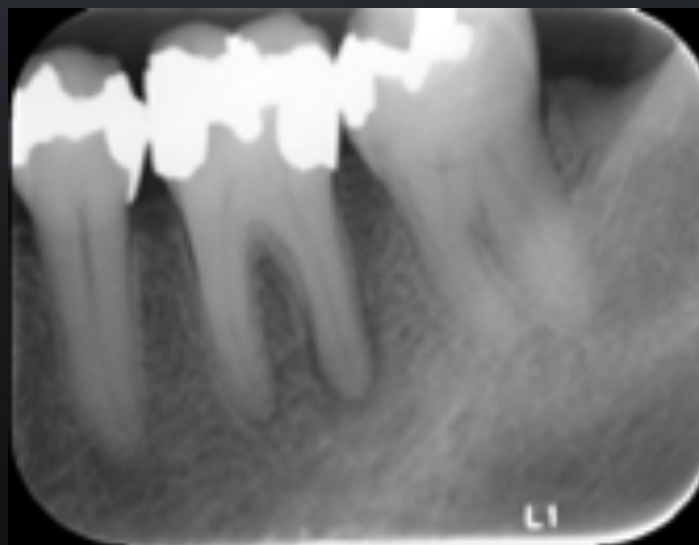
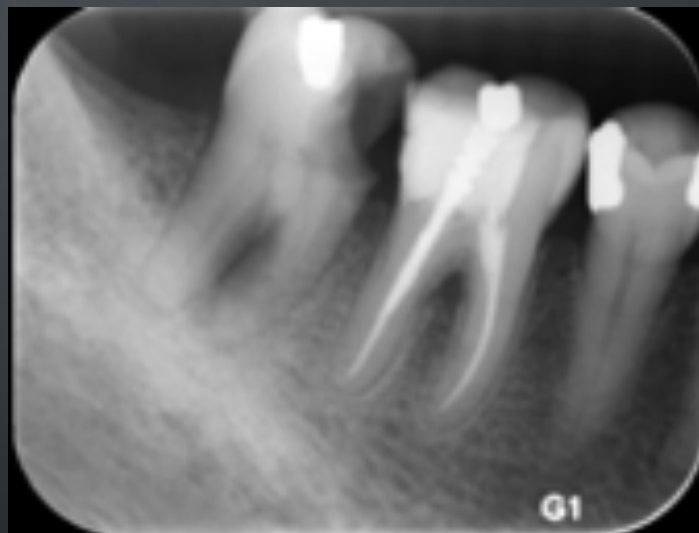
CURRENT ODONTOGRAM



RADIOGRAPHS



RADIOGRAPHS



RADIOGRAPHIC FINDINGS

- PARLS ON #7, #9 AND #10 WITH RECURRENT DECAY
- WIDENED PDL #19 AND #31
- GROSS DECAY #7 AND #31
- OVERHANGS ON PROXIMAL RESTORATIONS
- OVERALL HEAVILY RESTORED DENTITION

CLINICAL FINDINGS-6/19/20

- DRAINING FISTULA PRESENT BUCCAL VESTIBULE ASSOCIATED WITH #7. NON-VITAL #19 AND #31
- GROSS DECAY #7 AND #31. #7, #9 #10-PERIAPICAL INFECTION
- RECURRENT DECAY:
 - #2 M
 - #4 D
 - #5 D
 - #6 D
 - #8 ML
 - #9 ML D
 - #10 DLF
 - #30 L
- DEFECTIVE RESTORATIONS ON:
 - #2 M OVERHANG
 - #4 MD OVERHANG
 - #5 D OVERHANG
 - #6 LOOSE RESTORATION
 - #19 M OVERHANG
 - #20 MD OVERHANG
 - #22 DF OVERHANG
 - #19 MOBILITY

HIGHLIGHTS OF WORK COMPLETED TO DATE:

- 6/19/19-COMPREHENSIVE EXAM
- 8/27/19-PROPHY, DIAGNOSTIC CASTS
- 10/14/19-FINAL IMPRESSION FOR INTERIM RPD
- 11/5/19-PATIENT CALLED TO DEFER ANTERIOR EXTRACTIONS UNTIL AFTER THE HOLIDAYS, EXT. #7 AND #31 SCHEDULED FOR 12/3
- 11/25/19-#2 MO, #4 MOD
- 12/3/19-PATIENT CANCELLED EXTRACTIONS OF #7 AND #31
- 1/28/20-EXT. #7 & #31
- 7/28/20-EXT #8, #9, #10, DELIVERY OF INTERIM RPD
- 8/13/20-#6 DL, #5 DO
- 8/25/20-#22 DIFL
- 8/26/20- #19 ENDO
- 8/27/20-#20 MOD
- 9/16/20-#19 CORE BUILD UP

CLINICAL PHOTOS







SPECIFIC FINDINGS

- BILATERAL POSTERIOR CROSS-BITE, NARROW ARCH FORM AND HIGH VAULTED PALATE
- EXCESSIVE GINGIVAL DISPLAY

PERIODONTAL CHARTING

The image displays a dental chart with periodontal charting data. The chart is divided into four quadrants. Yellow highlights are present at the top and bottom of each quadrant. Red numbers in boxes indicate specific periodontal measurements.

Top Left Quadrant:

- Boxed red numbers: 4, 3, 2, 1, 2, 3, 4

Top Right Quadrant:

- Boxed red numbers: 1, 2, 3, 4

Bottom Left Quadrant:

- Boxed red numbers: 1, 2, 3, 4

Bottom Right Quadrant:

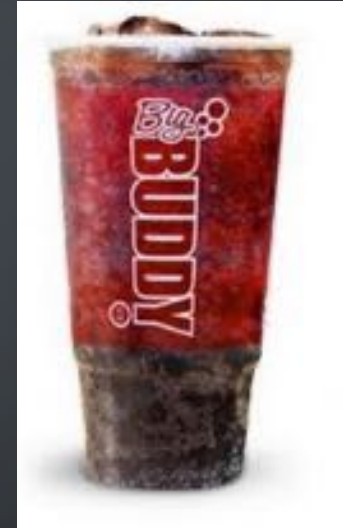
- Boxed red numbers: 1, 2, 3, 4

DIAGNOSIS

- EARLY CHRONIC PERIODONTITIS
- #7, #8, #9, #10 RCT TREATED, PARLs, RECURRENT DECAY, DEEMED NON-RESTORABLE
- #19- NECROTIC PULP, ASYMPTOMATIC APICAL PERIODONTITIS
- #31- GROSS DECAY, DEEMED NON-RESTORABLE

PROBLEM LIST

- POOR ORAL HYGIENE
- POOR PATIENT COMPLIANCE
- POOR DIET
- RAMPANT DECAY
- ENDODONTIC AND PERIAPICAL INVOLVEMENT OF MULTIPLE TEETH
- DENTAL ANXIETY
- EARLY CHRONIC PERIODONTITIS
- MISSING TEETH
- EXCESSIVE GINGIVAL DISPLAY



Etiologies of Excessive Gingival Display

- VERTICAL MAXILLARY EXCESS (VME)
 - OVERGROWTH OF THE MAXILLA
 - DISTANCE FROM PALATAL PLANE TO THE INCISAL EDGE OF MAXILLARY INCISORS IS ~ 2 MM HIGHER THAN INDIVIDUALS W/O A GUMMY SMILE
- ALTERED PASSIVE ERUPTION
 - CONDITION WHERE THE GINGIVAL MARGINS FAIL TO RECEDE TO THE LEVEL OF THE CEJ ONCE THE TOOTH HAS COMPLETELY ERUPTED
 - OCCURS IN AROUND 12% OF THE POPULATION



ETIOLOGIES OF EXCESSIVE GINGIVAL DISPLAY

- HYPERACTIVE SMILE
 - INCREASED ACTIVITY OF THE UPPER LIP MUSCLES DURING A SMILE
 - COMMON TREATMENT IS BOTOX
 - DECREASES THE ACTIVITY OF THE LEVATOR LABII SUPERIORIS

SOURCE

SILBERBERG, NIR; GOLDSTEIN, MOSHE; SMIDT, AMI. EXCESSIVE GINGIVAL DISPLAY--ETIOLOGY, DIAGNOSIS, AND TREATMENT MODALITIES. QUINTESSENCE INTERNATIONAL. 2009, VOL. 40 ISSUE 10, P809-818.

WHAT ARE COMMON IMPLANT COMPLICATIONS?

BIOMECHANICAL OVERLOAD

CAUSES: POOR ANGULATION, INADEQUATE POSTERIOR SUPPORT, INADEQUATE BONE SUPPORT, PARAFUNCTIONAL HABITS

MANIFESTATION: LOOSENING/FRACTURE OF IMPLANT COMPONENT

LOOSENING: RESULT OF CEMENT FAILURE OR ABUTMENT/PROSTHESIS SCREW LOOSE

MAY INDICATES LACK OF OSTEOINTEGRATION DUE TO MICROMOTION

INFLAMMATION/INFECTION

POOR ORAL HYGIENE MAY LEAD TO INFECTION

SUBGINGIVAL CEMENT MAY LEAD TO INFLAMMATION VIA FOREIGN BODY REACTION

PERI-IMPLANT MUCOSITIS: INFLAMMATION OF TISSUE AROUND IMPLANT

PERI-IMPLANTITIS: CHANGE IN BONE LEVEL AROUND IMPLANT

MAY REQUIRE ANTIBIOTICS TO CONTROL INFECTION OR TISSUE GRAFT



SOFT TISSUE/BONE SPACE

PRESERVATION OF BONE AND SOFT TISSUE DURING AND AFTER EXTRACTION

UTILIZE SEIBERT'S CLASSIFICATION:

CLASS I: BUCCOLINGUAL LOSS OF RIDGE CONTOUR

CLASS II: APICOCORONAL LOSS OF RIDGE CONTOUR

CLASS III: COMBINATION OF BUCCOLINGUAL AND APICOCORONAL LOSS OF RIDGE CONTOUR

SURGICAL COMPLICATIONS

INFERIOR ALVEOLAR CANAL AND NEUROVASCULAR BUNDLE DAMAGE

PENETRATION OF MAXILLARY SINUS OR NASAL CAVITY

MANDIBULAR FRACTURE

REFERENCES:

[HTTPS://JOURNALS.LWW.COM/IMPLANTDENT/FULLTEXT/2008/06000/](https://journals.lww.com/implantdent/fulltext/2008/06000/)

[HTTPS://0-WWW-SCIENCEDIRECT-COM.LIBUS.CSD.MU.EDU/SCIENCE/ARTICLE/PII/S0887217115000967?VIA%3DIHUB](https://0-www-sciencedirect-com.libus.csd.mu.edu/science/article/pii/S0887217115000967?via%3DIHUB)

[HTTPS://0-PUBMED-NCBI-NLM-NIH-GOV.LIBUS.CSD.MU.EDU/27647536/](https://0-pubmed-ncbi-nlm-nih-gov.libus.csd.mu.edu/27647536/)

[HTTPS://0-WWW-SCIENCEDIRECT-COM.LIBUS.CSD.MU.EDU/SCIENCE/ARTICLE/PII/S0300571217300957?VIA%3DIHUB](https://0-www-sciencedirect-com.libus.csd.mu.edu/science/article/pii/S0300571217300957?via%3DIHUB)

[HTTPS://DL.USWR.AC.IR/BITSTREAM/HANNAN/88889/1/2018%20PERIODONTOLOGY2000%20VOLUME%201%20JUNE%20%286%29.PDF](https://dl.uswr.ac.ir/bitstream/HANNAN/88889/1/2018%20PERIODONTOLOGY2000%20VOLUME%201%20JUNE%20%286%29.PDF)



D3 PICO

- **CLINICAL QUESTION:**
 - **WHAT ETIOLOGICAL FACTORS ARE CONSIDERED WHEN RESTORING FUNCTION AND ESTHETICS IN THE ANTERIOR SEGMENT OF THE MOUTH?**

PICO FORMAT

P: PATIENTS WITH EXCESSIVE GINGIVAL
DISPLAY

I: IMPLANT FIXED PROSTHESIS

C: FPD

O: PREDICTABLE ESTHETIC OUTCOME

PICO FORMATTED QUESTION

- IN PATIENTS WITH EXCESSIVE GINGIVAL DISPLAY, DOES REHABILITATION WITH A FPD OR AN IMPLANT FIXED PROSTHESIS RESULT IN A MORE PREDICTABLE ESTHETIC OUTCOME?



CLINICAL BOTTOM LINE

- THERE ARE VARIOUS TREATMENT OPTIONS FOR RESTORING PARTIALLY EDENTULOUS ARCHES.
- PATIENTS ARE PRESENTED WITH MANY CHOICES WHICH MAY INCLUDE IMPLANT AND TOOTH SUPPORTED FIXED PROSTHESES.
- IT IS THE RESPONSIBILITY OF US AS THE PROVIDERS TO BE ABLE TO GIVE OUR PATIENTS SUPPORTED RECOMMENDATIONS.

SEARCH BACKGROUND

- **DATE(S) OF SEARCH:** 9/15/20, 9/18/20, 9/19/20
- **DATABASE(S) USED:** PUBMED, NCBI, ELSEVIER
- **SEARCH STRATEGY/KEYWORDS:**
 - ESTHETIC
 - IMPLANT
 - FPD
 - FIXED PROSTHESIS
 - GINGIVAL DISPLAY
 - MAXILLARY

SEARCH BACKGROUND

- **MESH TERMS USED:**
 - DENTAL IMPLANTS
 - DENTAL PROSTHESIS, IMPLANT-SUPPORTED
 - ESTHETIC, DENTAL
 - MAXILLARY

ARTICLE 1 CITATION, INTRODUCTION

- **CITATION:**

- WITTNEBEN, J. G., WISMEIJER, D., BRÄGGER, U., JODA, T., & ABOU-AYASH, S. (2018). PATIENT-REPORTED OUTCOME MEASURES FOCUSING ON AESTHETICS OF IMPLANT- AND TOOTH-SUPPORTED FIXED DENTAL PROSTHESES: A SYSTEMATIC REVIEW AND META-ANALYSIS. *CLINICAL ORAL IMPLANTS RESEARCH*, 29 SUPPL 16, 224–240.
[HTTPS://DOI.ORG/10.1111/CLR.13295](https://doi.org/10.1111/CLR.13295)

- **STUDY DESIGN:**

- SYSTEMATIC REVIEW

- **STUDY NEED / PURPOSE:**

- THE PURPOSE OF THIS STUDY WAS TO SUMMARIZE THE EXISTING EVIDENCE ON ESTHETIC OUTCOMES OF IMPLANT SUPPORTED AND TOOTH SUPPORTED FIXED PROSTHESES.

ARTICLE 1 SYNOPSIS

- METHOD:
 - 2,675 TITLES SCREENED AND 50 FULL ARTICLES ANALYZED TO REVIEW PATIENT-REPORTED OUTCOMES FOR IMPLANT & TOOTH SUPPORTED FIXED PROSTHESES.
 - SELECTED STUDIES INCLUDED PATIENT REPORTED OUTCOME MEASURES (PROMs) AND VISUAL ANALOG SCALE (VAS).

ARTICLE 1 SYNOPSIS

- RESULTS:
 - VAS ESTHETIC EVALUATION HIGH IN IMPLANT-SUPPORTED FPDs AND THE SURROUNDING MUCOSA
- CONCLUSION:
 - PATIENT SATISFACTION WAS HIGH FOR IMPLANT- SUPPORTED FPDs AND ESTHETICS OF THE SURROUNDING MUCOSA.
- LIMITATIONS:
 - THIS REVIEW COULD NOT INCLUDE DATA ON TOOTH-SUPPORTED FPDs DUE TO THE REQUIREMENTS OF THE EXCLUSION/ INCLUSION CRITERIA.

ARTICLE 1 SELECTION

- REASON FOR SELECTION
 - THIS ARTICLE ADDRESSES THE ESTHETICS OF REHABILITATION WITH IMPLANT SUPPORTED (AND TOOTH SUPPORTED) FIXED PROSTHESIS.
- APPLICABILITY TO YOUR PATIENT
 - STUDY USES PATIENT REPORTED OUTCOMES, WHICH ARE IMPORTANT TO THINK ABOUT FOR A PATIENT CONCERNED WITH ESTHETICS.
- IMPLICATIONS
 - THIS STUDY SHOWS THAT IMPLANT-SUPPORTED FPDs DO YIELD HIGH PATIENT SATISFACTION, AND THEY ARE AN ESTHETIC OPTION FOR PATIENTS SEEKING REHABILITATION OF TEETH IN THE ESTHETIC ZONE.

ARTICLE 2 CITATION, INTRODUCTION

- CITATION:
 - WÖHRLE P. S. (2014). PREDICTABLY REPLACING MAXILLARY INCISORS WITH IMPLANTS USING 3-D PLANNING AND GUIDED IMPLANT SURGERY. *COMPENDIUM OF CONTINUING EDUCATION IN DENTISTRY (JAMESBURG, N.J. : 1995)*, 35(10), 758–768.
- STUDY DESIGN:
 - CASE REPORT
- STUDY NEED / PURPOSE:
 - THIS STUDY ADDRESSED THE RESTORATIVE CHALLENGES OF MAXILLARY ANTERIOR IMPLANT CASES AND AIMED TO ASSESS THE PREDICTABILITY OF AN ESTHETIC OUTCOME.

ARTICLE 2 SYNOPSIS

- METHOD:
 - THIS STUDY FOLLOWS THE TREATMENT OF A 20 Y.O. FEMALE WHO IS HAVING HER MAXILLARY INCISORS EXTRACTED.
 - VIRTUAL DIAGNOSTIC TREATMENT PLANNING AND PATIENT COMMUNICATIONS PROGRAM USED TO PLAN SURGERY.

ARTICLE 2 SYNOPSIS

- RESULTS:
 - SOFT-TISSUE ARCHITECTURE AND HEALTH WERE MAINTAINED THROUGHOUT TREATMENT.
 - SOME PAPILLA AND BONE HEIGHT LOST POST-INSERTION
- CONCLUSION:
 - THREE-DIMENSIONAL PLANNING IS A HIGHLY PREDICTABLE WAY TO DELIVER IMPLANTS WHEN PRECISION IS REQUIRED.
- LIMITATIONS:
 - THIS STUDY ADDRESSES THAT SEVERAL FACTORS MUST BE TAKEN INTO ACCOUNT WHEN PLANNING SUCH A CLINICALLY CHALLENGING REHABILITATION IN THE ESTHETIC ZONE. A SINGLE TECHNIQUE/ PROGRAM WILL NOT LEAD TO A PERFECT OUTCOME FOR ALL PATIENTS.

ARTICLE 2 SELECTION

- REASON FOR SELECTION:
 - CONTAINS INFORMATION REGARDING HOW TO ACHIEVE AN ESTHETIC OUTCOME FOR IMPLANT-FIXED ANTERIOR RESTORATIONS.
- APPLICABILITY TO YOUR PATIENT:
 - STUDIES A PATIENT WHO ALSO IS MISSING MAXILLARY ANTERIOR TEETH AND EXHIBITS A HIGH SMILE LINE.
- IMPLICATIONS:
 - USING THREE-DIMENSIONAL PLANNING AND GUIDED SURGERY FOR IMPLANT SUPPORTED RESTORATIONS YIELDS A MORE PREDICTABLE OUTCOME, WHICH IS PARTICULARLY USEFUL IN CASES WHERE ESTHETICS ARE A CONCERN.

ARTICLE 3 CITATION, INTRODUCTION

- CITATION:
 - BIDRA, A. S., AGAR, J. R., & PAREL, S. M. (2012). MANAGEMENT OF PATIENTS WITH EXCESSIVE GINGIVAL DISPLAY FOR MAXILLARY COMPLETE ARCH FIXED IMPLANT-SUPPORTED PROSTHESES. *THE JOURNAL OF PROSTHETIC DENTISTRY*, 108(5), 324–331. [HTTPS://DOI.ORG/10.1016/S0022-3913\(12\)60186-3](https://doi.org/10.1016/S0022-3913(12)60186-3)
- STUDY DESIGN:
 - NARRATIVE REVIEW
- STUDY NEED / PURPOSE:
 - TO PROVIDE AN OVERVIEW OF THE ETIOLOGY, DIAGNOSIS, TREATMENT PLANNING, AND OPTIONS FOR MANAGEMENT OF PATIENTS WITH EXCESSIVE GINGIVAL DISPLAY WHO SEEK MAXILLARY COMPLETE ARCH FIXED IMPLANT-SUPPORTED PROSTHESIS.

ARTICLE 3 SYNOPSIS

- METHOD:
 - THIS STUDY REVIEWS MANAGEMENT OPTIONS SUCH AS OSTECTOMY PROCEDURES, LEFORT I OSTEOTOMY, PRE-PROSTHETIC ORTHODONTIC INTRUSIONS, AND PLASTIC SURGERY PROCEDURES.
- RESULTS:
 - ALL OF THESE PROCEDURES CAN BE USEFUL IN MANAGING PATIENTS WITH EXCESSIVE GINGIVAL DISPLAY WITH VARIOUS PRESENTATIONS AND TREATMENT PLANS.

ARTICLE 3 SYNOPSIS

- CONCLUSIONS:
 - PATIENTS PRESENT IN VARIOUS WAYS, SO IT IS PARTICULARLY IMPORTANT TO SUCCESSFULLY COMMUNICATE WITH YOUR PATIENT BEFORE EMBARKING ON AN EXPENSIVE AND POTENTIALLY INVASIVE TREATMENT.
- LIMITATIONS:
 - THIS ARTICLE ADDRESSED MANAGEMENT OF PATIENTS WITH EXCESSIVE GINGIVAL DISPLAY WITH A FULL ARCH IMPLANT PROSTHESIS, RATHER THAN SINGLE UNITS.


ARTICLE 3 SELECTION

- REASON FOR SELECTION:
 - PROVIDES VALUABLE INFORMATION REGARDING MANAGEMENT OF EXCESSIVE GINGIVAL DISPLAY. APPLICABILITY TO YOUR PATIENT
- APPLICATION TO YOUR PATIENT:
 - OUR PATIENT RECEIVED AN IMMEDIATE RPD, WHICH DID NOT MEET HER ESTHETIC DEMANDS. THIS ARTICLE HELPS ADDRESS HOW TO MANAGE SUCH PROBLEMS.
- IMPLICATIONS:
 - PATIENTS WITH EXCESSIVE GINGIVAL DISPLAY CAN PRESENT IN VARIOUS WAYS AND HAVE VARIOUS TREATMENT GOALS AND EXPECTATIONS. THIS STUDY NOTES THAT SUCCESSFUL COMMUNICATION WITH THE PATIENT IS CRITICAL BEFORE PROCEEDING WITH TREATMENT.

LEVELS OF EVIDENCE

- ☒ **1a** – Clinical Practice Guideline, Meta-Analysis, Systematic Review of Randomized Control Trials (RCTs)
- ☐ **1b** – Individual RCT
- ☐ **2a** – Systematic Review of Cohort Studies
- ☐ **2b** – Individual Cohort Study
- ☐ **3** – Cross-sectional Studies, Ecologic Studies, “Outcomes” Research
- ☐ **4a** – Systematic Review of Case Control Studies
- ☐ **4b** – Individual Case Control Study
- ☒ **5** – Case Series, Case Reports
- ☒ **6** – Expert Opinion without explicit critical appraisal, Narrative Review
- ☐ **7** – Animal Research
- ☐ **8** – In Vitro Research

STRENGTH OF RECOMMENDATION TAXONOMY (SORT)

<input type="checkbox"/>	A – Consistent, good quality patient oriented evidence
	B – Inconsistent or limited quality patient oriented evidence
<input type="checkbox"/>	C – Consensus, disease oriented evidence, usual practice, expert opinion, or case series for studies of diagnosis, treatment, prevention, or screening

CONCLUSIONS: D3

HOW DOES THE EVIDENCE APPLY TO THIS PATIENT?

- THE **LITERATURE** PROVIDES EVIDENCE IN FAVOR OF IMPLANT SUPPORTED FIXED PROSTHESIS FOR THE REHABILITATION OF THE PATIENT'S MISSING MAXILLARY ANTERIOR TEETH
- THE **PROSTHODONTIST** SUGGESTS THAT THE THE FIXED PARTIAL DENTURE WILL RESULT IN A MORE ESTHETIC OUTCOME.
- DUE TO THE PATIENT'S NARROW ARCH WIDTH AS WELL AS FINANCIAL LIMITATIONS, THE **PATIENT** HAS OPTED TO PROCEED WITH A REMOVABLE PARTIAL DENTURE

BASED ON THE ABOVE CONSIDERATIONS, HOW WILL YOU ADVISE YOUR D4?

- I WILL ADVISE THE D4 TO RECOMMEND AN IMPLANT SUPPORTED PROSTHESIS TO THE PATIENT.

CONCLUSIONS: D4

BASED ON YOUR D3'S BOTTOM LINE RECOMMENDATIONS, HOW WILL YOU **ADVISE** YOUR PATIENT?

-I WOULD ADVISE MY PATIENT THAT GIVEN HER NARROW ARCH FORM AND FINANCIAL LIMITATIONS, A RPD WOULD BE HER BEST OPTION. IF IT WASN'T FOR THE NARROW ARCH FORM, I WOULD RECOMMEND AN FPD AS THEY HAVE MORE PREDICTABLE ESTHETIC OUTCOMES COMPARED TO IMPLANT FIXED PROSTHESES.

HOW WILL YOU **HELP** YOUR PATIENT?

-DIRECTING THE PATIENT TO MAKE AN INFORMED DECISION ABOUT HER FINAL TREATMENT OUTCOME AND RESPECTING HER WISHES.

DISCUSSION QUESTIONS?

