OFFICIAL TITLE:

Comparison of freeze-dried amniotic membrane (FD-AM) and collagen membrane (CM) in soft tissue healing after stage 1 implant surgery with particulate grafting: An *in vivo* study.

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Part A: PERSONAL DETAILS

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Part B:

CONTENTS

1. INTRODUCTION

Soft tissue healing after implant surgery assumes great importance as it predisposes to providing for a healthy bone healing and therefore subsequent osseointegration of the implant within bone and also provides for a good emergence profile and healthy peri implant tissue around the implant. In many cases of immediate implant placements, and quite often in delayed implant placement, grafting with bone substitutes is necessitated to fill up the jumping distance and augment hard and soft tissues around the implant.

The overall goal that reestablishes a healthy periodontal situation is achieved through the surgical techniques that have been refined and biomaterials and growth factors that are applied to support the natural process of wound healing and repair/regeneration. A barrier membrane is absolutely mandatory to isolate the graft material and also stabilize the graft material till osteogenesis occurs. Barrier membrane functions as a physical support to the surrounding soft tissue, preventing the collapse of this space that will be filled by the blood clot which is necessary for bone formation. It possesses permeability that allows diffusion of plasma and nutrients and thereby prevents the passage of non-osteogenic cells. It also provides biocompatible integration with the host tissue without creating inflammatory responses and acts as a powerful therapeutic tool in the correction of bony defects.

Non-absorbable membranes need additional surgical intervention requiring removal and hence may cause wanton disruption of the regenerative process. Such disruption does not occur when absorbable membranes are used as they are degraded by the body through enzymatic hydrolysis, triggered by the inflammatory infiltrate that forms around the material.

Amniotic membrane, which protects the foetus from infections and trauma by serving as a natural barrier has some biological properties which reduces adhesion and scarring, modulate angiogenesis, promote wound healing by epithelisation. Freeze-dried amniotic membrane (FD-CM) has low

immunogenicity and beneficial re-epithelialization effects, with anti-inflammatory, anti-fibrotic, anti-microbial and non-tumorigenic properties. It is semi-transparent, fragile, paper-thin membrane.

Collagen membrane (CM) is a barrier membrane in which collagen type 1 is the major component. Collagen has many features including low immunogenicity, good hemostatic capacity, a chemotactic action on regenerative cells such as fibroblasts and osteoblasts and good dimensional stability. Among the different available resorbable membranes, collagen membranes may account on a very sound scientific background and a largely validated clinical employment.

The ability of the gingival tissue to cover any underlying material is essential for attaining aesthetic results in implant, regenerative and restorative dentistry. However, there is paucity of data in literature regarding soft tissue healing when augmented by biologically active barrier membranes such as FD-CM, particularly in relation to grafted implant sites. Hence this study aims to investigate the healing potential of FD-AM and CM in gingival tissue healing and in doing so it presumes to provide directions to the clinicians to decide a definitive clinical treatment protocol.

2. AIM

To assess and compare the soft tissue healing in bone grafted implant sites with freeze dried Amniotic Membrane (FD-AM) and Collagen Membrane (CM).

3. OBJECTIVES

- To assess the soft tissue healing around grafted implant sites with FD-AM.
- To assess the soft tissue healing around grafted implant sites with CM.

- To compare the healing potential of FD-AM and CM using Early Healing Score (EHS).
- To assess patient comfort and pain in the post operative wound healing process using Visual Analog Scale (VAS).

4. REVIEW OF LITERATURE

1. Ines Velez *et al*., (2010) conducted a pilot study on cryopreserved amniotic membrane for modulation of periodontal soft tissue healing. This study investigated lesion size, epithelization, infection, pain, inflammation and scarring. Clinical evaluation was done at baseline, 72 and 144 hours, 2 weeks, 1,1.5,3 months across the period of twenty months in 15 patients who had two bilateral implant placements in a single clinical session. They noted epithelization which was measured on a 0 to 2 ordinal scale was faster on the membrane side in the first week of the surgery, highest on first three days. As when healing progressed, the wound size on the membrane side decreased faster than the control group. Inflammation and adverse effect were equivalent in both experimental and control side. Scarring was the only outcome measure that did not reach equivalence in the long-term evaluations. However, statistically significant differences regarding the cicatrisation were noted after 6 days (144 hours) and the two groups were equivalent thereafter. The experimental group achieved the desired outcomes of wound healing and being pain-free sooner than the control group.

2. Eiti Agarwal *et al*., (2022) conducted a clinico-radiographic study on Comparative evaluation of the efficacy of amniotic membrane with collagen membrane along with demineralized freeze-dried bone allograft in the treatment of periodontal intrabony defects. They evaluated and compared clinical and radiographic outcomes obtained with amniotic

membrane (AM) and collagen membrane (CM) in combination with open flap debridement + DFDBA in the treatment of intrabony defects. A total of 20 patients who were systemically healthy under the age group 25-55 years were selected and allocated in two groups randomly. They used DFDBA with Particle size 500 μm–1040 μm, AM with 3 cm × 3 cm, Type I bioresorbable CM, Healiguide 15mm × 20mm. In group, AM hydrated with normal saline and DFDBA were placed and CM is replaced by AM in group 2. Sutures were removed after 10 days and all parameters recorded at 3, 6 months. They concluded that both the groups have shown significant improvement from the baseline data at 6 months, but on the intergroup comparison, no significant difference was seen between both the groups at 6 months follow-up. To substantiate the improvement in clinical parameters, radiographic measurements were done using Vista scan DBSWIN software and found statistically significant bone fill in Group 1 and Group 2. The allogenic membrane (AM) had exceptional characteristics, including bacteriostatic effects, wound protection, and epithelialization effects, making it potentially better from frequently used biodegradable barrier membrane.

3. Kriti Hazarika *et al*., (2022) conducted a Prospective Clinical Study on Lyophilised Amniotic Membrane in Intraoral Surgical Defects. They evaluated the healing of oral mucosal defects after application of lyophilised amniotic membrane. Fifteen patients with oral precancerous lesions were included in this study. Lyophilised amniotic membrane was applied to the intraoral surgical defect, after wide excision of the lesion. The effectiveness of the lyophilised AM was evaluated by scoring the following parameters: operability, haemostatic status, pain, feeding situation, epithelialisation, change in mouth opening, mucosal suppleness and safety. They concluded that the lyophilised amniotic membrane has

been found to be effective in this study after evaluation of the parameters. No infection or allergic reaction was noticed after application of the lyophilised amniotic membrane in intraoral surgical defects.

5. RATIONALE

There is a paucity of data in literature regarding soft tissue healing when augmented by biologically active barrier membrane such as FD-AM, particularly in relation to bone grafted implant site. Hence this study hopes to explore the healing potential of FD-AM and CM and in doing so provide directives in assisting the clinician to decide on a definitive clinical treatment protocol.

6. STUDY QUESTION / HYPOTHESIS

Null Hypothesis

There would exist no significant difference in the quality of soft tissue healing between FD-AM and CM following particulate grafting after stage 1 implant surgery.

7. METHODOLOGY

7.1 SETTING

Primary setting:

Department of Advanced Dental Sciences, Rajas Dental College and Hospital.

7.2 STUDY DESIGN: [Reference: Annexure 1]

Interventional Study.

7.3 METHOD OF ALLOCATION OF TREATMENT

Randomization.

7.4 BLINDING:

- Healing evaluated by a third operator who will be unaware of allocation between FD-AM and CM sites.

7.5 CRITERIA FOR SAMPLE COLLECTION

INCLUSION CRITERIA

- Bilateral posterior maxillary edentulous area: zone 2 -premolar region (The Bedrossian zone classification of the maxilla)
- Patients with teeth requiring extraction and those qualifying for immediate implant placement in the bilateral posterior edentulous area.
- Patients with ridge defect (Based on Siebert's ridge classification, class 2 and class 3) qualifying for delayed implant placement in the bilateral posterior edentulous area.
- Age limit 25-55 years with equal gender distribution.

EXCLUSION CRITERIA

- Smoking
- History of systemic illness which may have effect on bone turnover such as Hyperthyroidism (Normal values: T4 ranges from 5.0-12.0 µg/dl, T3 ranges from 80-220 ng/dl), Type I diabetes mellitus (HbA1C greater than 6%), Cushing's disease, Hyperlipidaemia.
- Pregnancy.
- Lactating mothers.
- Pre-existent periodontal disease.
- Known Allergies.
- Blood borne diseases (HIV, HBsAg).
- Vitamin D level less than 30 ng/ml.

7.6 TREATMENT ARMS

FD-AM AND CM COMPARATIVE STUDY

ARM 1: Soft tissue healing following particulate grafting after stage 1 implant surgery using FD-AM.

ARM 2: Soft tissue healing following particulate grafting after stage 1 implant surgery using CM.

7.7 SAMPLE SIZE

Sample Size Calculation:

Based on Hypothesis testing means with equal allocation using G Power sample size calculator software (Ines Velez *et al*., 2010)

t tests - Means: Difference between two dependent means (matched pairs)
Analysis: A priori: Compute required sample size
Input: Tail(s) = Two
Effect size dz = 0.50
α err prob = 0.05
Power (1-β err prob) = 0.80
Output: Noncentrality parameter δ = 3.3203915
Critical t = 2.2621572
Df = 9
Total sample size = 10
Actual power = 0.8393081
Sample Size = **10**

7.8 MATERIALS

1. DMBM- XENOGRAFT (Type 1 collagen granules, Osseograft).
2. FREEZE DRIED AMNIOTIC MEMBRANE (2cm x 2cm) procured from tissue bank of Tata Memorial Hospital, Mumbai, India. (Transported in an athermic container, certified to ensure temperature maintenance, stored at room temperature +15 ℃ and +30℃ protected from light).

3. HEALIGUIDE (Type 1 collagen membrane) 15mm x 20mm procured from Advanced Biotech Products(P)Ltd.

7.9 METHODOLOGY

For the comparison of freeze-dried amniotic membrane and collagen membrane, 10 partially edentulous in bilateral posterior region who fulfil all the requirements of inclusion and exclusion criteria will be selected. Peri oral scrubbing will be done using 5% povidone iodine and patient will be draped.

Local anaesthesia with 2% solution of lignocaine hydrochloride with 1:80,000 adrenaline will be administered intraorally as infiltration and as per the anatomical requirement of the surgical site. Mid-crestal and interdental sulcular incisions will be given, followed by the reflection of full thickness mucoperiosteal flaps. In immediate implant placement, the teeth will be carefully extracted atraumatically using forceps or periotome to protect and preserve the alveolar bone. Care will be taken to preserve the buccal and lingual cortical plates.

In delayed implant placement, corticotomy will be performed if needed, sequential drilling will be carried on until the desired dimensions achieved depending on the selected implant size and the implant will be placed. The jumping space in immediate implant placement and the space after corticotomy for the ridge defect in case of delayed implant placement will be filled with DMBM- XENOGRAFT (Type 1 collagen granules, Osseograft).

A split mouth study design will be followed and simple randomization by coin toss method will be done. In all 10 participants, FD-AM will be placed over the graft in one side and CM will be placed in the other side over the graft. Flap closure will be done with simple interrupted sutures using 3-0 silk suture material. Participants will be recalled at 7^{th} day and 14^{th} day. Early healing score will be evaluated by the third operator who will be unaware of the group

allocation and between FD-AM and CM site. Subjective evaluation of Visual Analog Scale will be done on 7th and 14th day to analyse the pain.

PLAN FOR ANALYSIS

EHS (Early Healing Score)

The EHS is composed of 3 parameters:

- Clinical signs of re-epithelization (CSR).
- Clinical signs of haemostasis (CSH).
- Clinical signs of inflammation (CSI).

Zero, 3, or 6 points will be used to evaluate CSR whereas Zero, 1, or 2 points will be used to evaluate CSH and CSI. The summation of the points of these 3 parameters will generate the EHS. The EHS for ideal wound healing will be 10 points, while the worst possible score would be 0 points. Briefly,

• **CSR**: 0 points, visible distance between incision margins; 3 points, incision margins in contact; 6 points, merged incision margins.

• **CSH**: 0 points, bleeding at the incision margins; 1 point, presence of fibrin at the incision margins; 2 points, absence of fibrin on the incision margins.

• **CSI**: 0 points, redness involving >50% of the incision length and/or pronounced swelling; 1 point, redness involving <50% of the incision length; 2 points, absence of redness along the incision length.

For each parameter, the worst score observable will be registered by a third and blinded operator so as to prevent bias.

An EHS of 0 points will be assigned if there is suppuration, independently of the ratings for the 3 single parameters.

For CSR, the clinical signs assessed were merging, approximation, and distance of margins, which represent the progress of reepithelialisation.

EHS was only assessed in vertical releasing incisions in order to better standardize the evaluation.

VAS (Visual Analog Scale) [Reference: Annexure 2]

Numerically: With a numbered scale, such as a 1-to-5 or 1-to-10 scale.

Ideographically: With pictures, such as icons or emojis that display increasing emotions.

Visually: With a continuous line, marked with some low-to-high descriptors.

Colour Coding: Traffic-light colour coding schemes are typically used. Red = bad. Yellow = neutral. Green = good.

The pain perception from the patient will be noted after 1 week on the day of suture removal and on 14^{th} day using visual analogue scale (VAS) values ranging from 0 to 10.

8. PROPOSED STATISTICS

Study data obtained will be entered to Microsoft Excel Software, which then will be exported to Statistical Package for Social Sciences (SPSS) Version 26, IBM Statistics, USA. Descriptive Statistics (Mean, Standard Deviation and Percentages) will be obtained. Intergroup comparison for EHS and VAS will be done by using Unpaired T test and Intragroup comparison for EHS and VAS will be done by using Paired T test. Level of significance will be set at 5% ($p < 0.05$ = Statistically Significant).

9. EXPECTED OUTCOME OF THE STUDY

We propose that freeze-dried amniotic membrane can be used to promote soft tissue healing which is similar to collagen membrane in its biological properties during healing.

10. ETHICAL ISSUES:

- Investigation/intervention needs patients or human subjects/materials (Enclosed Subject information and consent form) [Reference: Annexure 3]
- Questionnaire Study: (Enclosed the Questionnaire Copy) [Reference: Annexure 4]

WORK PLAN (Including Time Frame):

- **Total Time Period**: 1 year (June 2024- June 2025)
- **Ethical Clearance**: June 2024
- **Data Collection**: July 2024 – February 2025 (Tentative)
- **Data Entry and Statistical Analysis**: March 2025
- **Dissertation Writing**: April 2025
- **Dissertation Submission**: March 2026

11. EXPECTED EXPENDITURE

Procedure	**Expected expenditure**
DMBM-XENOGRAFT (Osseograft)	Rs.25,000
Cryopreserved amniotic membrane	Rs. 20,000
HEALIGUIDE	Rs. 20,000
Total	**Rs. 65,000**

12. REFERENCES

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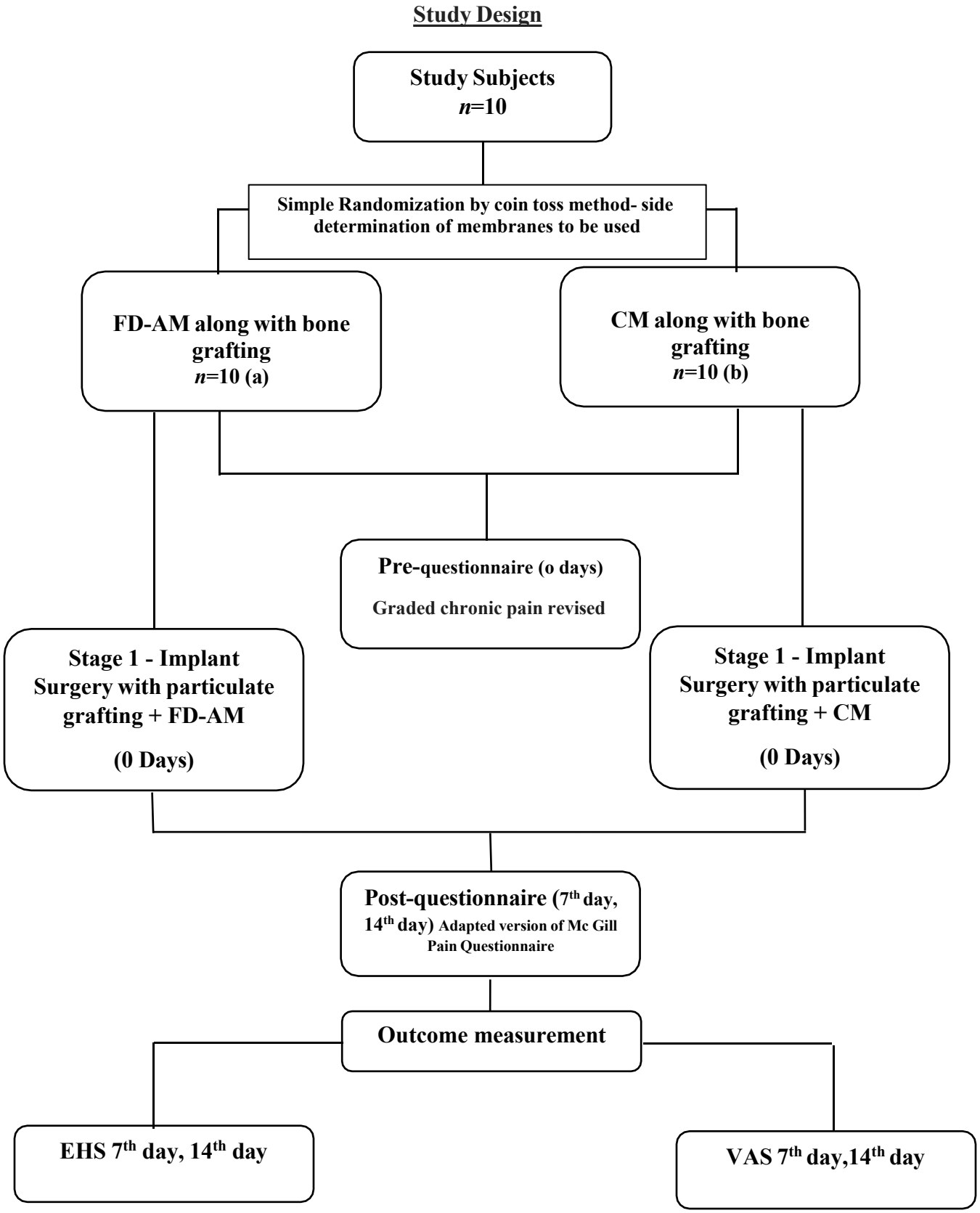
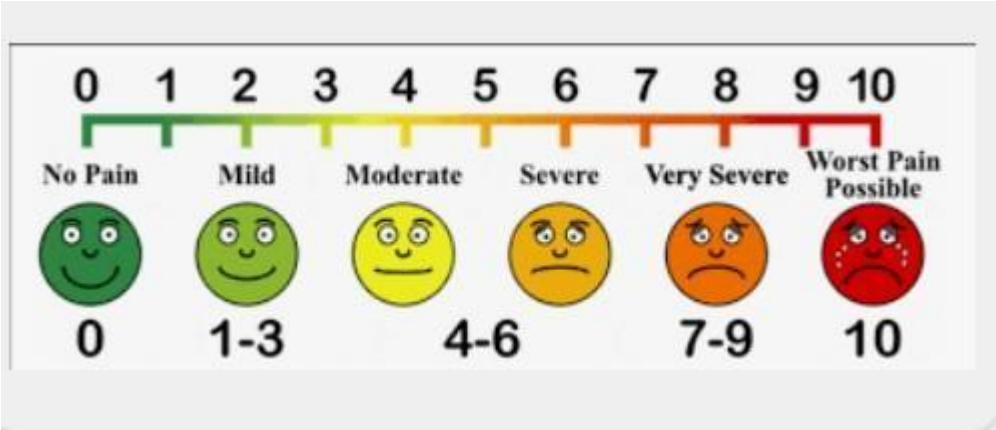
13. ANNEXURE I:



*EHS-Early healing score; VAS-Visual Analog Scale; FD-AM- Freeze-dried Amniotic Membrane; CM- Collagen membrane.

ANNEXURE II:

VISUAL ANALOG SCALE (VAS)



0	2	4	6	8	10
Very happy, no hurt	Hurts just a little bit	Hurts a little more	Hurts even more	Hurts a whole lot	Hurts as much as you can imagine (don't have to be crying to feel this much pain)

ANNEXURE III:

Subject information and consent form

Comparison of freeze-dried amniotic membrane (FD-AM) and collagen membrane (CM) in soft tissue healing after stage 1 implant surgery with particulate grafting: An *in vivo* study.

Qualified investigator: Dr. Saranya R.

Guide: Prof. Dr. Alex Mathews Muruppel.

Introduction:

You are been invited to take part in the thesis study (an in vivo study). This study will compare freeze-dried amniotic membrane (FD-AM) and collagen membrane (CM) in gum healing in your mouth after stage 1 implant surgery with particulate grafting**.** It is your choice if you want to be in the study or not. This form explains why we are doing this study, and how the treatment is offered to you. It tells you what will happen during the study. It also gives you the complete description of the treatment offered. This information will help you decide whether you wish to be part of the study.

What is the purpose of the study?

The main purpose of this study is to assess and compare gum healing in implant placed sites with the two membranes (freeze-dried amniotic membrane and collagen membrane).

Who can take part in this study?

To take part in this study, you should have a missing tooth on either side of back tooth region and if your age is between 25-55 years with equal gender distribution. The study doctor has discussed with you the requirements for being in this study. It is important that you are completely honest with the doctor

about your health history. You should not take part in this study if you do not meet all requirements.

You cannot participate in this study if,

- You are Smoking.
- You have had any systemic illness.
- You are Pregnant or Lactating mother.
- You have had Pre-existent gum disease.
- You are known to have allergies to various medications such as antibiotics (Penicillin) and pain medication such as Ibuprofen or Paracetamol.
- You have had any Blood borne diseases (HIV, HBsAg).
- You have vitamin D level less than 30 ng/ml.

If you are a woman and could become pregnant, you must talk to the study doctor, must avoid getting pregnant for 3 months till the study is completed.

What does the study involve?

About 10 participants will be taking part in this study.

Your participation in this study is expected to last until you or your dentist decides that there is no clear benefit for you to continue treatment. However, your dentist will ask you afterwards to visit him on regular basis to follow up on your health status. The expected minimal trial duration would be approximately 21 days.

If you decide to take part in this study, the procedures and visits you can expect are explained in the attachment called study procedures- Attachment 1. This will give you information about what taking part in the study will remain to you, for example, how often you have to come to see the study doctor, how long each

visit might take, when blood samples will be taken, when procedures will be performed.

Treatment assignment

In this trial, stage 1 implant surgery is performed with the respective membranes (FD-AM and CM) placed over the graft.

If you have benefited from this treatment, you will be asked to report for the stage 2 implant procedure. Whatever treatment you are assigned to, you will receive best supportive care (BSC) which is defined as treatment given to maximize quality of life.

The side which membrane will be used will be determined by chance. Once you are assigned, researcher will make you know the details. Afterwards, your study doctor will ask you to visit him to follow-up on your implant status.

Study procedures:

Peri oral scrubbing will be done using 5% povidone iodine and patient will be draped, local anaesthesia with 2% solution of lignocaine hydrochloride with 1:80,000 adrenaline will be administered intraorally as infiltration and as per the anatomical requirement of the surgical site, incisions will be given, followed by the reflection of flaps. Sequential drilling will be carried on until the desired dimensions achieved depending on the selected implant size and the implant will be placed. The gap between the implant and bone and your bone will be filled with artificial bone substitute called graft.

Both membranes will be placed on their respective sites based on randomization. Flap closure will be done with simple interrupted sutures using 3-0 silk suture material. Participants will be recalled at 7^{th} day and 14^{th} day. Early healing score will be evaluated by the third operator and you will be asked to evaluate Visual Analog Scale on 7^{th} and 14^{th} day to analyse the pain.

What are the possible harm and side effects?

If you take part in this study, there will no harm or risks to you because of the membrane.

Commonly expected complications due to implant placement.

- Infection at the implant site
- Injury or damage to surrounding structures, such as other teeth or blood vessels.
- Nerve damage, which can cause pain, numbness or tingling in your natural teeth, gums, lips or chin.
- Sinus problems, when dental implants placed in the upper jaw protrude into one of your sinus cavities.

Risks and discomforts associated with study procedures

Blood tests

You might experience some temporary discomfort when the blood sample is taken. There is a small risk of bruising, infection or swelling at the site where the needle is inserted and you might feel faint and dizzy.

CBCT

The x rays are painless. Rough radiation dosage will be 64-80 μSv. If you have any trouble during the test, you should tell the scanner operator right away. CBCT scans are strictly controlled to make sure they use the least amount of radiation. CBCT scans do create low levels of radiation, which have low potential to cause cancer and other defects. But, the risk with any individual scan is small. The risk increases as the number of x-rays are done.

Other risks

There may risks of allergy while using the membrane for this study. You must tell your dentist about any medications you are currently taking. You should also consult with your dentist before taking any new medications.

What if any new information becomes available?

You will be told about any important new information that is found during this study that might affect your health, well-being or willingness to stay in the study.

Will this study help me?

Although, the membrane FD-AM and CM is being tested as possible treatment as a barrier membrane, you may potentially benefit from taking part in this study by being endowed with sound and healthy gum tissue. You might feel better.

Information obtained from this study will benefit the researcher, that might help the patients in future.

You do not have to take part in this study to be treated with barrier membrane. There are other options available to you. Your researcher can discuss these treatments and therapies with you.

Do I have to take part in this study?

Your taking part in this study is entire voluntary. Whether or not you take part is completely up to you to decide. You will continue to receive the best possible care no matter what you decide.

If you choose to take part and later change your mind, you can stop participating at any time. A decision to stop being in the study will not affect how treatment is provided to you. If you decide to stop the treatment, please talk to your dentist. They will tell you about any other treatments, and arrange to continue your usual care.

Your dentist might decide, at any time and for any reason, to stop your taking part in the study, even though you might want to continue. Researcher will explain why you must stop and arrange for your healthcare to continue.

Treatment and compensation for injury

To the extent that provincial insurance does not cover physical injury caused by any substance or procedure properly given under the plan of this study. Signing this form does not mean you have to give up any of your legal rights. The study doctor, sponsor or hospital would still have legal and professional responsibilities to you.

What will the study cost me?

Membrane material and implant material will be borne by the researcher and prosthetic phase materials will be borne by you.

Who is paying for the thesis study?

The person who will undergo the treatment and the researcher will pay for the thesis study.

Who do I contact if I want to report health problems or have questions?

If you have any injury, bad effect, or any other unusual health experience during this study, make sure that you immediately tell the researcher. You can call at any time, day or night, to report such health experience.

If you have any questions about this study or your rights, please contact Dr. Saranya R (9791197137)

If you have any questions about your rights as a thesis study subject, please contact Dr. John Hearty Deepak (9894440202)

Will my taking part in this study be confidential?

The study doctor will handle your personal health information in a confidential manner. Your health information will be used and disclosed as explained in the following data privacy statement.

In this section “personal health information” means information about a person that relates to things like the person’s physical or family health history, health care or health care provider or substitute decision maker and that directly identifies the person, and study data means study related health information that does not directly identify a person (that is it does not contain the person’s name, address, health number or identifying information)but that does contain an assigned code number for the person and/or the person’s initials.

By signing the consent document of this study, you will give permission for the uses and disclosures of your personal health information that are described in this data privacy statement. If you do not want to allow these uses, you should not participate in this study.

If you agree to participate in this study, your personal health information and study data will be maintained used and shared in the following ways:

- The study monitor, the clinical thesis researcher and regulatory authorities might have access to your personal health information. This may include the information from your health records such as your medical history, all lab results, specialist reports and medications that you have been on in the past or currently. The records will be kept and disposed of in accordance with all applicable laws and regulations.
- The study de will send your study data to the material sponsor, its associated companies and its representatives.
- Your study data will be used for the research purposes to support the scientific objectives of the study. Your study data, either alone or combined with data from other studies, might be shared with regulatory authorities in India such as health care department, government agencies from other countries, as well as ethics review board overseeing this study.
- Study data (which does not identify you) might be published in medical journals or shared with other as part of scientific discussions.

- To the extent permitted by applicable law, the study doctor, the ethic review board, health care of India, regulatory agencies in other countries, might review your original health records, which contains the information that directly identifies you, to verify the accuracy and completeness of the study data collected during the study.

  You will have the right to see and copy your personal health information related to the study for as long as the study doctor or research institution holds this information, subject to applicable laws. However, you will not be able to see or copy this information until after the study has been completed.

  You may withdraw your permission at any time by providing notice to the study dentist. They will no longer use or share your personal health information in connection with the study. Unless to ensure that the study is scientifically reliable.

Subject Information and Consent Form

Signature page

To take part in this study and to allow the use and disclosure of my personal health information for the purpose of this study, I must sign and date this page.

By signing this page, I confirm the following:

- I give permission for my personal health information and study data to be maintained, used and shared as described in this document.
- I have read the subject information and consent form, and have had time to think about whether or not I want to take part in this study.
- All of my questions about the study or this form were answered to my satisfaction. If I did not understand any of the words in this form, the study doctor explained them to me.
- I voluntarily agree to take part in the study, to follow the study procedures, and to provide necessary information to the study doctor as requested.
- I understand that I may freely choose to stop being a part of this study at any time.

I have received a copy of the Subject Information and Consent Form.

_____ _____

Signature of subject Date (dd/mm/yy)

subject must personally date

_____ _____

Subject's name subject number

_____ _____

Signature of the individual conducting Informed consent discussion

Date (dd/mm/yy)

_____

Name of the individual conducting Informed consent discussion

Study procedures (Attachment 1)

Study visit	Time between visits	Approximate visit length	Study procedures/activities
Baseline (visit 0)		3 hours	This visit will determine if you are eligible to participate in this study • Your consent will be requested before you participate in this study • Information on your health, medical and smoking history as well as medications you are taking will be collected. • Physical exam including weight, height, blood pressure, pulse will be recorded. • Blood samples will be taken. • Radiological exam(s) CBCT as applicable will be done. • You will be asked to complete the pre questionnaire for pain threshold.
visit 1	up to 1 week from base line	3 hours	• A split mouth study design will be followed and randomization will be done. • FD-AM will be placed over the graft in one side and CM will be placed in the other side over the graft after stage 1 implant surgery. • Flap closure will be done with simple interrupted sutures using 3-0 silk suture material.
Visit 2	After 7 days (7^{th} day from stage 1 implant	1 hour	• Early healing score will be evaluated by the third operator • You will be asked to evaluate pain on the Visual Analog Scale.

	surgery)		• You will be asked to complete the post pain questionnaire
Visit 3	After 7 days (14th day from stage 1 implant surgery)	1 hour	• Early healing score will be evaluated by the third operator • You will be asked to evaluate pain on the Visual Analog Scale. • You will be asked to complete the post pain questionnaire

INFORMED CONSENT FORM

ராஜாஸ் பல் மருத்துவக்கல்லூரி, காவல்கிணறு ஜங்ஷன்,
திருநெல்வேலி மாவட்டம்- 627 105.

ஒப்புதல் படிவம்

நான் மேற்குறிப்பிட்டுள்ள படிப்பிற்காள தகவல்களை பல் மருத்துவ பயிற்சியாளரிடம் கேட்டு புரிந்துகொண்டேன் என உறுதியளிக்கிறேன். மேலும் அவரிடம் இந்த படிப்பைக் குறித்த சந்தேகங்களைக் கேட்கவும் அதற்கான பதிலை பெறவும் எனக்கு முழு வாய்ப்பு அளிக்கப்பட்டது. அவரின் இந்த ஆராய்ச்சி படிப்பிற்கு என் முழு சம்மதத்தை தெரிவிப்பதோடு மட்டுமல்லாமல் இந்த ஆராய்ச்சி படிப்பின்போது அவர் தரும் வழிமுறைகளை கேட்டு அவருக்கு முழு ஒத்துழைப்பை அளிப்பேன் என்றும் உறுதியளிக்கிறேன்.

என்னைப்பற்றிய முழு விபரங்களை சட்டத்தின் அனுமதியில்லாமல் பிறர் அறிந்துகொள்ள முடியாது என்பதை நான் அறிவேன். என் உடல் நலம் சார்ந்த தகவல்களில் எந்தவித ஒளிவு மறைவு இல்லாமல் முழுமையாக அவரிடம் தெரியப்படுத்துவேன்.

இப்படிக்கு,

பல் மருத்துவ பயிற்சியாளரின் கையொப்பம்

தேதி:

INFORMED CONSENT FORM

- Patient's Identification No: _____ Patient's Name: _____
- Patient's DOB:_____ dd _____mm_____yyyy
- I confirm that I have read and understood the Information Sheet for the above study. I have had the opportunity to ask questions and all my questions and doubts have been answered to my complete satisfaction. I understand that my participation in the study is voluntary and that I am free to withdraw at any time, without giving any reason, without my legal rights being affected. I understand that the Clinical study personnel, the Ethics Committee and the Regulatory Authorities will not need my permission to look at my health records both in respect of the current study and any further research that may be conducted in relation to it, even if I withdraw from the study. I agree to this access. However, I understand that my identity will not be revealed in any information released to the third parties or published, unless as required under the law. I agree not to restrict the use of any data or results that arise from this study. I agree not to withhold any information about my health from the investigator and will convey the same truthfully.
- I agree to take part in the above study and to comply with the instructions given during the study and to faithfully co-operate with the study team and to immediately inform the study staff if I suffer from any deterioration in my health or wellbeing or any unexpected or unusual symptoms or any allergic reactions. I have been informed about the treatment protocol that would be done incase of any adverse reactions.
- I hereby consent to participate in this study & I understand that I'll be treated by surgical procedure under local anesthesia and I was well informed about the complications associated with it & I agree for the same.
- I consent to give my medical history, undergo complete physical examination and diagnostic tests.
- Signature / Thumb Impression: _____ Place _____ Date_____
- Patient's Name & Address: _____
- _____
- Signature of the Investigator: _____Place_____ Date_____
- Study Investigator's Name: _____
- Institution: _____
- * Signature of the Witness: _____Place_____ Date_____

ANNEXURE IV:

A) PRE-QUESTIONNAIRE

QUESTIONS	Patients		
	Yes	No	Unsure
1.Would you rate your oral health and management as good?			
2.Have you experienced toothache within last year?			
3.Do you have difficulty in opening your mouth wide?			
4. Do you have difficulty in moving your jaw from side to side?			
5.Do you have fatigue or muscle pain while chewing?			
6. Do you feel that your teeth do not articulate well?			
7.Do you consider yourself as a tense or nervous person?			
8.Do you currently use removable denture?			
9.Do have teeth with receding gums?			
10. How would you rate your facial pain on a 0 to 10 scale AT THE PRESENT TIME, that is right now, where 0 is “no pain” and 10 is “pain as bad as could be”. (Circle number) 0 1 2 3 4 5 6 7 8 9 10 No pain Pain as bad as could be			
11. In the PAST SIX MONTHS, how intense was your WORST facial pain? (Circle number) 0 1 2 3 4 5 6 7 8 9 10 No pain Pain as bad as could be			
12. In the PAST SIX MONTHS, on the AVERAGE, how intense was your facial pain? (That is, your usual pain at times you were experiencing pain.) (Circle number) 0 1 2 3 4 5 6 7 8 9 10 No pain Pain as bad as could be			
13.About how many days in the LAST SIX MONTHS have you been kept from your usual activities (work, school, housework) because of facial pain? (EVERY DAY = 180) 0 1 2 3 4 5 6 7 8 9 10 No pain Pain as bad as could be			

14) In the PAST SIX MONTHS, how much has facial pain interfered with your daily activities rated on a scale from 0 to 10, where 0 is “No interference” and 10 is “Unable to carry on any activities”? (Circle number)

0	1	2	3	4	5	6	7	8	9	10
No pain										Pain as bad as could be

15) In the PAST SIX MONTHS, how much has facial pain interfered with your ability to take part in recreational, social, and family activities? (Circle number)

0	1	2	3	4	5	6	7	8	9	10
No pain										Pain as bad as could be

16) In the PAST SIX MONTHS, how much has facial pain interfered with your ability to work (including housework)? (Circle number)

0	1	2	3	4	5	6	7	8	9	10
No pain										Pain as bad as could be

B) <u>POST- QUESTIONNAIRE</u>:

Adapted version of Mc Gill Pain Questionnaire.

Statement: Some of the following words below describe your present pain. Circle ONLY those words that best describe it. Leave out any category that is not suitable. Use only a single word in each appropriate category - the one that applies best.

GROUP	DESCRIPTOR	POINTS
1.What does your pain feel like?		
A) Constrictive pain	Pinching	1
	Pressing	2
	Gnawing	3
	Cramping	4
	Crushing	5
B) Traction pressure	Tugging	1
	Pulling	2
	Wrenching	3
C) Dullness	Dull	1
	Sore	2
	Hurting	3
	Aching	4
	Heavy	5
D) Incisive pressure	Sharp	1
	Cutting	2
	Lacerating	3
2. How does your pain change with time?	Continuous, steady, constant	1
	Rhythmic, periodic, intermittent	2
	Brief, momentary, transient	3
3.Which word describes your pain now?	Mild	1
	Discomforting	2
	Distressing	3
	Horrible	4
	Excruciating	5
4.Which word describes at its worst?	Mild	1
	Discomforting	2
	Distressing	3
	Horrible	4
	Excruciating	5
5.Which word describes at its least?	Mild	1
	Discomforting	2
	Distressing	3
	Horrible	4
	Excruciating	5
6.Pain in the	Gums only	1
	Tooth/teeth only	2

	Both gums and teeth/tooth	3
7.Pain for	Less than one week	1
	One week or longer	2
8.Pain radiation to the surrounding area	No, not at all	0
	Yes, a little	1
	Yes, completely	2
9.Pain worse when chewing or eating	No, not at all	0
	Yes, a little	1
	Yes, very much so	2
10.Gums swollen	No, not at all	0
	Yes, a little	1
	Yes, very much so	2

- Minimum Pain Score: 0 (would not be seen in a person with true pain)
- Maximum Pain Score: 48
- The Higher the pain score, the greater the pain.