

## **Surgical Excision Of Premalignant Lesion Oral Leukoplakia Followed By Guided Tissue Regeneration (GTR) Membrane Grafting – A Study Of 10 Cases.**

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**Abstract:** *Oral Leukoplakia is a premalignant lesion, which can convert to oral squamous cell carcinoma if untreated. Tobacco smoking is the most common aetiology of oral leukoplakia. Various medicinal treatment options have emerged to treat the oral leukoplakia, yet surgical treatment remains more result oriented. Guided Tissue Regeneration (GTR) membranes are widely used in periodontics because of their property to populate specifically the cells of regeneration. We have studied the surgical excision of leukoplakia and effects of GTR membrane grafting.*

**Key Words:** *Leukoplakia, Membrane*

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### **I. Introduction**

Schwimmer in 1877 first coined the term ‘leukoplakia’. The name derives from Greek and is a combination of two words: ‘Leukos’ means greyish white and ‘Plakos’ means patch.<sup>1</sup> Various definitions have evolved with time for leukoplakia. World Health Organisation in 2005 defined it as “a white plaque of questionable risk having excluded known diseases or disorders that carry no increased risk for cancer”.<sup>2</sup> The etiology of leukoplakia is considered multifactorial, but smoking is appreciated to be a frequently involved factor.<sup>3</sup> Clinically it is classified as early or thin, homogenous or thick, verruciform and speckled or erythroleukoplakia. Speckled type has highest risk of malignancy.<sup>4</sup> Nonsurgical treatment modalities include vitamins, antioxidants, bleomycin and photodynamic therapy, whereas surgical treatments are excision with grafting, LASER ablation and cryosurgery.<sup>5</sup>

Guided Tissue Regeneration (GTR) membranes are established as basic technique in periodontal regenerative medicine. GTR membranes fulfil the certain requirements essential for the membrane like bio compatibility, cell occlusiveness, tissue integration, space making and clinical manageability.<sup>6</sup>

### **II. Materials And Methods**

The study was approved by institutional ethical committee and Informed consents were obtained from all the cases participated in the study. The Ten systemically healthy patients were selected with clinical diagnosis of leukoplakia of buccal mucosa, labial mucosa and alveolar ridges (Table 1). Clinical diagnosis was confirmed with the help of punch biopsy, where the small punch of tissue was sent for microscopic examination. Routine haematological investigations were done.

Surgical excision of Leukoplakia was planned under local anaesthesia. All the cases were operated by the same surgeon. All universal precautions were followed. Lesion was made free from margins by incising it from surrounding normal mucosa. Gradual dissection was done underneath the lesion and lesion was removed by holding it with artery forcep and allis forcep (Fig. 1 and Fig. 2). Raw submucosa after excision of lesion was covered by sterile guided tissue regeneration membrane containing bioresorbable type 1 collagen (Fig. 2). Healing progress was observed after 7 days and after a month. All the patients are under follow up since a year and no recurrence has been found. Patients have also discontinued their tobacco consumption habits after treatment.

### **III. Results**

Healing was indexed according to healing index by Landry<sup>7</sup> after GTR membrane placement at the interval of 7 days (Fig. 3) and 30 days (Fig. 4). Healing progress was found very good to excellent in all the cases (Table 2).

### **IV. Discussion**

The aim of treating the premalignant lesion is to prevent malignant transformation and early diagnosis of malignancy for timely intervention. The major problem that the clinician has to face in the management of leukoplakia is the lesion is mostly asymptomatic.<sup>8</sup> In the evaluation of the patient, leukoplakia is a clinical diagnosis of exclusion.<sup>9</sup>

Traditional surgical modalities to treat the leukoplakia have included mucosal resection by means of so called stripping with graft coverage usually an autologous skin graft, local flap rotation and free mucosal grafts.<sup>10</sup> Follow up studies in Oral leukoplakia by L. Sugar et al showed that best result was achieved in the group of patients treated surgically.<sup>11</sup>

Grafting with GTR membrane has many biological advantages. GTR is conductive technique which facilitates the growth or regeneration of existing tissue.<sup>12</sup> We also found the very good result of native tissue healing after GTR placement. GTR mainly works on the concept of cell occlusion, by restricting the rapidly proliferating epithelial cells and allowing the cells of regeneration to regenerate the native tissue.<sup>13</sup> This concept can be applied in the treatment of premalignant lesions like leukoplakia where epithelial cells might have started showing dysplastic changes. GTR membranes having type 1 collagen has the following properties which make them good grafting material: (1) it controls the evaporation of fluid, keeping the wound pliable and flexible, (2) it promotes the development of granulation tissue, (3) it diminishes pain, (4) it provides mechanical protection against physical and bacterial insult.<sup>14</sup>

The recurrence rate of leukoplakia after local excision varies from 10-34 %.<sup>15</sup> In our operated patients we have not found any case of recurrence in one year follow up period.

#### V. Conclusion:

GTR membrane grafting after surgical excision of leukoplakia is promising treatment modality. Resorbable nature of membrane avoids second surgery. Compared to LASERs and Cryotherapy chances of hazards are very less and less technique sensitive. It is a good treatment option for surgical management of leukoplakia keeping in mind some basic precautions.

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**TABLES**  
**Table 1: DATA OF ALL THE PATIENTS**

Serial numbers (Patients)	Age/Sex	Site of lesion	Size of lesion (mm <sup>2</sup> )
1	46/M	Buccal mucosa	25*30
2	52/M	Buccal mucosa	15*22
3	38/M	Labial mucosa	12*17
4	62/F	Buccal mucosa	22*28
5	57/M	Buccal mucosa	30*35
6	53/F	Labial mucosa	10*13
7	48/M	Buccal mucosa	30*37
8	65/M	Buccal mucosa	27*32
9	74/M	Alveolar ridge mucosa	18*12
10	43/M	Buccal mucosa	23*27

**Table 2: POSTOPERATIVE HEALING**

Serial numbers (Patients)	Healing after 7 days		Healing after 30 days	
	Score	Inference	Score	Inference
1.	3	Good	5	Excellent
2.	4	Very Good	5	Excellent
3.	4	Very Good	5	Excellent
4.	4	Very Good	5	Excellent
5.	3	Good	5	Excellent
6.	4	Very Good	5	Excellent
7.	3	Good	5	Excellent
8.	4	Very Good	5	Excellent
9.	4	Very Good	5	Excellent
10.	4	Very Good	5	Excellent

**FIGURES**



Fig 1. Leukoplakia of right buccal mucosa

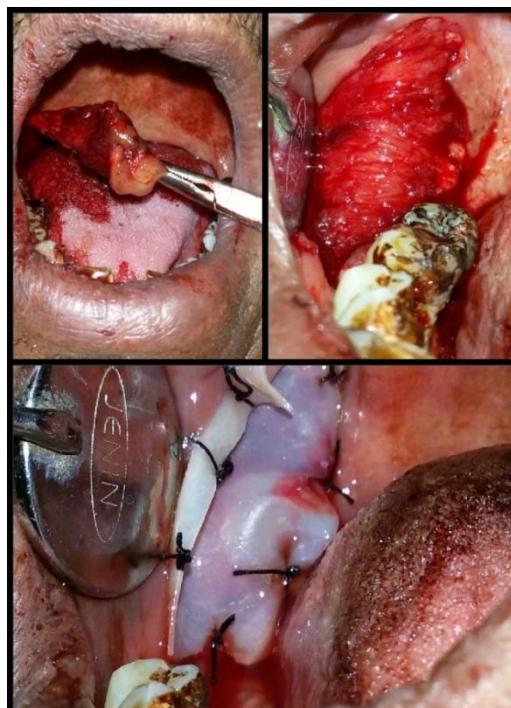


Fig 2. Excision of lesion and raw submucosa grafted with GTR membrane



Fig 3. Very good healing progress after 7 days



Fig 4. Complete healing after 1 month