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Highlights

Nanjangud Taluk, Mysore

Metachronous Pleomorphic

Discovering Thoughts, Inventing Future

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46-Year-Old Man with Bilateral Metachronous Pleomorphic Adenoma of the Parotid Gland

By Mansour Moghimi, Seyyed Ali Musavi, Zahra Sarafraz &
Mohammad Hossein Azaraein
Shahid sadoughi medical science university, Iran

Abstract- The occurrence of multiple distinct tumors in major salivary glands is quite rare. Although the most common tumor with bilateral synchronous or metachronous development is Warthin's tumor, on rare occasions, pleomorphic adenomas have been diagnosed simultaneously as well. In this paper, we present the case of a 46-year-old man with bilateral metachronous pleomorphic adenoma of the parotid gland.

Keywords: *pleomorphic adenoma, bilateral, metachr-onous, parotid gland.*

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46-Year-Old Man with Bilateral Metachronous Pleomorphic Adenoma of the Parotid Gland

Mansour Moghimi [α], Seyyed Ali Musavi [σ], Zahra Sarafraz [ρ] & Mohammad Hossein Azaraein [ω]

Abstract- **The occurrence of multiple distinct tumors in major salivary glands is quite rare. Although the most common tumor with bilateral synchronous or metachronous development is Warthin's tumor, on rare occasions, pleomorphic adenomas have been diagnosed simultaneously as well. In this paper, we present the case of a 46-year-old man with bilateral metachronous pleomorphic adenoma of the parotid gland.**

Keywords: pleomorphic adenoma, bilateral, metachronous, parotid gland.

I. Introduction

The occurrence of multiple distinct tumors in major salivary glands is quite rare. Pleomorphic adenoma is the most common benign neoplasm of the parotid gland. However, bilateral synchronous pleomorphic adenomas occur infrequently, accounting for less than 0.2% of all parotid gland tumors (1). Bilateral synchronous or metachronous neoplasms of the parotid gland are rarely encountered in clinical practice. The most common bilateral tumor is Warthin's tumor, with a reported incidence of 5–14%, followed by pleomorphic adenoma (2.3). Histologically, they are divided into unifocal or multifocal lesions. Even if it might be very difficult to establish, they also can be distinguished as synchronous or metachronous tumors regarding the time of their detection (3). In this paper, we present a 46-year-old man with bilateral metachronous pleomorphic adenoma of the parotid gland, which was unique in the duration of the disease and the size of the mass.

II. Case Presentation

a) Clinical presentation

A 46-year-old man with a slow growing mass in the left parotid that was first diagnosed five years ago and small-sized mass in the right parotid that was diagnosed one year ago (bilateral metachronous neoplasm of the parotid gland).

In palpation and bimanual examination, the mass in the left parotid gland was approximately 5 x 6 cm, and it was firm and mobile without any tenderness or erythema. The facial nerve was intact (Figure 1). The mass in the right parotid gland was 3 x 2 cm, and it was firm and mobile without any inflammation. The overlying skin of mass was normal and the facial nerve had good function.

There was no weight loss, sweating, or fever. The patient did not complain of odynophagia or disphagia. There was no bulging in the oral cavity.

Figure1 : Left side parotid Mass

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b) Past History

The patient had no past history of cancer or infectious diseases.

c) Imaging

An axial CT scan showed the well-defined border of the mass in the left parotid gland with a size of 67 x 58 mm. It had solid and cystic foci with heterogeneous enhancement without any extension to stylomastoid and parapharyngeal space. On the right side, he had a well-defined, solid border mass in the right parotid with the size of 32 x 22 mm (Figure2).

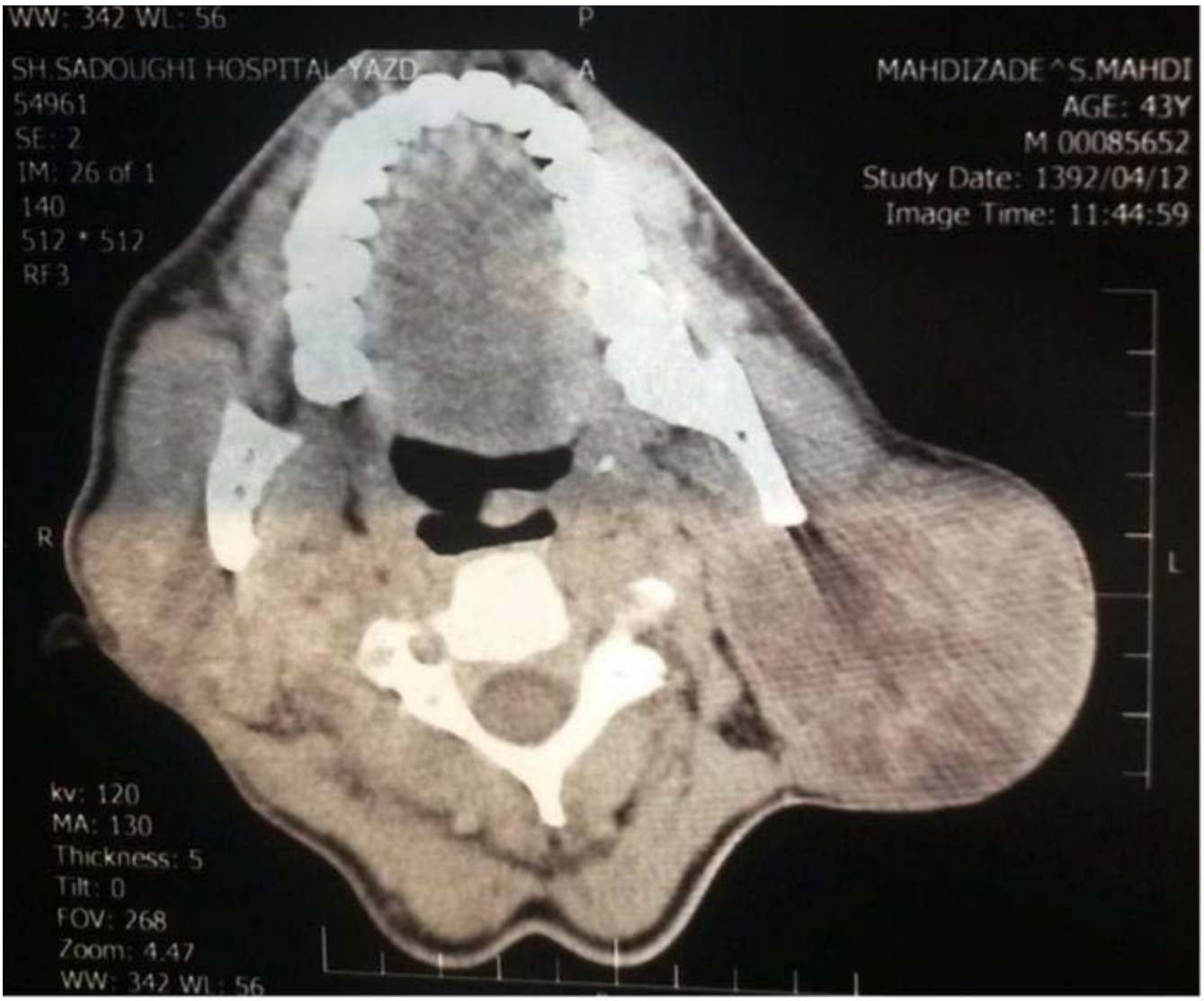

Figure 2 : Bilateral Parotid mass in patients, axial CT scan

d) Histopathology and laboratory tests

In cases of a bilateral parotid mass, systemic diseases, such as HIV, Sarcoidosis and Sjogren, should be ruled out.

Serologic tests for Sjogren syndrome, tuberculosis, cytomegalovirus, human immunodeficiency virus, and Ebstein-Barr virus were negative.

FNA (fine needle aspiration) smears of right and left parotid masses showed several isolated sheets, acini of bland epithelial cells merging with the fibrillar and amorphous myxoid matrix and some bare nuclei that suggested a mixed tumor of the salivary gland (Figure 3).

Permanent Pathology revealed a 7 x 5 x 5-cm mass with a creamy color and a nodular surface in the left parotid gland and a 3 x 3x 2-cm firm mass with a grayish color in the right parotid gland

Microscopic Pathology showed epithelial and myoepithelial components with a chondroid background.

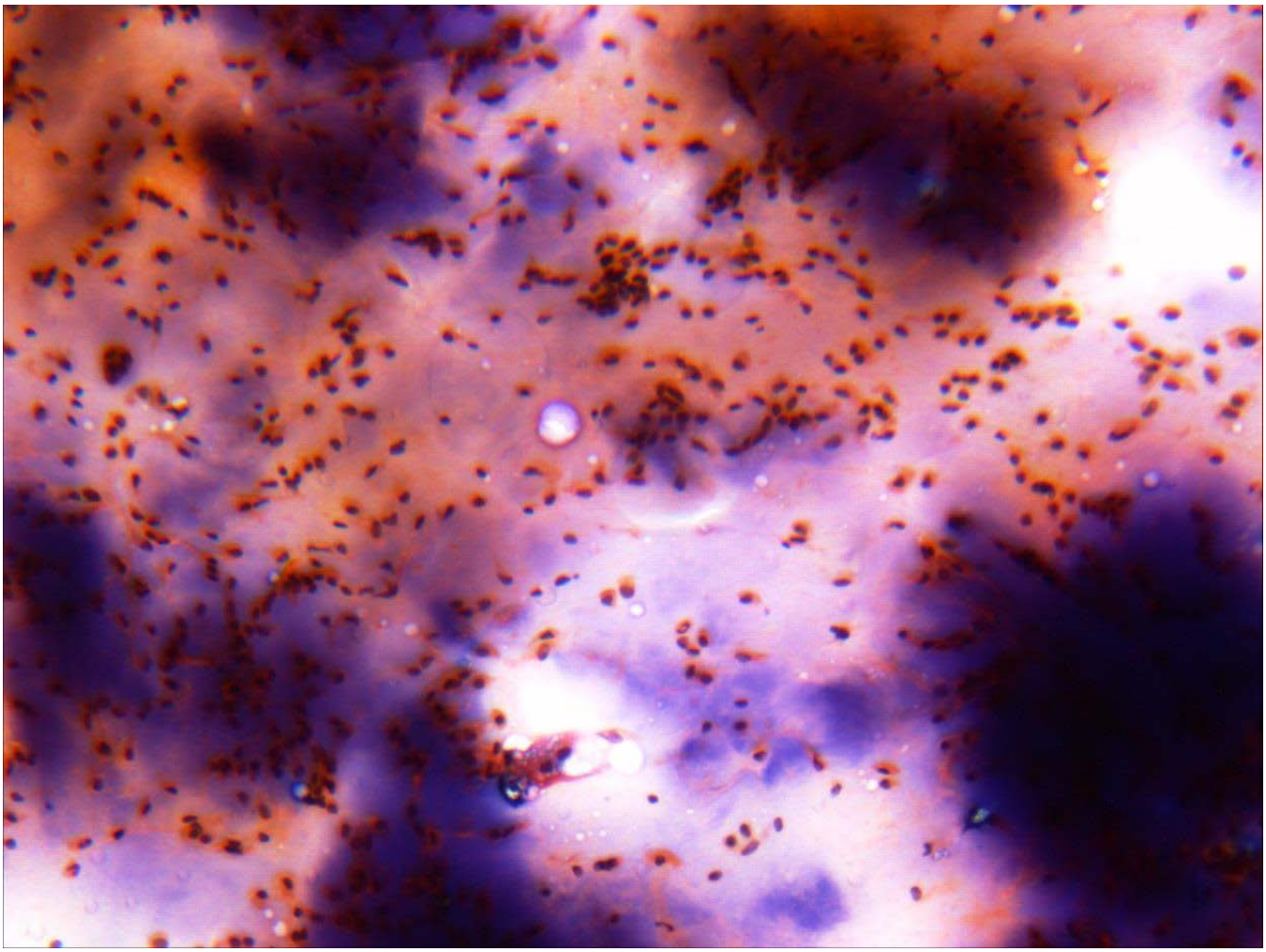

Figure 3 : FNA (fine needle aspiration) smears of parotid mass

e) Treatment and follow-up

After general anesthesia, left standard parotid incision (Blair Incision) was done, and the sub-platismal flap was elevated. Facial nerve trunk and branches were exposed and preserved and then a total parotidectomy was performed. For the right side, after facial nerve preservation, a superficial parotidectomy was performed. The facial nerve was intact, and there was no recurrence at the six-month follow-up.

III. Discussion

Pleomorphic adenoma, called mixed tumor because of its either epithelial and connectival component, accounts for 80% of all parotid tumors. It is mostly located at the superficial lobe of the parotid gland. The average age of onset is between 30 and 50; our case was 46.

Some authors have indicated that the mean duration of symptoms prior to diagnosis 22.9 months, with 36.5 months in male patients and 22.9 months in female patients (4). But our case had the left parotid mass for about 60 months.

Currently, according to the international literature, the most widely-used surgical procedure for the excision of a superficial lobe benign parotid tumor is superficial parotidectomy. Other inappropriate surgical treatments, such as enucleation, are strongly associated with high rates of tumor recurrence (4, 5).

The simultaneous surgical approach for parotid tumors has not been discussed extensively in the international literature. Nevertheless, some authors have stated that simultaneous parotidectomy for bilateral benign parotid glands tumours should be avoided to prevent possible bilateral facial nerve palsy (6).

In 2007, C.ungari et al. (Department of Maxillofacial Surgery in Italy) indicated that bilateral pleomorphic adenoma could be surgically removed simultaneously with successful preservation of the facial nerve (7).

Silva et al. from Brazil (2006) reported a patient with metachronous bilateral pleomorphic adenoma and performed total and superficial parotidectomy for the left and right tumors. However, on the left side, some facial nerve branches were removed, inducing partial paralysis (8).

Our case underwent simultaneous left total parotidectomy and right superficial parotidectomy with intact facial nerves.

Thus, we would suggest simultaneous bilateral parotidectomy as the most indicated surgical approach, particularly in healthy patients with assured clinical and cytological diagnosis and without evidence of any other systemic diseases.

IV. Conclusion

We would suggest simultaneous bilateral parotidectomy as the most indicated surgical approach, particularly in healthy patients with assured clinical and cytological diagnosis and without evidence of any other systemic disease.

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Developmental Enamel Defects of Primary Teeth: A Review

By Cheranjeevi Jayam, Anila Bandlapalli, Gyanendra Mishra & Yogish Puttashamachari
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Abstract- Developmental enamel defects of primary dentition result from effect of various systemic problems during pre and early post natal periods. These defects also act as virtual memory of early developmental stresses/events. Primary tooth hypoplasias are risk factors for occurrence of other dental deformities. Multiplicity and severity of the lesions make treatment procedures complex. Establishment of Dental home as early as pregnancy can be done for preventing the deleterious effects of the disease. The author is of opinion that pediatric dentists especially should be aware of this condition because 1) These children are more likely to visit dental service at a younger age because the condition presents early in childhood, 2) Severe morbidity leading to handicapped dentition at early age, 3) complexity of disease as well as its treatment.

Keywords: developmental enamel defects, enamel hypoplasia, dental hypoplasia, primary teeth hypoplasia.

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Developmental Enamel Defects of Primary Teeth: A Review

Cheranjeevi Jayam [α], Anila Bandlapalli [σ], Gyanendra Mishra [ρ] & Yogish Puttashamachari [ω]

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Keywords: developmental enamel defects, enamel hypoplasia, dental hypoplasia, primary teeth hypoplasia.

I. Introduction

Enamel formation or amelogenesis is an orchestrated genetic mechanism but is prone to environmental disturbances. Enamel defects once produced during development cannot undergo further repair. Formation of primary tooth enamel occurs during prenatal and early post natal periods. Hence, developmental defects of enamel act as a repository or storehouse of information regarding environmental insult received.[1,2] They can help in detection of effect of systemic insults and their timing.[3]

Developmental defects of enamel are described in literature by different ways; based on clinical presentation (ex. deciduous hypoplasia), teeth affected (ex. primary molar hypoplasia), causative agent (hyperbilirubinemic staining of primary teeth), histopathology of the defect (primary enamel hypoplasia) and several others are used.[4]

It is seen that preterm birth is associated with hypoplasia in primary teeth. With increase in the survival of preterm babies due to better pre/ante natal care, number of diagnosed cases with enamel hypoplasias has increased off late.[5] Primary tooth hypoplasia is risk factors for occurrence of several dental deformities like increased amount of caries, esthetic deformities, and faster attrition of teeth leading to loss of vertical dimension. Primary tooth hypoplasia has also been shown as a marker for developmental defects in permanent teeth.

The author is of opinion that pediatric dentists especially should be aware of this condition because 1) These children are more likely to visit dental service at a younger age because the condition presents early in childhood, 2) Severe morbidity leading to handicapped dentition at early age, 3) complexity of disease as well as its treatment. Hence an attempt is done to appraise the present knowledge regarding the condition and present 2 cases.

II. Etio-Pathogenesis

Several causative factors and risk factors are proposed to cause or enhance primary enamel defects. Some of these are- systemic factors like nutrition, hypoglycemia, hypocalcaemia, low birth weight (<1.0 Kg), metabolic disorders such as hyperbilirubinemia, metabolic bone disease, respiratory distress, cardiac disease (patent ductus arteriosus), sepsis, necrotizing enterocolitis and neurological disorders are implicated. The non-specific appearance of enamel defects make diagnosis of type of aetiologic factor difficult.[6,7,8,9] and local factors like trauma to tooth buds caused by the laryngoscope blade during endotracheal intubation is implicated.[5] There is association between enamel defects and shorter period of breast feeding, early introduction of bottle feeding and greater caries activity;[10] there is correlation between low socioeconomic county and children with low height and weight for age and primary enamel defects.[11]

Lunt and Law (1974) proposed a chart concerning calcification of primary teeth. This chart is routinely used to estimate the ontogenetic timing and duration of the insult.[12] Neonatal lines are also used as a reference planes to estimate the approximate timing of an insult relative to the position of the defect.[13]

Several factors make detection of develop-mental defects difficult; they are- masking of defects by saliva, dental plaque, and use of improper lighting. Additionally confounding effects of post-eruptive alterations such as dental caries, attrition, and traumatic loss of tooth structure can impair the detection of

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developmental enamel defects. Absence of population specific chronological charts regarding primary enamel formation can limit diagnosis.[14]

III. Clinical Features

Manifestation of primary teeth hypoplasia range from simple demarcated opacity to diffuse opacity to complete absence of enamel. The characteristic of opacities are that the lesions are multiple, symmetric and chronologic.[15,16]

A child may even present with early childhood caries at the time of first dental visit. In such conditions, it is difficult to see signs of developmental defects which would have preceded caries (developmental defects usually affects several teeth and are easily prone to caries).The clinical manifestations vary with respect to etiological agent (type, amount and duration) and tooth factor (time of calcification and metabolic activity).[17]

Prevalence: Needleman in his study found enamel defects did not vary with race, gender, side of mouth or individual tooth types.[18]

Systemic problems: Enamel defects in primary teeth can also give clues concerning general systemic pathologies. It can help clinicians ascertaining the role of systemic defects and the environmental factors. Few studies include- Herman & Mc Donald found association between time of occurrence of primary enamel defects and brain injuries in which etiology could not be clearly determined. Cohen & Diner observed enamel defects occurred with greater frequency in children with low intelligence quotient and high incidence of neurological deficits. Oliver & Owings showed association between primary enamel defects and severe renal disease.[19,20,21]

Dental problems: Clinical significance of enamel hypoplasia include poor esthetics, tooth sensitivity, malocclusion and predisposition to dental caries.[22] Enamel defects in primary dentition are a risk factor for presence of enamel defects in the permanent dentition.[23,24]

Developmental enamel defects such as hypoplasia have been speculated to increase the risk of dental caries in the affected teeth.[25] Hypocalcified teeth have higher porosity and can increase dental plaque retention. It shows greater solubility.[26] Surfaces with enamel defects have wrinkled surfaces causing greater biofilm adherence and leading to accumulation of higher number of Streptococcus mutans.[27]

Several indices are published to record developmental defects clinically, Developmental Defects of Enamel is the commonly used index.[12,28.29]

IV. Prevention & Interception

Prevention of developmental defects in primary tooth is easier said than done; because most of the lesions happen during pre natal and early post natal periods. For this the roles of allied prenatal and postnatal health care professionals play a more significant role than dental care. Lone way of preventing is by reducing the number of associated risk factors. In this context establishment of Dental home as early as pregnancy can be of little hope.

Interception of the deleterious effects of primary tooth hypoplasia is the only course. Interception should begin as soon as the diagnosis is made. Constant supervision of the child can help clinician render appropriate care as each tooth erupts into oral cavity. Tooth regenerative agents like fluoride & calcium phosphate agents can prevent further breakdown and halt the carious process. Diet counseling and establishment of good oral hygiene procedure is done to decrease caries activity. Acrylic jigs or custom made bite blocks can be given to prevent effects of attrition in case of very soft enamel.

V. Treatment

Multiplicity and severity of the lesions make treatment procedures complex. Treatment is aimed to maintain teeth in healthy state as much as possible until permanent teeth erupt into oral cavity. Esthetic solutions for anterior teeth include use of adhesive restorations; and in case of very soft teeth, use of polycarbonate crowns and celluloid strip crowns are recommenced. Posterior teeth can be protected using stainless steel crowns.[30,31,32] Pulp therapy is performed in indicated teeth. In case of nonrestorable teeth extraction is performed followed by placement of space maintainer.

VI. Learning Points

- Problems associated with primary enamel hypoplasia include poor esthetics, tooth sensitivity, malocclusion and predisposition to dental caries.
- Primary enamel defects such as hypoplasia have been speculated to increase the risk of dental caries in the affected teeth. In such conditions there is Severe- Early Childhood Caries category of caries causing burden on patient, parent & dentist in treating them.
- Prevention primary tooth hypoplasia is easier said than done; because most of the lesions happen during pre natal and early post natal periods.

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Prevalence of Oral Mucosal Lesions among Granite Factory Employees in Nanjangud Taluk, Mysore

By Dr. Ramya Balasubramanian
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Abstract- *Background:* 'Occupational Environment' means the sum of external conditions and influences which prevail at work place and which have a bearing on the health of working population. A large number of labourers work in stone crushing and mining industry in India. The physically tedious work drives people consume alcohol and tobacco which deteriorates their oral health. Studies in the past among factory workers and miners have revealed the high prevalence of oral mucosal lesions which was related to their tobacco habits.

Aims: To assess prevalence of oral mucosal lesions among granite factory employees in Nanjangud Taluk with general population and to suggest possible preventive measures.

Settings and Design: A Descriptive Cross sectional survey was conducted in Nanjangud Taluk, Mysore.

Materials and methods: Study was conducted on 453 employees from granite factories in Nanjangud Taluk. Simple random sampling was used to select 450 subjects for comparison from Thandavapura village. Oral mucosal lesions were recorded according to WHO oral health assessment (1997).

Keywords: *oral mucosal lesions, factory employees, tobacco use.*
GJMR-J Classification: *NLMC Code: WU 113*

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Prevalence of Oral Mucosal Lesions among Granite Factory Employees in Nanjangud Taluk, Mysore

Dr. Ramya Balasubramanian

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Statistical analysis used: Data was analyzed using SPSS version 17.

Results: Prevalence of oral mucosal lesions were higher among factory employees compared to general population. Prevalence of various tobacco habits were also higher among granite factoryemployees.

Conclusion: Our study showed that factory employees are more affected by oral mucosal lesions which might be due to high use tobacco habits and stressful work environment and poor oral health awareness.

Keywords: oral mucosal lesions, factory employees, tobacco use.

I. Introduction

Industrial worker is placed in complicated environment.[1] Oral health is integral part of general health playing important role in improving quality of life.[2] Physically tedious work,drives workers consume alcohol and tobacco deteriorating oral health.[3]

Factory workers constitute defined group, studies conducted on them helps planningprogrammes for oral disease prevention.[4] Previous studies revealed high prevalence of oral diseases, oral mucosal lesions among workers.[3-10] Such studies are scarce in India.

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Granite industries employs thousands of workers in India with considerable production from Mysore.[11] Hence this study aims to assess prevalence of oral mucosal lesions among Granite factory employees in Mysore and suggest preventive measures.

II. Materials and Methods

A Descriptive Cross sectional study was conducted from April to July 2010. Ethical clearance was obtained from institutional ethical committee. Informed consent was obtained from all the individuals participated in the study.

Granite factory employees available at the time of the study and who agreed to participate were included in the study. Only males among general population were included as comparative group as only males were employed in the Granite factories. Participants who had not given informed consent were excluded from the study.

As per the information from Karnataka state pollution control board, Mysore, (Information on Granite quarrying and Granite factories in Mysore District, Karnataka. Karnataka state pollution control board, Mysore, India as on May, 2010) twenty six Granite factories are situated in Thandya Industrial area, Thandavapura, Nanjangud Taluk, Mysore with 492 male employees. The permission to carry out the study was obtained from the Managing Directors (MD) of the factories. There were five divisions in the Granite factories namely Administrative staff, Maintenance unit, Transportation unit, Granite Cutting unit and Granite Polishing unit. All the employees were informed in prior about the study as well as the date and time of examination. 453 subjects from the granite factories were examined based on the exclusion and inclusion criteria. The factory employees belonged to 15-54 yrs of age.

The comparative group was selected from residents of nearby village named Thandavapura in Nanjangud Taluk. As per the information obtained from Thandavapura Gram Panchayat office, the village is divided into 3 blocks. The addresses of 18-54 yrs old males were collected from the recent voters list obtained from the Gram Panchayat office. There were about 505 males in the first block, 512 in the second block and 517

in the third block. From each block 150 addresses were selected using Simple random technique (Table of random numbers method) to make a total of 450 males and the respective house was visited. If the subject was not available at the time of first visit, the family members were informed about the study and the house was revisited at a convenient date and time for the subject and the examiner.

Training and Calibration was done prior to the study. Mouth mirror, Tweezers, Cotton rolls, Kidney Trays, Sterilizing solution (Korsolex), Gloves and mask were used in the study. The entire study was carried out by a single investigator. Oral mucosal lesions were recorded according to criteria's of WHO oral health assessment (1997)[11] by performing American dental association (ADA) type III examination. Questionnaire was used to collect demographic data and details on work environment, oral hygiene habits, tobacco and alcohol habits etc.

III. Statistical Analysis

Statistical tests like Chi-square test, Contingency coefficient analysis, Independent t- test and Analysis of variance was used. The statistical significance was fixed at 0.05. Statistical package for social sciences (SPSS) version 17.0 was used for statistical analysis.

IV. Results

Out of 453 granite factory employees 8.4% were administrative staff(A), 7.7% were maintenance staff (M), 28.5% belong to transportation unit (T), 28.7% were cutting unit workers(C) and 26.7% were polishing unit workers(P). The overall mean age and standard deviation (S.D) of the granite factory employees was 31.93 ± 7.10 yrs and general population was 30.90 ± 6.07 yrs. The study population was categorized in to four age groups ranging from 15-24 yrs, 25-34 yrs, 35-44 yrs and 45-54 yrs. The results revealed that a majority of the factory employees (54.3%) and general population (48.2%) were between 25-34 yrs when compared to other age groups. There was no statistically significant difference in the distribution of different age groups between factory employees (F.E) and general population (G.P) (P=0.81).

According to Modified Kuppuswamy's socioeconomic status (SES) classification[12], the study population was sorted in to five SES classes namely Upper, Upper middle, Middle, Upper lower and Lower. There was no statistically significant difference between factory employees and general population in regard to SES (P=0.092). A majority of study population belonged to middle class. Within factory units a majority of administrative staff (63.2%) belonged upper middle class. While major portion of transportation unit workers (70.5%) belonged to lower class. The differences in SES between factory units revealed statistical significance (P<0.001).

V. Study Population According to use of Tobacco Products

74.8% (339) and 67.3% (303) of granite factory employees and general population respectively were found to be tobacco users. The difference in prevalence of tobacco habit between factory employees and general population was found to be statistically significant (P=0.013).

Within factory employees highest prevalence of tobacco habit was found in transportation unit workers (84.5%) (109) compared to other units which was found to be statistically significant (P=0.025). (Table 1)

Table 1 : Distribution Of Study Population According To Use Of Tobacco Products

Tobacco use		Factory employees(F.E)					F.E -Total	G.P	Total
		A	M	T	C	P			
User	No	28	27	109	87	88	339	303	642
	%	73.7	77.1	84.5	66.9	72.7	74.8	67.3	71.1
Non-user	No	10	8	20	43	33	114	147	261
	%	26.3	22.9	15.5	33.1	27.3	25.2	32.7	28.9
Total	No	38	35	129	130	121	453	450	903
	%	100	100	100	100	100	100	100	100
Contingency Co – efficient = 0.155; P=0.025 (S) (Intra group - F.E)									
Contingency Co – efficient =0.082; P=0.013 (S) (Inter group - F.E & G.P)									

**A - Administrative; M-Maintenance unit; T-Transportation unit; C-Cutting unit; P-Polishing unit; F.E –Factory employees; G.P-General Population*

The results revealed that the commonly used tobacco products among the study population were cigarette, bidi, tobacco leaf, pan, and gutkha.

Among factory employees a majority were using gutkha (56.5%) followed by tobacco chewing (30.7%) and bidi smoking (28.9%). Whereas among general population a majority were bidi smokers (44%) followed by tobacco chewing (23.8%) and gutkha chewing (15.1%). Comparison of prevalence of various tobacco habits between factory employees and general population yielded statistically significant differences in the prevalence of bidi smoking ($P<0.001$), tobacco chewing ($P<0.001$) and gutkha chewing ($P<0.001$).

Within factory employees highest prevalence of gutkha (81.4%) and tobacco chewing (42.6%) was seen among of transportation unit workers. While highest prevalence of bidi smoking was seen among polishing unit workers (47.9%) compared to other units. Whereas prevalence of cigarette smoking and pan chewing was highest among administrative unit. The differences in use of tobacco products among factory employees were statistically significant for all the tobacco products ($P<0.001$).(Table 2)

Table 2 : Distribution of Study Population According to Type of Tobacco Products

Tobacco use		Factory employees					F.E – Total	G.P	Total
		A	M	T	C	P			
Cigarette	No	10	4	0	0	0	14	22	36
	%	26.3	11.4	0	0	0	3.1	4.9	4
Bidi	No	1	9	28	35	58	131	198	329
	%	2.6	25.7	21.7	26.9	47.9	28.9	44	36.4
Tobacco leaf	No	15	13	55	21	35	139	107	246
	%	39.5	37.1	42.6	16.2	28.9	30.7	23.8	27.2
Pan	No	4	0	1	5	4	14	9	23
	%	11.1	0	0.8	3.8	3.3	3.1	2	2.6
Gutkha	No	19	17	105	67	48	256	68	324
	%	50	48.6	81.4	51.5	39.7	56.5	15.1	35.9

Within Factory Employees:

Cigarette – Contingency Coefficient = 0.405; P < 0.001(VHS)

Bidi – Contingency Coefficient = 0.277; P < 0.001(VHS)

Tobacco leaf – Contingency Coefficient = 0.223; P < 0.001(VHS)

Pan– Contingency Coefficient = 0.157; P = 0.023(S)

Gutkha– Contingency Coefficient = 0.313; P < 0.001(VHS)

Between Factory Employees and General Population:

Cigarette – Contingency Coefficient = 0.046; P < 0.167(NS)

Bidi – Contingency Coefficient = 0.155; P < 0.001(VHS)

Tobacco leaf– Contingency Coefficient = 0.077; P = 0.020(S)

Pan– Contingency Coefficient = 0.035; P = 0.293(NS)

Gutkha– Contingency Coefficient = 0.396; P < 0.001(VHS)

**A - Administrative unit; M-Maintenance unit; T-Transportation unit; C-Cutting unit; P-Polishing unit; F.E –Factory employees; G.P-General Population*

Among factory employees the prevalence of oral mucosal lesions was 25.8% and among general population it was 11.6%. The differences were statistically significant ($P<0.001$).

Out of the various oral mucosal lesions among factory employees, leukoplakia had the highest prevalence of about 13.2% against only 6% of general

population with leukoplakia. The differences were statistically significant (P<0.001).

The prevalence of ulcer among factory employees was 5.7% followed by abscess (3.3%) and oral submucous fibrosis (OSMF) (3.3%). Whereas among general population the prevalence of ulcers was 3.8% followed by oral submucous fibrosis (1.3%) and abscess (0.4%).

Within factory units highest prevalence of oral mucosal lesions was seen among maintenance staff (34.3%) followed by transportation staff (28.7%). The least affected was the administrative staff (18.4%) The differences were statistically significant (P=0.039)(Table 3)

Table 3 : Distribution of Study Population According to Oral Mucosal Lesions (Oml)

Oral mucosal lesions		Factory employees					F.E - Total	G.P	Total
		A	M	T	C	P			
No OML	No	31	23	92	100	90	336	398	734
	%	81.6	65.7	71.3	76.9	74.4	74.2	88.4	81.3
Leukoplakia	No	4	7	23	17	9	60	27	87
	%	10.5	20	17.8	13.1	7.4	13.2	6	9.6
Lichen Planus	No	0	0	0	0	1	1	0	18
	%	0	0	0	0	0.8	0.2	0	2
Ulcer	No	1	0	3	8	14	26	17	26
	%	2.6	0	2.3	6.2	11.6	5.7	3.8	2.9
Abscess	No	0	3	7	1	4	15	2	2
	%	0	8.6	5.4	0.8	3.3	3.3	0.4	0.2
OSMF	No	2	2	4	4	3	15	6	21
	%	5.3	5.7	3.1	3.1	2.5	3.3	1.3	2.3
Contingency Coefficient = 0.259; P=0.039(S) (Intra group - F.E)									
Contingency Coefficient = 0.283; P<0.001(VHS) (Inter group - F.E & G.P)									

**A - Administrative unit; M-Maintenance unit; T-Transportation unit; C-Cutting unit; P-Polishing unit; F.E –Factory employees; G.P-General Population*

Among granite factory employees 16.8% of all the lesions appeared in buccal mucosa followed by 3.3% in commissures and 2.4% in alveolar ridges. Among general population, 6.2% of lesions were seen in buccal mucosa and 1.3 % occurred in alveolar ridges. The difference in the site wise prevalence of oral mucosal lesions was statistically significant (P<0.001). (Table 4)

Table 4 : Distribution of Oral Mucosal Lesions According to Location in Oral Cavity among Study Population

Oral mucosal lesions		Factory employees					F.E - Total	G.P	Total
		A	M	T	C	P			
Commissures	No	1	3	6	4	1	15	3	18
	%	2.6	8.6	4.7	3.1	0.8	3.3	0.7	2
Lips	No	0	0	0	1	0	1	0	1
	%	0	0	0	0.8	0	0.2	0	0.1
Sulci	No	0	0	0	0	5	5	2	7
	%	0	0	0	0	4.1	1.1	0.4	0.8
Buccal mucosa	No	5	7	20	24	20	76	28	104
	%	13.2	20	15.5	18.5	16.5	16.8	6.2	11.5
Tongue	No	0	0	0	0	4	4	8	12
	%	0	0	0	0	3.3	0.9	1.8	1.3
Palate	No	0	0	0	0	0	0	3	3
	%	0	0	0	0	0	0	0.7	0.3
Alveolar ridges	No	0	3	7	1	0	11	6	17
	%	0	8.6	5.4	0.8	0	2.4	1.3	1.9

Contingency Coefficient = 0.317; P < 0.001(VHS) (Intra group F.E)
Contingency Coefficient = 0.213;P < 0.001 (VHS) (Inter group F.E & G.P)

**A - Administrative unit; M-Maintenance unit; T-Transportation unit; C-Cutting unit; P-Polishing unit; F.E –Factory employees; G.P-General Population*

Within factory employees leukoplakia had the highest prevalence compared to other lesions among all the units and it was highest among maintenance staff (20.0%) followed by transportation unit workers (17.8%) and cutting unit workers (13.1%) than compared to administrative unit (10.5%) and polishing unit (7.4%) though the differences were not statistically significant. (P=0.110). (Table 5)

Table 5 : Prevalence of Leukoplakia among Factory Employees and General Population

Leukoplakia		Factory employees					F.E -Total	G.P	Total
		A	M	T	C	P			
Absent	No	34	28	106	113	112	393	423	816
	%	89.5	80	82.2	86.9	92.6	86.8	94	90.4
Present	No	4	7	23	17	9	60	27	87
	%	10.5	20	17.8	13.1	7.4	13.2	6	9.6
Total	No	38	35	129	130	121	453	450	903
	%	100	100	100	100	100	100	100	100
Contingency Coefficient = 0.128; P = 0.110(NS) (Intra group - F.E)									
Contingency Coefficient = 0.122; P < 0.001(VHS) (Inter group - F.E & G.P)									

**A - Administrative unit; M-Maintenance unit; T-Transportation unit; C-Cutting unit; P-Polishing unit; F.E –Factory employees; G.P-General Population*

VI. Discussion

In the present study a significant difference was observed in the prevalence of oral mucosal lesions between factory employees (25.8%) and general population (11.6%). Among factory employees 13.2% had leukoplakia and 3.3% had OSMF, whereas among general population the prevalence was only 6% and 1.3% respectively.

A similar result was obtained in a study in Rajasthan among green marble mine labourers where almost 33.3% of workers had leukoplakia which was related to high use of tobacco, stress and malnutrition that was prevalent in the population. It was also postulated in their study that stresses in their work environment drives the workers to use tobacco.[10]

The findings of the present study can be attributed to the high prevalence of chewing tobacco habits like tobacco leaf chewing, pan chewing and gutkha chewing (30.7%, 3.1%, 56.5% respectively) among factory employees compared to general population (23.8%, 2%, 15% respectively) which was statistically significant.

In this study regarding the location of the oral mucosal lesions, Buccal mucosa was found as the commonest site affected in both factory employees (16.8%) & general population (6.2%) compared to other sites.

Our results are in agreement with the previous study conducted among Iranian textile factory workers that showed a stastically significant positive correlation between tobacco use and oral pre cancerous lesion.[13]

Similar to our study, previous study reported that in rural inhabitants of Maharashtra state the prevalence of leukoplakic lesions was highest among people with mixed tobacco habits.[14]

It was also found in our study that OSMF was exclusively seen in pan chewers in both factory employees and general population which contains slices of areca nut with slaked lime.

Our present study is also in agreement with a previous study conducted in Xiangatan city, China where the prevalence rate of OSMF was 3.03%, which was due to heavy use of areca nut chewing along with hot pepper among them. Areca nut chewing has been suggested to be involved in the pathogenesis of this condition.[15]

Within factory units Transportation (20%), maintenance (17.8%) and cutting units (13.1%) had higher prevalence of leukoplakia compared to other

units which was statistically significant. This can be due to high tobacco use like gutkha and tobacco chewing among transportation unit (81.4%, 42.6%) compared to other units.

The prevalence of oral mucosal lesions in particular precancerous lesion like leukoplakia was significantly higher among transportation unit workers compared to employees in other units and general population which should be recognised by the factory authorities to initiate 'Tobacco cessation programmes' at the work environment for the factory workers for which help can be sought from the local dental colleges and dentists. Use and sales of tobacco products can be banned in and around the factory campuses. Oral cancer screening programmes should be instilled periodically in the industrial areas. Because of the time and economic constraints all kind of factory workers covering a wide geographical area could not be performed in our study. Further studies assessing oral health status among factory workers in various states of the country can be done and effectiveness of work environment based tobacco cessation programmes can be performed.

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Reconstruction of Mandible by Free fibula Vascular Graft after Total Mandibulectomy- A Case Report

By Dr. Chetan B I, Dr. Karthik B, Dr. Shruthi D K & Dr. Mithun
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Abstract- Reconstruction of mandible is important to provide good functionul ,and cosmetic result afterresection of the bony lesions involving large area of the mandible. The purpose of primary reconstruction is to avoid the collapse of maxillo-mandibular alignment due to scarring and fibrosis. Primary reconstruction by micro vascular bone grafting has been considered as the gold standard treatment optionl.[1,2] The patients are rehabilitated functionally to minimize the functional disturbances thus the patient's psychological aspects as well as the quality of the life also improve. However local facilities for surgery, surgical morbidities,medically compromised condition of the patient, infection, cost and various other parameters may not often permit this. In this instance, reconstruction plate plays a major role as a preliminary option which avoids all the esthetic and functional deformities and further maintains a reasonable facial contour. [3,4.]

Keywords: *mandibulectomy, odontogenickeratocyst, fibula vascular graft.*

GJMR-J Classification: *NLMC Code: WU 105*

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Reconstruction of Mandible by Free fibula Vascular Graft after Total Mandibulectomy- A Case Report

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Abstract- Reconstruction of mandible is important to provide good functionul ,and cosmetic result afterresection of the bony lesions involving large area of the mandible. The purpose of primary reconstruction is to avoid the collapse of maxillo-mandibular alignment due to scarring and fibrosis. Primary reconstruction by micro vascular bone grafting has been considered as the gold standard treatment optionl.[1,2] The patients are rehabilitated functionally to minimize the functional disturbances thus the patient's psychological aspects as well as the quality of the life also improve. However local facilities for surgery, surgical morbidities,medically compromised condition of the patient, infection, cost and various other parameters may not often permit this. In this instance, reconstruction plate plays a major role as a preliminary option which avoids all the esthetic and functional deformities and further maintains a reasonable facial contour. [3,4.]

Spontaneous bone regeneration in young individuals after segmental resection of mandible has been sporadically reported. This case reports spontaneous regeneration of the mandible in a 25

year old Indian patient who underwent total mandibulectomy preserving the bilateral condyle and stabilized with indigenous, titanium plate for an extensive resection of Odontogenickeratocyst.

Keywords: mandibulectomy, odontogenickeratocyst, fibula vascular graft.

I. Introduction

Resection of the mandible and immediate reconstruction with autogenous bone graft are widely used in the treatment of odontogenic-keratocyst involving a large section of the mandible. The purpose of reconstruction is mainly to rehabilitate the patient esthetically by improving the contour of the mandible, thereby minimizing facial deformity from the defect. The patient is rehabilitated functionally and the occlusal disturbance is minimized.

Primary reconstruction by bone grafting is usually advocated at the time of surgery for various reasons. The access to the surgical site is optimal because there is no fibrosis of the graft bed. However, local facilities for surgery, infection, and patients' general condition may not often permit this. Extensive bone regeneration that reconstitutes 50%[5,6] or greater than 50% of the mandible[7-10] after injury involving a segment of mandible have been reported previously. There is, however, no reported case in which a whole mandible regenerates with condyles. This study presents a rare case of spontaneous regeneration of a whole mandible in a 25 year-old Indian patient who had total mandibulectomy for an extensive case of odontogenickeratocyst.

II. Report of a Case

A 25 year-old boy reported to Oral and Maxillofacial Surgery Clinic complaining of slow growing Swelling over a left Jaw on both sides. Since, 1 and half years.On general examination patient was moderately built and moderately nourished.Local Examination: There was diffused boney hard swelling extending from right side ramus of mandible to the left side ramus of mandible. Intra oraly there was expansion of cortical plate from ramus to ramus.

The swelling gave an eggshell cracking sensation non palpation.

Radiographic examination of the mandible showed multiple radiolucencies involving lower border of mandible from right ramus to left ramus .OPG reveals huge multiple radiolucencies involving lower border of mandible from right ramus to left ramus.

An incissional biopsy was done with thorough curratage of the lesion under general anaesthesia biopsy report came as odontogenickeratocyst.Patient was planned for resection and reconstruction of the complete lower Jaw which was affected.

Lesion Asymptomatic, circumscribed, radiolucent area associated with the unerupted mandibular right third molar.

a) Our differential diagnosis includes

dentigerous cyst, keratocyst, ameloblastoma, ameloblastic fibroma, odontogenic fibroma, adenomatoidodontogenic tumor, calcifying epithelial odontogenictumor,ameloblastic fibro-odontoma, and calcifying odontogenic cyst.

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This lesion turned out to be an odontogenic-keratocyst arising from the cell rests of the dental lamina. These are commonly found in the 3rd molar region of the mandible.] They can be large and destructive and may present with pain or other symptoms.

Histologically, we see a lining of parakeratinized stratified squamous epithelium. The basal cell layer of the epithelium exhibits columnar nuclei that are pallisaded or lined up like a picket fence.

Under general anesthesia with nasoend-otracheal intubation GA was induced. Incision was made from right angle of mandible to the left angle of mandible. Bone was exposed and affected part was resected and titanium reconstruction plate was inserted and fixed to the right condyle to left condyle. Wound was closed in layers. Patient recovered uneventfully. Then the tissue was sent for the biopsy and report was odontogenicKerotocyst. Patient was followed for three months for every fifteen days and regular OPG Xrays were taken to observe any recurrence of the lesion then after confirming there is no recurrence patient was taken up for another surgery and free fibula vascular graft was put. And patient recovered uneventfully. Further dental implants and complete oral rehabilitation is planned after one year.

III. Discussion

New bone formation can take place thtough the process of osteogenesisosteoinduction andOsteo-conduction[11]. Periosteum plays a very important role in new bone formation and it is important to preserve it during surgery. There are reports that suggest even irtadiatedperiosreum still has some osteogenic potential. Ruggerio and Donoff reported a case of spontaneous regeneration of the mandible after irtadiation. The case described in this study supports the important role of periosteum in spontaneous regeneration. Spontaneous regeneration of a large portion of the mandible had been reported after subtotal mandibulectomy of hemimandibulectomy. The factors favouring the new bone regeneration are age of the patients, preservation of the periosteum, absence of infection and decreased tension in the bone. Cases of spontaneous regeneration of the mandible reported in the literature are in young individuals with age range from 5 to 11[12].

It is the authors assumption that the muscle forces act along the central long axis of the condyle, so that placing the reconstrucrion plate behind the condyle gives more stability for the condyle anatomically than placing latetally. Immediate postoperarive CT Radiographs also showed that the condvles were in normal anatomical position . Furtherstudies are recommended to prove the authors assumption. It is well known that periosteum is a good source for boneformation. During resection the periosteum should be preserved if it is not involved with the lesion.

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Legends

1. Extra oral swelling on both side of mandible.
2. Orthopantomogram showing the resection of the mandible and fixing the titanium reconstruction plate
3. post operative regeneration after placement of graft

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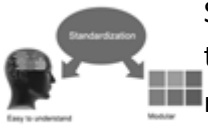

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