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RESEARCH ARTICLE

DOES EVIDENCE SUPPORT PROSTHETIC OR SURGICAL REHABILITATION FOR PATIENTS WITH MAXILLARY DEFECT REGARDING THE QUALITY OF LIFE? SYSTEMATIC REVIEW.

Sharaf .M.Y, DDS, MSc [1], Ibrahim S.I , DDS, MSc, PhD[2], Eskander A.E,dds, msc, phd[3] and Shawky A F, DDS, MSc, PhD[4].

1. Assistant Lecture, Department of prosthodontics , Faculty of Dentistry, University of Beni-Suef. Egypt .
2. Professor,Department of prosthodontics, Faculty of oral and dental medicine, University of Cairo. Cairo ,Egypt.
3. Professor,Department of prosthodontics ,Faculty of oral and dental medicine,University of Cairo.Cairo ,Egypt.
4. Assistant professor, Department of prosthodontics , Faculty of Dentistry, University of Beni-Suef. Egypt .

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Key words:-
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Abstract

Purpose: To assess the ability of prosthetic rehabilitation versus surgical rehabilitation in improving the QOL for patients with maxillary defects.

Material and methods: A systematic search of PubMed,Scopus data base, Cochrane database,Ovid database and Latin America & Caribbean database for articles published before September 2017 was performed by two independent reviewers. A manual search of articles published from January 2000 to September 2017 was also conducted .Only English studies were included which evaluate the QoL in patients with head and neck cancers .Any confusion between the two independent reviewers was resolved by means of a moderated discussion between the reviewers.

Results: Five studies fulfilled the inclusion criteria for this study. Many parameters were used regarding evaluation of QOL as the EORTC Head and Neck 35 assessment , UW-QOL , OHIP–14 , VAS, OFS, MHI ,HAD,Body Satisfaction Scale,Oral symptom check list, Swallowing, Diet consist, Pain control,Postoertive complication and Speech . Two studies supported the surgical line of treatment for improving the QOL as compared to the prosthetic one ,another two studies showed a statistically insignificant improvement in the patients' QOL with the surgical line , while only one revealed insignificant difference in QoL with both lines of treatment.

Conclusions: Surgical rehabilitation provide a better line of treatment in improving the QOL for patients with maxillary defects , On the other hand prosthetic has proved effectiveness in the immediate post-surgical times as temporary strategy, and it has represented a good alternative when the surgical obturation is compromised .

Corresponding Author:-Sharaf .M.Y ,DDS, MSc .
Address:-Assistant Lecture, Department of prosthodontics , Faculty of Dentistry, University of Beni-Suef. Cairo ,Egypt .

Introduction:-

Oral cancer is considered the 6th most frequent cancer representing about 1 to 3% of all human cancers. They may invade many different structures such as the oral cavity , oral pharynx, nasal cavity, nasal and laryngeal parts of the pharynx, paranasal sinuses, larynx, and salivary glands, [1-3] where they have same clinical manifestations and management because of their adjacent anatomies. Resection of most malignant tumors can lead to defects resulting in oro-nasal communication. [3-5]

The maxilla is considered a vital and critical structure of the face, regarding the esthetics and function. It provides support for the maxillary teeth , orbital content, transmit the forces of mastication , separate the oral and nasal cavities, and provide attachment for the muscles of mastication and facial expression. [6-9]As the maxilla is in close relationship with many critical and vital structures, the maxillary bone is usually included when resecting tumors that arise from the palate, nasal cavity, paranasal sinuses, orbital contents, overlying skin, or oral mucosa thus several adjacent structures are often resected in combination with the maxilla.[7]

Diagnosis of cancer and associated treatment consider a life altering and threating condition, causing fear and uncertainty of future. Thus head and neck cancer patient are at risk of financial , family ,social issues and increased emotional distress, as the life-saving surgical procedures often results in significant physical , physiological and psychological disabilities.[10-13]

The resulting oro-nasal communication after resection leads to hypernasal speech, low speech intelligibility , nasal regurgitation of food and liquids due to incomplete separation between the nasal and oral caity, improper mastication , and disfigurement of facial apperence. Thus the social behavior and quality of life (QoL) will be adversely affected.[14,15]

Treatment planning for cancer patients has been improved in which postoperative quality of life factors are becoming increasingly important. [16] Reconstruction can be achieved surgically with local , distant flaps, autologous pedicle flap, free tissue transfer, or vascularized bone composite tissue flaps, also prosthetic management may be carried out using different types of obturators or combinations of both line of treatment. [8,17]Satisfactory levels of functionality and quality of life have been reported for both treatment alternatives.[15,18,19]The size and the configuration of defect, residual bone, remaining dentition , soft tissue condition, and the patient‘s general health have to be considered regarding the selection of a suitable line of treatment.[20-25]

The application of dental implants has been found to be advantageous for the oral rehabilitation of patients who have undergone intraoral resections, as dental implants in bone grafts or free flaps after tumor resection was providing satisfactory results despite the thickness and mobility of soft tissues and scar contracture,as well as, the use of dental implants in the zygoma or in premaxilla improved obturator retention and stability.[26-28]

Quality of life is an important consideration in philosophy, medicine, religion ,ecomomics and politics. In general, the term ‘quality of life’ is used to describe factors that influence the living conditions of a society or of the society’s individuals.The WHO defines quality of life as ‘the individual’s perception of their position in life in the context of the culture and value systems inwhich they live and in relation to their goals, expectations, standards and concerns.[29,30]Quality of life also includes physical health, personal circumstances, social relationships, functional activities and pursuits, as well as wider societal and economic influence .[31]For patients after maxillectomy, the psychological well-being and vitality are increasingly contributing to the evaluation of the therapeutic success,due to the high levels of psychological and physical trauma, [32] Thus,optimal reconstruction of maxillectomy defects remains controversial. The decision whether to reconstruct or to obturator regarding the quality of life will be clarified.

Materials and methods:-

Protocol and Eligibility Criteria:-

The substructure of this systematic review is based on the PRISMA checklis and guidelines .[33,34]The focused question according to the PICO schema is: “which is better regarding the quality of life the prosthetic rehabilitation or surgical one in maxillectomy patients ?”.This review question was based on recent clinical studies, including both prospective and retrospective, focused on the population, intervention,comparison, and result framework[35]: population was defined as patients with maxillary defects; intervention was the method used to treat the maxillary

defect; Comparison regarding the QOL for patients who had underwent prosthetic rehabilitation versus surgical one.The eligible studies should present the following characteristics: (1) randomized controlled trials, (2) prospective studies,(3) retrospective studies, (4) cohort studies, (5) published in English, (6) comparisons between prosthetic rehabilitation and surgical rehabilitation in the same study, .The exclusion criteria used were: (1) in vitro studies, (2) animal studies, (3) case series or case reports, (4) computer simulations, (5) patients or data repeated in other included articles.

Search Strategy and Information Sources:-

The systematic search for relevant literature was performed in the following database: PubMed , Scopus data base, Cochrane database,Ovid database and Latin America & Caribbean database for articles published before may 2017 The following search terms were used regarding the quality of life ,prosthetic rehabilitation and surgical rehabilitation.:((((((((((((Maxillary reconstructive surgical procedures) OR Maxillary reconstructive surgical procedures[MeSH Terms]) OR Maxillary surgery) OR Maxillary surgery[MeSH Terms]) OR Palatal reconstruction) OR Palatal reconstruction[MeSH Terms]) OR Maxillary surgical obturation) OR Maxillary graft) OR Surgical rehabilitation) OR Surgical management) OR Maxillary free flap) OR Maxillary microvascular free tissue transfers)) AND ((((((((((((((((((((unilateral total maxillectomy) OR bilateral total maxillectomy) OR maxillary defects) OR maxillary tumor) OR maxillary cancer) OR maxillectomy) OR surgical Maxillary defect) OR acquired maxillary defect) OR maxillary defect)) OR obturator) OR obturators) OR maxillary obturator) OR maxillary obturators) OR palatal obturators) OR palatal obturator) OR palatal obturators[MeSH Terms]) OR obturator prostheses) OR maxillary obturation) OR obturation) OR Prosthetic rehabilitation) OR Prosthetic management)) AND ((Quality of life) OR Patient satisfaction).

Electronic search was accomplished by an iterative hand-search in the reference lists of the already identified articles. Endnote X7 was used for the electronic management of the literature.

The selection of the included papers were performed according to the eligibility criteria individually by two of the authors any disagreement between the independent reviewers was resolved by means of a moderated discussion between the reviewers .

Results:-

Study selection:-

A total of 1747 potentially relevant titles and abstracts were found by the electronic search and additional evaluation of reference lists. After removing 146 duplicate studies ,the remaining 1601 studies were screened ,where 1579 publications were excluded based on the title and abstract, twenty two full-text articles were thoroughly evaluated, seventeen studies did not fulfilled the inclusion criteria of the present systematic review (Tab1). Finally the remaining five articles went into qualitative assessment (Fig. 1).

Because of the limited numbers of included studies, heterogenic study design, and incompletely reported data like, the quantitative data synthesis could not be performed in the way necessary for meta-analysis.

Quality and risk of bias assessment:-

A system modified from the US Agency for Healthcare Research and Quality Methods Guide for Comparative Effectiveness Reviews was used to assess the sources of possible bias. As it's unwise to use the Cochrane collaboration tool for assessing risk of bias for randomized controlled trials since all included studies were not randomized.The criteria were judged with high, medium, low, or unknown risk of bias: case selection bias and confounders, attrition bias, detection bias , and reporting bias, and a summary of the risk. [36] (Tab 2)

Of the five selected studies one were prospective , two were retrospective and two were cross sectional study .From the five included articles, a total of 167 patients (97 male ,70 female),the age of the patients ranged from 16 to 91 years in the selected studies. Of all of the patients included in this study, 64 patients (38.32%) were rehabilitated with obturator prostheses and 103 patients (61.68%) were treated with surgical obturation. One study reported that patients who underwent surgical rehabilitation were rehabilitated with intermediate temporary obturator only 11 patient of 47 patients. [51] Various tools and questionnaires were used for measuring QOL as the EORTC Head and Neck 35 assessment ,the University of Washington Head and Neck Questionnaire (UW-QOL) , the Oral Health Impact Profile –14 (OHIP–14) , Visual Analogue Scale (VAS), the Obturator Functioning Scale (OFS), Mental

Health Inventory (MHI) ,Hospital Anxiety Depression (HAD),Body Satisfaction Scale,Oral symptom check list, Swallowing, Diet consist, Pain control, Postoertive complication and Speech. [32,49-52] Tab 3.

Regarding the defect classifications, one of the selected studies used Aramany classification,[49] one used Brown classification system of defects,[50] one used Okay et al classification,[32] one used new classification [51,53]and one study described only the extension of the surgical resection.[52]The most common defect type was IIa-b Brown classification and class II okay classification. [32,49-52]One study reported that the size of the defect affects significantly the difference between QOL scores for both lines of treatment, [50] as well as, other study reported that the size and shape of the defect, especially in patients who receive radiation therapy, represent one of the most significant negative points. [51] Where one study reported that postoperative radiotherapy affects the functioning of obturator prostheses. [49]

Regarding the patients' tumors, the most frequently diagnosed type of cancer was squamous cell carcinoma, followed by mucoepidermoid carcinoma and rare variants of malignant neoplasms of palate minor salivary glands. [32,49-52]Only one study reported the stage of the tumor for the patients evaluated as stage IV followed by stage III as the most common stages.[52] Only one study evaluated the dental status of selected patients [32] ,ultimately, all the studies were done at five medical centers. However,only two studies were done in the same country. [32,49-52]

No meta-analyses were performed because of the differences in the questionnaires, the variations in the ways in which the results were presented, and the differing methodologies of the included studies.

Two studies reported that surgical line can achieve superior function and QOL outcomes.[49,51], where the other two studies reported that the surgical rehabilitation showed better results regarding the QOL but the difference was statistically insignificant[32,50] while only one revealed no significant difference in QoL with both lines of treatment.[52]

Table 1:- The excluded studies.

	Author ,title and year	Cause of exclusion
1	Rieger et al,Surgical reconstruction versus prosthetic obturation of extensive soft palate defects: a comparison of speech outcomes .2009[37]	Did not specifically evaluate QoL
2	Borlasse et al,Use of obturators in rehabilitation of maxillectomy defects.2000[38]	Did not specifically evaluate QoL
3	Rieger et al, maxillary obturators: the relationship between patient satisfaction and speech outcome .2003[39]	Did not specifically evaluate QoL
4	Moreno et al, Microvascular free flap reconstruction versus palatal obturation for maxillectomy defects .2009[40]	Did not specifically evaluate QoL
5	Lethaus et al, Surgical and prosthetic reconsiderations in patients with Maxillectomy .2010[41]	Only one homogenous group no comparisons (implant supported obturator)
6	Rieger et al, Comparison of Speech and Aesthetic Outcomes in Patients with Maxillary Reconstruction versus Maxillary Obturators after Maxillectomy , 2011[18]	Did not specifically evaluate QoL
7	Hertramp et al Quality of life of patients with maxillofacial defects after treatment for malignancy,2004 [42]	The control group is not malignant patient
8	Kornblith et al quality of life of maxillectomy patients using an obturator prosthesis .1996[19]	Only one homogenous group no comparisons (obturator only)
9	Brown et al,A modified classification for the maxillectomy Defect .2000[5]	As both groups were divided according to the classification of defects not the intervention.
10	Irish et al, Quality of life in patients with maxillectomy prostheses.2009.[15]	Only one homogenous group no comparisons (obturator only)
11	Depprich et al,Evaluation of quality of life of patients with maxillofacial defects after prosthodontic therapy with obturator prostheses ,2010[14]	Only one homogenous group no comparisons (obturator only)

12	Riaz&Warriach .Quality of life in patients with obturator prostheses 2010[43]	Only one homogenous group no comparisons (obturator only)
13	Kreeft et al.Oral function after Maxillectomy and reconstruction with obturator ,2012.[44]	Only one homogenous group no comparisons (obturator only)
14	Chigurupati et al .Quality of life after maxillectomy and prosthetic obturator rehabilitation,2013[45]	Only one homogenous group no comparisons (obturator only)
15	Kumar et al.Assessment of the quality of life in maxillectomy patients: a longitudinal study ,2013[46]	Only one homogenous group no comparisons (obturator only)
16	Said et al ,Masticatory function and oral health-related quality of life in patients after partial maxillectomies with closed or open defects.2016[47]	Because the closed defect related to healing not surgical intervention
17	Costa H et al .Microsurgical Reconstruction Of The Maxilla – Algorithm And Concepts.2015[48]	Only one homogenous group no comparisons (surgical group)

Table 2:- Quality and risk of bias assessment

Author	Year	Study type	Selection bias (homogeneity and confounders)	Performance bias (fidelity to protocol)	Attrition bias (loss of participants)	Detection bias (reliable measures)	Reporting bias (selective reporting or conflict interests)	Summary assessment risk of bias
Genden et al[49]	2003	Prospective	H	L	L	L	L	L
Rogers et al[50]	2003	Cross section	H	L	L	L	L	L
Wang et al[32]	2016	Cross section	H	L	L	L	L	L
Giorgio Pompa, et al [51]	2017	Retrospective	H	H	L	L	M	M
Murphy et al[52]	2012	Retrospective	H	L	M	L	L	M

Table 3:- The characteristics of the included studies

	Author (Year) Journal	Title	Study Design (Follow-up Period in Years)	Patient Information	Questionnaires for QoL	The Results	No. of Patients and Class of Defects
1	Genden et al (2003) Archives of Otolaryngology-Head & Neck Surgery[49]	Comparison of functional and quality-of-life outcomes in patients with and without palatomaxillary reconstruction: a preliminary	Prospective	N=8 (5 male, 3 female); The range of age=18-69 years; 4 OB 4 SR	1)Chewing performance , 2)Swallowing Quality of Life Survey (SWALQOL) 3)Subjective speech perception , 4)Nasometr	(Rehabilitation of the hemipaltomaxillectomy with vascularized bone-containing free flaps defect can achieve superior function and QOL outcomes relative to defect matched patient with a prosthetic obturator.)	Class II Aramany classification

		report.			y, 5)Doner site assessement, Disabilities of the Arm, Shoulder and Hand (DASH) 6) American Association of Orthopedic Surgeons (AAOS) Hip and Knee	-SWAL-QOL , Subjective speech perception showed higher QoL for SG than OB -Donor site questionnaires showed same level of quality of life -Chewing performance, Nasometry are higher in the SG but not significant	
2	Rogers et al (2003) Journal of Oral Maxillofacial Surgery[50]	Health-related quality of life after maxillectomy: a comparison between prosthetic obturation and free flap	Cross sectional study	N=28 (18 male, 10 female); mean age=64 years; 10 OB 18 SR	1)the University of Washington Head and Neck Questionnaire UW-QOL 2)European Organization for Research and Treatment of Cancer Core QOL Questionnaire (EORTC QLQ C30) 3)-EORTC Head and Neck 35 (EORTC QLQ H&N35) 4)Hospital Anxiety Depression (HAD) 5)Body Satisfaction Scale, 6)Oral symptom check list,	OB group indicate more problems with appearance in UWQOL. Anxiety scores were slightly higher in OB group but not significant . OB group is aware of their upper teeth, more self-conscious, less satisfied with upper dentures, and less satisfied with function No statistically significant differences were identified between OB and SRHowever, size of surgical defect affected “activity” and “recreation” domains of UWQOL, and “physical functioning” and “quality of life” domains of EORTC.	OB 1-I 7-IIa 1-IIb 1-IIIb SR 1-I 6-IIa 5-IIb 1-IIIa 1-IIIb 2-Iva 1-IVb Brown classification
3	Wang et al(2016) Clin. Oral	Functional outcome and quality of	Cross sectional study	N=38 (23 male, 15	1)the Obturator Functioning	The patient’s QOl with both approaches was	15 Class Ib 15 Class II 8 Class III

	Impl. Res.[32]	life after a maxillectomy: a comparison between an implant supported obturator and implant supported fixed prostheses in a free vascularized flap		female); The range of age=20-70 years; ; 18 OB 20 SR	Scale (OFS), 2)EORTC Head and Neck 35 assessment 3) Mental Health Inventory (MHI)	acceptable. However, OB group seemed to have poorer mental health than SR group . OFS is higher in OB group than SR group but not significance. No total median significant difference was found between the groups in the EORTC Head and Neck 35 . On the MHI subscales item-levels, higher median subscale scores exhibited by OB group than SR group and had statistically significant difference .However, no statistically significant median difference was detected in MHI global scale.	Okay et al classification
4	Giorgio Pompa, et al 2017 Journal of International Dental and Medical Research[51]	Quality of Life in Patients Rehabilitated with Palatal Obturator without Reconstruction Versus Fixed Implant-Prosthesis after Reconstruction of Maxillectomy Defects	Retrospective	N=68 (39 male, 29 female); The range of age=16-75 years; 21 OB 47 SR	1)Visual Analogue Scale (VAS) regarding the OB only 2) the Oral Health Impact Profile –14 (OHIP–14)	Patients in SR group resume their normal daily activities and work life earlier than those ones in OB group, they recover more successfully their oral function (chewing, swallowing, speech), they are completely reintegrated in their social dimension and show higher satisfaction for rehabilitation.	SR 9 U1-R 4 U1+2-R 7 U2-R 12 U3-R 2 U4-R 7 UC2-R 4 UC3-R 2 UC4-R OB 4 U1-C 3 U1+2-C 5 U2-C 9 U3-C New classification[54]
5	Murphy et al,2015 . J Oral	Quality of Life Factors and Survival	Retrospective	N=25 (12 male, 13	1)Swallowing 2)Diet	Obturator placement was found to be an	Total and extended maxillectom

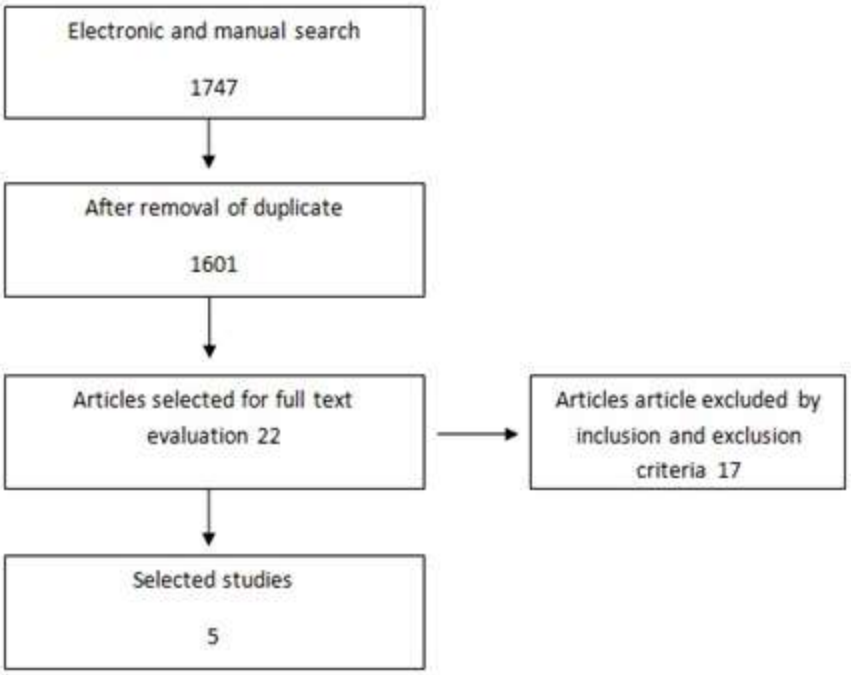
	MaxillofacSurg[52]	After Total or Extended Maxillectomy for Sinonasal Malignancies		female); The range of age=47-91 years; 11 OB 14 SR	consist 3)Pain control 4)Postoertive complication 5)Speech 6)Survival	equivalent reconstructive option with respect to the quality of life factors and complications in these patients.	y

	Dental Status (%)	No. of Patients and Disease Type	Adjuvant Treatments	Implant Therapy (Yes/No)	Geographic Location of Patients (Country)	Medical Centers
1	NR	1 AdCC 2 Osteosarcoma 2 SCC 2 Ameloblastoma 1 Cylindric cell carcinoma	4 RT (2 OB, 2 SR) 2 CT (1 OB, 1 SR)	No	USA	Department of Otolaryngology - Head and Neck Surgery
2	NR	NR	4 RT (1 OB, 3 SR)	Yes	United Kingdom.	Regional Maxillofacial Unit, University Hospital Aintree, Aintree Trust, Liverpool
3	29 Partially Edentulous 9 Edentulous	8 Gingival squamous cell carcinoma 7 Ameloblastoma 5 Maxilla sinus carcinoma 6 Hemangioma 6 Nasopharyngeal carcinoma 2 Palate mixed tumor 4 Other	11 RT (5 OB, 6 SR)	Yes	China	Department of Oral and Maxillofacial Surgery and the Department of Oral Implantology, Shanghai Ninth People's Hospital affiliated with Shanghai Jiao Tong University, School of Medicine Hospital Aintree
4	NR	2 Ameloblastoma 1 keratocysticodontogenictumor 1 pleomorphic adenoma 49 squamous cell carcinomas 12 mucoepidermoidcarcinoma and rare variants of malignant neoplasms of palate minor salivary glands 1 ameloblastic carcinoma, 1 chondroblastic osteosarcoma 1 rhabdomyosarcoma	38 RT 17 CT , RT	Yes	Italy.	Department of Odontostomatologic and Maxillofacial Sciences Sapienza University of Rome
5	Nr	13 Squamous cell carcinoma. 1 Adenocarcinoma. 4 Adenoid cystic carcinoma.	6 RT 4 CT 7 RT &CT	YES	USA	University of Maryland Marlene and Stewart

		1 Polymorphic low-grade Adenocarcinoma. 3 Mucosal melanoma 3 Osteosarcoma				Greenebaum Cancer Center, Baltimore, MD

N number ,OB obturator ,SR surgical rehabilitation ,NR not reported ,RT radiotherapy ,CT chemotherapy

Fig 1:-Prisma Flowchart of search strategy



Discussion:-

This systematic review revealed a small number of studies that evaluated the QoL of patients with maxillary defects who underwent prosthetic rehabilitation or surgical rehabilitation. None of the included studies were randomized clinical trials that revealed a well-designed methodology for clinical studies as there is no blinding, randomization, concealment and sample size calculation.[54]

The patients' age could be considered an influencing factor for selection of the type of rehabilitation.[55,56] Two studies were dealing with patients of average age 64 and 67.8 years.[50.52] While in the remaining three studies younger age were included as the age ranged from second to seventh decades,[32,49-52] so all studies included all variation of age. The size of the defects play a great role regarding QOL as larger defects are more difficult to fit with obturator prosthesis because the prosthesis is heavier. Thereby potentially creating problems related to leakage of fluid and food and causing hypernasal speech.[37]Similarly, the success of the free tissue transfers also depends upon the size of the defects.[57] Defects that are larger than one third of the hard palate are challenging to be surgically reconstructed using local flaps and may not be completely closed in a single step.[38,57] In the included studies two studies made matching of the defect and equivalent distribution of the type of the defects between both groups.[32,49]while in other studies the more larger defects were reconstructed surgically rather than prosthetically with obturator.[50,52]Another important factor for better obturator function were the extent of soft palate resection , that is to say one third or less is better regarding Qol, According to the included studies, one study deals with soft palate defects and reported an insignificant difference between both groups.[50] In this systematic review, the majority of the defects were type IIa-b Brown classification and class II okay classification , which reveals that most patients had their alveolar bone and the walls of maxillary sinus resected without involvement of the orbit. Additionally, they also had half or more of their alveolar and hard palate removed. [5,21]

The stage and type of tumor could also affect the QoL, the severity of patient's symptoms and their psychological distress. [49,52,55-61]Regarding the tumor stage, several studies reported that QoL is lower in patients who have large tumors and late stage. [58-61]In our search, only one study reported tumor stage, However, the data in the this study suggested that all approaches should be discussed with the patients without concern about the stage of tumors. [52] Another factor that may affect the function of obturator prostheses and thus the patients' QoL is the adjuvant or postoperative radiotherapy, as xerostomia and severe trismus may create problems with impression procedures and difficulties with inserting , fitting and retention of obturators. [49] Also radiotherapy may affect free tissue transfers resulting in impaired vascular function, poor healing conditions and tissues with low quality,this affecting the closure of the defect and the need for additional surgeries. [57,62,63] Probably, patients subjected to such adjuvant treatment have tumors in advanced stages and may develop depression and physiologic distress.[14] where in the included studies patients received adjuvant or postoperative radiotherapy were distributed equally in two studies. [32,49]Thus, the age, the size of defects, the type of tumor, the stage of tumor and the adjuvant radiotherapy should be taken into consideration during the selection of treatment options.

The included studies are providing clinically relevant scenarios although they were derived from geographically diverse locations where exploring the impact of these parameters on different populations reflecting cultures regarding evaluation of both rehabilitations procedures.[32,49-52]

The obturator stability and retention could be significantly affected after an extensive resection due to insufficient remaining maxillary bone or teeth thus the advent of osseointegrated implants had significantly improved the obturator retention and stability. [64-67] Also the presence of teeth or implants in surgically reconstructed area may play a role in the success of prosthetic rehabilitation of patients.[45,49] Where in the included studies four studies were managed with installing implants but the importance of implants regarding the QOL were not evaluated. [32,49-52]

A direct comparison of the QoL scores among the selected studies was a challenge because nearly two studies employed the same questionnaire EORTC Head and Neck 35 [32, 50] and evaluated functions of swallowing and speech.[49,52]Additionally, the way in which the results were presented varied among the studies (Tab 3) . It is worthy to mention that QoL researches showed that physical and emotional functioning and patients' overall health status are lowest at diagnosis and during the postsurgical period, where the main changes occurs in the first year after surgery. So, most variables return to pretreatment values.[68-70]Additionally, patients try to adapt over time and underreport deficits.[71, 72] Thus, in a longitudinal study starting before starting the treatment may show a larger differences between groups .

Conclusions:-

Surgical rehabilitation provide a better line of treatment in improving the QOL for patients with maxillary defects , On the other hand prosthetic has proved effectiveness in the immediate post-surgical times as temporary strategy, and it has represented a good alternative when the surgical obturation is compromised. Future studies should be prospectively designed describing in more detail the inclusion and exclusion criteria, evaluation QoL and best line of treatment. Consensus should be obtained regarding the standardization of the method for QoL evaluation, using validated questionnaires and validated objective tests, before and after oral rehabilitation, with adequate follow-up.

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