

Evaluating Functional Outcome of Oblique cut across Mentum in Advanced Oral Squamous Cell Carcinoma

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ABSTRACT

Introduction

Segmental / hemi mandibulectomy is standard for advanced oral squamous cell carcinoma (SCC). Sometimes the mentum needed to include to achieve an adequate resection. Loss of which often leads to a variety of complications. Evaluation of the functional outcome has been done in those cases which were unsuitable for free flap reconstruction, so an oblique cut was placed across mentum & pedicle flap was done instead.

Materials and Methods

In this study from 26 December 2022 to 25 March 2023, the effect of oblique cut across mentum in 10 patients of oral SCC were analysed for functional outcome over next 3 months.

Results

Successful decanulation from tracheostomy tube were achieved in all patients by 6 weeks. By 12 weeks nasogastric tube removal and commencement of oral feeding were achieved in all. Complete oral competency were achieved in all by 12 weeks.

Conclusion

Mandibular reconstruction is necessary to restore postoperative function. Free flaps remain the first choice. But sometimes the patients' age, overall health & co-morbidities are not in favour; hence pedicle flaps are needed. Preserving the mentum with clear margin then requires very stringent case selection. This novel approach, in selected cases may solve a lot of functional issues.

Keywords

Oral squamous carcinoma; Hemi-mandibulectomy; Segmental-mandibulectomy; Mentum; Pedicle Flap; Free Flap

Segmental / hemimandibulectomy is a standard procedure for locally advanced Squamous cell cancer [SCC] of oral cavity. Sometimes the mentum has to be included in specimen to achieve an oncological R0 resection margin. Loss of mentum often leads to a variety of complications i.e oral incompetency, fall back of tongue, difficulty in swallowing, risk of aspiration and dysarthria. Removing mentum often requires Fibular free flap reconstruction to maintain functional outcome. Cases which are not suitable for free flap, keeping a part of mentum often is a tricky issue as one has to achieve an R0 margin and also at the same time to maintain the functional outcome in terms of quality of life.

Materials and Methods

In this study from 26 December 2022 to 25 March 2023 done in a tertiary Cancer Hospital of eastern India, the

effect of oblique cut across mentum in 10 patients of SCC of oral cavity (T3, T4a) touching /close to mentum (up to ipsilateral canine) were analysed. All are above 60 years (including both male and female). 6 of them had significant medical comorbidities (3 had Coronary artery disease, 2 had chronic kidney disease, 1 had a history of CVA with diabetes & hypertension) making them not very suitable for long hours of surgery needed for free flap and / re-exploration if required. 4 patients had severe post adjuvant radiotherapy changes with local recurrence making them un-suitable for free fibular flap. They all underwent segmental / hemi mandibulectomy with

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oblique cut placed across mentum preserving lower border of mandible and reconstruction done with Pectoralis major myocutaneous flap. In all cases a clear (> 5mm) tumour free margin (R0) was found in final HPE. All were

subjected to speech and swallowing rehabilitation training after 3 weeks of surgery. Functional outcome in terms of swallowing, decanulation of tracheostomy tube, oral competency were evaluated over next 3 months.

Results

Table I: Patients and comorbidities

COMORBIDITIES	NO. OF PATIENTS
Coronary artery disease	3
Chronic kidney disease	2
D.M+HTN+CVA	1
Post radiation changes with local recurrence	4

Successful decanulation from tracheostomy tube was achieved in all 3 patients with Coronary artery disease & 2 patients with chronic kidney disease by 1 week after

surgery, by 3 weeks in 4 patients with post radiation changes with local recurrence & by 6 weeks in the one with history of CVA with diabetes & hypertension.

Table II: Successful decanulation from tracheostomy tube

Duration	NO. OF PATIENTS WITH COMORBIDITIES			
	Coronary artery disease (3)	Chronic kidney disease (2)	D.M+HTN+ CVA(1)	Post Radiation with local recurrence (4)
At 1 week	3	2	Not possible	Not possible
At 3 weeks or before	Already done	Already done	Not possible	4
At 6 weeks or before	Already done	Already done	1	Already done
At 12 weeks or before	Already done	Already done	Already done	Already done

Nasogastric tube removal and commencement of oral feeding was achieved in all 3 patients with Coronary artery disease & 2 patients with chronic kidney disease by 3 weeks after surgery, by 6 weeks in 4 patients with post

radiation changes with local recurrence & by 12 weeks in the one with history of CVA with diabetes & hypertension.

Table III: Nasogastric tube removal and commencement of oral feeding

Duration	NO. OF PATIENTS WITH COMORBIDITIES			
	Coronary artery disease (3)	Chronic kidney disease (2)	D.M+HTN+ CVA(1)	Post Radiation with local recurrence (4)
At 1 week	Not possible	Not possible	Not possible	Not possible
At 3 weeks or before	3	2	Not possible	Not possible
At 6 weeks or before	Already done	Already done	Not possible	4
At 12 weeks or before	Already done	Already done	1	Already done

Patients with coronary artery disease (3) & chronic kidney disease (2) achieved oral competency partially by 1 week & completely by 3 weeks. The one with history of CVA with diabetes & hypertension and those with post radiation recurrence (4) achieved oral competency

partially by 3 weeks. Patients with post radiation recurrence (4) achieved complete competency by 6 weeks and The one with history of CVA with diabetes & hypertension achieved complete competency by 12 weeks.

Table IV: Oral Competency

DURATION	ORAL COMPETENCY			
	No. of Patients with comorbidities	Poor competency	Partially competent	Adequate competency
At 1 week	Coronary artery disease (3)	None	3	None
	Chronic kidney disease (2)	None	2	None
	D.M+HTN+CVA(1)	1	None	None
	Post radiation with recurrence (4)	4	None	None
At 3 weeks or before	Coronary artery disease (3)	None	None	3
	Chronic kidney disease (2)	None	None	2
	D.M+HTN+CVA(1)	None	1	None
	Post radiation with recurrence (4)	None	4	None
At 6 weeks or before	Coronary artery disease (3)	None	None	3
	Chronic kidney disease (2)	None	None	2
	D.M+HTN+CVA(1)	None	1	None
	Post radiation with recurrence (4)	None	None	4
At 12 weeks or before	Coronary artery disease (3)	None	None	3
	Chronic kidney disease (2)	None	None	2
	D.M+HTN+CVA (1)	None	None	1
	Post radiation with recurrence (4)	None	None	4

Discussion

Successful mandibular reconstruction is necessary to ensure satisfactory postoperative cosmetic outcome and to restore optimal function, including speech and mastication; therefore, this surgery is a complicated and challenging procedure^{1,2}. Reconstruction using a fibula free flap can be considered to restore the continuity of the mandible following segmental mandibulectomy.³ Reconstruction using a fibula free flap and a reconstruction plate is associated with stability & aesthetic satisfaction. However, occasional flap failure, non-union, instability, and infection are known complications in such cases⁴ that reflect the complexity of the procedures and appear strongly related to the underlying disease and predisposing medical risk factors hence may not be suitable for elderly patients with atherosclerotic vascular changes, patients with comorbidities / recurrence with post radiation changes. Though free flaps remain the first choice for reconstruction of any type of defects following oral cancer resections having the advantage of multiple donor site availability and reliability but the procedures being intricate and time-consuming, requiring advanced training and resources; hence, it cannot be considered in all settings. Alternate reconstructive techniques with local and pedicled flaps have been adopted to reach the ultimate goal in most high volume cancer centers.⁵

Therefore in carefully selected cases our approach of preserving part of lower portion of mentum, without jeopardizing the tumour free resection with adequate margin (R0) may solve a lot of functional issues in immediate and long term future.

Conclusion

Preserving the mentum in locally advanced SCC of oral cavity without jeopardizing the tumour free resection with clear margin (R0), requires very stringent case selection. Therefore wherever, though only in a few cases, where it is required, particularly where free flap is not possible, our novel approach of preserving part of lower portion of mentum, may solve a lot of functional issues in immediate and long term post-operative period. So we advocate this approach for larger scale studies involving multiple institutions in carefully selected cases for further evaluation, particularly where free flap might not be an option.

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