Original Article

Complications of Selective Neck Dissection for Squamous Cell Carcinoma of Head and Neck Region

1. Fazal Dad Kaka 2. Asma Uppal 3. Shehbaz Uppal 4. Rukshana Majeed

1. Demonstrator SPH/BMC Quetta Asstt. 2. Prof. of Dentistry, SPH/BMC, Quetta 3. Gen. Surgeon, DHQ Hospital, Jhelum 4. Prof. of Community Medicine, BMC, Quetta.

ABSTRACT

Objective: To determine the complications of the selective neck surgery for oral squamous cell carcinoma.
Study Design: Cross-sectional Study.
Place and Duration of Study: This study was conducted in dental section, Mayo hospital, Lahore from 1ST January to 31ST December 2002
Methods and Materials: Fifteen patients of squamous cell carcinoma of the oral cavity were selected. All the patients underwent selective neck surgery. Postoperative complications were recorded at each follow up visit. The patients were kept under study for one year.
Results: Post operatively, secondary hemorrhage occurred in 26.7%, of the patients, delayed healing due to infection in 46.7 % of the patients. There was no recurrence after 1 month, 3 month and 6 month. However after 9 months recurrence was noted in 20% of patients.
Conclusion: Complications occur after selective neck surgery. Recurrence however is higher with selective neck surgery.
Key Words: Oral squamous cell carcinoma, Selective neck surgery, Neck dissection.

INTRODUCTION

Oral squamous cell carcinoma is the 6th most common cancer world wide.[1] It is the most common oral malignant tumor i.e. 97% in head and neck region. Head and neck malignancies also represent 7% of newly diagnosed cancers.[2]

The treatment of the neck in patients with squamous cell carcinoma of the head and neck region continues to be one of the most controversial issues in head and neck oncology.

In most recent years, the decision regarding the management of the palpable cervical nodes is centered mostly around the method of treatment, either radical neck dissection or selective neck dissection. The decision of selection between these two is often dependent on the extent of regional disease or evidence of extra capsular spread of the tumor in to the adjacent structrure.[3]

Radical neck dissection indicated when there are multiple clinically obvious cervical lymph node metastasis, particularly when involve the lymph nodes of the posterior triangle of the neck and these are found to be closely related to the spinal accessory nerve. It is also indicated when there is a large metastatic tumor mass or there is multiple matted nodes in the upper portion of the neck

Radical neck dissection carries a significant morbidity as many normal anatomical structures are sacrificed.[4]

Unlike that produced by the radical neck dissection, selective neck dissection produces minimum dysfunction of the prapezius muscle which is usually temporary and reversibl.[5,6]

Preservation of sternocleidomastoid muscle renders good soft tissue cover over carotid vessels and result in normal neck contours. Excision of internal jugular vein results in decrease in venous return and risk of secondary haemorrhage.

If these structures can be preserved with out compromising the disease control, the morbidity of surgery can be minimized.

Selective neck dissection is defined as en bloc removal of only those Lymph nodegroups which are most likely to contain metastasis depending on the location of the primary tumor.[3]

Although preservation of functional and cosmetically relevant structures were also primary goals in the development of these operation, their current use is predicated on the following concepts: en bloc removal of the nodes at highest risk from metastasis is anatomically justified; it has the same therapeutic vale and provides the surgeon with the same staging information as the more extensive radical and modified radical neck dissection and it is associated with less postoperative morbidity.[7]

This study is intended to determine the frequency of different complications of selective neck dissection. If the frequency of different complications especially of recurrence and metastasis is found to be then priority will be given to the selective neck dissection for the surgical treatment of oral carcinoma.

MATERIALS AND METHODS

- This was a case series study. Fifteen patients of age 18 to 65 years age, with histopathologically confirmed squamous cell carcinoma of oral cavity, along with T2, T3, T4 and N1, N2 disease confined

to level I, II, III lymph node involvement, having received no treatment in the past were selected amongst those who presented in out patient department. All cases in the study underwent selective neck surgery and followed up from 1st January 2002 to 31st December 2002 at the department of oral and maxillofacial surgery, king Edward Medical College /Mayo Hospital, Lahore. Patients with recurrent disease, evidence of distant metastasis, evidence of other malignancy along with oral tumor and medically unfit for surgery were excluded from the sample because they will act as effect modifiers and if included in the study sample will result in bias in the study results. Written informed consent will be taken from the patients for inclusion in the study sample. The patients will be ensured for the confidentiality of their data.

Outcome in terms of control of cervical metastasis, recurrence and other post operative complications were evaluated. The patients were followed up for a period of one year after discharge.

At each follow up visit following were checked and recorded.

- Infection,
- Recurrence,
- Metastasis,
- Shoulder drop,
- Any other problem regarding the surgery.

Patient were examined at intervals of one month after getting discharged and then after three month, sixth month and nine month post operatively.

RESULTS

- Over a period of one year from 1ST January to 31ST December 2002,
- fifteen(15) patients who underwent selective neck dissection were studied for the development of post operative complications, metastasis and recurrence of tumour. In all patients surgical excision of tumorous mass along with selective
- neck dissection was done .
- The age range of the patients included in the study was 33-47 year with a mean of 49 + 11.8 years. Female to male ratio was 1:4 as shown in table No.1.
- Histopatholgically 100% of cases were diagnosed as squamous cell carcinoma of oral cavity .
- In the study sample 60.0% of the patients were in grad I, 20% in grad II and 20% in
- Grad III category shown in table No.2
- Post operatively, secondary hemorrhage occurred in 40.0% , delayed healing due to infection occurred in 73.3 %.
- Follow up was done over a period if 1 year on quaterly basis. There was no recurrence after 1 month, 3Month and 6 month.
- After 9 month review recurrence was noted in 6.7% of the patients. Frequency of different complications is shown in table No 3.

Table No.1: Distribution of gender in the sample

Gender	Frequency	percentage
Female	3	20.0
Male	12	80.0

Table No.2: Distribution of respondents by grading of tumors.

Category	Number	Percentage
I	11	73.33%
II	3	20.00%
III	1	6.67%

Table No.3: Complications following selective and radical dissection of neck.

Complications Selective dissection (n=15)

	Number	Percentage
Hemorrhage*	4	26.7
Delayed healing:	7	46.7
Metastasis after:		
3 Months	0	0.0
6 Month	0	0.0
9 Month	3	20.3

DISCUSSION

Any type of neck dissection in cases of oral carcinoma may result in different complications depending upon the type of the neck dissection. Colemann jj categorized these complications following neck dissection as:

Anatomic: Injury to nerves or blood vessels with in the field of surgery.

Physiologic: The result of interference with blood or lymphatic supply to the area secondary to surgery.

Technical: Surgical rearrangement that result in secondary problems.

Functional: Derangements of normal behaviour secondary to therpy.[8]

They noted that dysfunction occurred more frequently among those patients who undergo radical neck dissection due to excision of different anatomical structures.

In 1985, Sobol et al. performed a prospective study in which preoperative and postoperative measures of shoulder range of motion were compared. Shoulder range of motion was better in patients who underwent a selective neck dissection than in patients who had a radical neck dissection.[6]

In our study there was no dysfunction of the shoulder movement as spinal accessory nerve was not sacrificed .

Byers RM (1985) concluded that obstruction of one or both jugular veins, particularly when combined with lymphadenectomy, results in lymph oedema of the face.[9]

In our study, there was no such complication like lymph oedema of the face due to the obstruction of the jugular vein because the juguler vein remain intact. Byers RM concluded that obstruction of one or both jugular veins, particularly when combined with lymphadenectomy, results in lymph oedema of the face[9], which is usually seen in cases of radical neck dissection. However secondary haemorrhage occurred in 26.7% of the patients.

In our study there was no such complication like ischemia of skin or mucosa, flap necrosis except, delayed healing occurred due to infection in 46.7%. This is perhaps because of extent of surgery. However Hirate RM, Jaques DA et al, concluded that the combination of infection and local ischemia of skin or mucosa may result in wound infection, suture line break and flap necrosis.[10]

In our study, metastasis along with recurrence occurred in 3 patients out of 15 at the level lV 9 months after the surgery.

Casumano RJ, Persky MS concluded that the squamous cell carcinoma has a high recurrence rate. 89% of patients showed locoregional recurrence with in 2 years of therapy.[11] In our study the follow up period was up to one year therefore low recurrence rate was noted.

There are some limitation in our study like small sample size and short duration of the study. To further look into the matter we need large sample size and longer follow up duration to find exactly the late complications and recurrence in these patients.

CONCLUSION

Complications occur after selective neck surgery. Recurrence however is higher with selective neck surgery.

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Address for Corresponding Author:
Dr. Fazal Dad Kaka,
Demonstrator SPH/BMC Quetta.
Address: Kakar Dental Clinic Pashen Staff Near AG office Quetta
E-mail: kamkolian@yahoo.com