Original Article

Complications of Radical Neck Surgery for Squamous Cell Carcinoma

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ABSTRACT

Objective: To determine the complications of the Radical 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 2001.

Materials and Methods: The study was conducted in dental section, Mayo hospital, Lahore. Fifteen patients of squamous cell carcinoma of the oral cavity were selected. All the patients underwent radical neck surgery. Postoperative complications were recorded at each follow up visit.

Results: Post operatively, secondary hemorrhage occurred in 40.0%, of the patients, delayed healing due to infection in 73.3 % of the patients. There was no recurrence after 1 month, 3 month and 6 month. After 9 months recurrence was noted in 6.7% of patients.

Conclusion: Complications occur after radical neck surgery. Recurrence however is lower with radical neck surgery.

Key Words: Oral squamous cell carcinoma, Radical neck surgery, Neck dissection

INTRODUCTION

Oral squamous cell carcinoma is the 6th most common cancer world wide.[1] 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. The evolution of the treatment of the neck is a good maximize tumor control and minimize morbidity to each patient with the passage of time.[3]

The radical neck dissection remains the basic tool for managing cervical metastasis.[4]

The radical neck dissection is defined as the en block removal of the lymph node bearing tissues for one side of the neck The resected specimen included the spinal accessory nerve, the internal jugular vein, and the sternocleidomastoid muscle.[3]

Removal of the primary tumor and the lymphatic system of the neck should be carried out to prevent further tumor dissemination to occur in any direction.[5]

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 protion of the neck, In such instances it is unwise to preserve the stemocleidomastoid muscle or the internal jugular vein or to dissect the spinal accessory nerve and risk entering the tumor.5

Radical neck dissection carries a significant morbidity as many normal anatomical structures are sacrificed.[5]

The postoperative complications routinely included severe facial and cerebral edema, shoulder dysfunction, skin necrosis, and carotid rupture.

Spinal accessory nerve is removed to better ensure removal of all perineural lymphatics. Sacrifice of this nerve entails loss of function of the trapezius muscle and resultant debilitating "SHOULDER DROP".[6]

Leipzig et al. (1983) studied 109 patients, who had undergone various types of neck dissection, utilizing preoperative and postoperative observations of shoulder movement. They concluded that any that any type of

Neck dissection may result in impairment of function of the shoulder.

They noted that dysfunction occurred more frequently among those patients in whom the spinal accessory nerve was extensively dissected or resected.[7]

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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]

Hirate RM, Jaques DA et al , (1975) 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]

MATERIALS AND METHODS

This was a cross sectional study conducted in the department of oral and maxillofacial surgery, king Edward Medical College /Mayo Hospital, Lahore

Consecutive sampling was done to collect the sample. Fifteen patients were selected according to the set inclusion criteria from out patient department who presented with squamous cell carcinoma of oral cavity along with level I, II, III lymph node involvement. Patients with recurrent disease, evidence of distant metastasis, evidence of other malignancy along with oral tumor and those who were medically unfit for surgery were excluded from the sample so that bias in the study results can be controlled.

Informed consent from all patients was taken. The patients were ensured about the confidentiality of the information given by them. Radical neck dissection along with excision of tumorous mass was done. All cases in the study were followed up from 1st January 2001 to 31st December 2001 at intervals of one month, three months, six months and nine months. At each follow up visit complications in terms of infection, hemorrhage, recurrence, metastasis were checked and recorded.

RESULTS

Over a period of one year from 1ST January to 31ST December 2001, total number of fifteen (15) patients were studied. Surgical excision of tumorous mass along with radical neck dissection was done. The mean age of patients studied was 49 years with SD of 11.8 years.(table-I) It was seen that 20.0% of the patients were female and 80.0% were male. All the patients were confirmed histopatholgically and 100% of cases were proved as squamous cell carcinoma of the oral cavity. In the study group, 60.0% of the patients were in grad I, 20% in grad II and 20% in Grad III category (table-II). Post operatively, secondary hemorrhage occurred in 40.0%, (table-9), delayed healing due to infection occurred in 73.3% (Table-3). Follow up was done over a period if 1 year on quaterly basis. In group I and group II, there was no recurrence after 1 month, 3 Month and 6 month. After 9 month review recurrence was noted. It was 6.7% in group.

Table No.1: Group undergoing radical neck dissection

N	Mean age*	Std deviation
Radical neck 15 Dissection	49.1	11.8

Table No.2: Category of tumors in patients of oral squamous cell carcinoma.

Category	Number	Percentage
I	9	60.00%
II	3	20.00
III	3	20.00%

Table No.3: Complications following selective and radical dissection of neck. Radical Dissection (n=15)

Complications	Number	Percentage
Hemorrhage*	6	40.0
Delayed Metastasis after:	11	73.3
3 Months	0	0.0
6 Month	0	0.0
9 Month	1	6.7

DISCUSSION

Fifteen patients of oral squamous cell carcinoma were enrolled for radical neck dissection along with surgical excision of tumorous mass.

The main purpose of this study was to determine the post operative complication like secondary haemorrhage, delayed healing, shoulder prop and recurrence in both surgical procedures and to find out the best surgical option for the management of cervical lymph node metastasis.

Colemann JJ (1986) categorized the Complications specific to surgical treatment of oral cavity cancer are:[11]

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.

Byers RM, Maxmell PFel (1988) said that theaxssory, marginal mandibular, mylohyoid and cervical plexus sensory branches are frequently sacrificed in neck dissection. Injuries caused by traction, electrocautry or other technical misadventure may affect hypoglossal, lingual, mandibular, vagus, phrenic, facial, recurrent laryngeal, motor branches to cervical plexus and cervical sympathatic chain.[12]

Spinal accessory nerve is removed in Radical Neck Dissection to better ensure removal of all perineural lymphatics. Sacrifice of this nerve entails loss of function of the trapezius muscle and resultant debilitating "SHOULDER DROP".[6] Leipzig et al. (1983) studied 109 patients, who had undergone various types of neck dissection, utilizing preoperative and postoperative observations of shoulder movement. They concluded that any that any type of Neck dissection may result in impairment of function of the shoulder.

They noted that dysfunction occurred more frequently among those patients in whom the spinal accessory nerve was extensively dissected or resected.[7]

In this study no complication related to shoulder was observed because in all the cases the accessory nerve was spared.

In our study there was no such complication like ischemia of skin or mucosa, flap necrosis. However delayed healing, due to infection, occurred in 73.3% of patients. Because of old age, malnutrition & long stay in hospital for post operative care.

In our study, there was no such complication like lymph oedema of the face due to the obstruction of the jugular vein however haemorrhage occurred in 40.0% of cases. This is perhaps due to infection of wound.

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 radical neck surgery. Recurrence however is lower with radical neck surgery.

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