Original Article

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Oncology Section

Role of Neck Dissection in Clinical $T_3N_0M_0$ Lesion of Oral Cavity: Changing Trend

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ABSTRACT

Introduction: Neck dissection is an important part in the management of head and neck malignancies especially in terms of control of nodal metastasis. The study is focused on evaluating the profile of lymph nodes in $T_3N_0M_0$ lesion of different subsides of oral cavity

Aim: To evaluate the utility of neck dissection in $T_3N_0M_0$ stage of carcinomas of the different region of oral cavity.

Materials and Methods: Ninety patients aged 20 to 70 years underwent treatment for carcinoma of the oral cavity at our center between 2005 and 2013. Of these, 39 patients were stage $T_3N_0M_0$ and underwent excision of the primary lesion with neck dissection. The data were collected retrospectively from hospital record library. These patients were evaluated clinically, radiologically and compared with intra operative finding. Addition of radiotherapy was decided on final histopathology.

Results: Out of 39 patients, the site of primary tumour in 21 patients was tongue, in 13 patients was Buccal Mucosa (BM), in 2 patients was lip and in 3 patients was Floor of Mouth (FOM) with tongue. In patients with clinically negative neck nodes, ultrasonography and intra-operative examination revealed the presence of suspicious nodes in 35.9% and 30.7% cases respectively. Occult metastasis in the nodes was identified on histopathological examination in 15 patients (38.5%). A total of 14 patients of carcinoma of tongue and one patient of BM showed positive nodes on histopathology. These patients with positive neck nodes on histopathology, were sent for postoperative radiotherapy. At follow up examination, four patients showed local and distal recurrence and they were managed accordingly. Out of 39 patients, 11 patients of BM, 2 patients of lip, 1 patient of FOM and 6 patients of tongue were disease free in last follow up.

Conclusion: Selective neck dissection is an effective therapeutic intervention in patients without clinically involved neck nodes. It can upstage the tumour and additional treatment may be advised. In patients with carcinoma of buccal mucosa and lip, the patients can be kept under regular follow up when biopsy report showed excision with adequate margin and no nodal metastasis.

Keywords: Buccal mucosa, Extended supra-omohyoid neck dissection, Occult metastasis, Selective neck dissection

INTRODUCTION

Head and neck malignancies often metastasize to lymph nodes in the cervical region. The presence of lymph node metastasis is one of the most important factors adversely affecting the prognosis and overall survival in patients with carcinoma of the oral cavity [1]. As a result, management of malignant deposits in the neck is an essential part of any therapeutic intervention. Clinically, occult disease in this region can often complicate matters and there is a paucity of data regarding the optimal management in such cases.

Nodal involvement in cancers of the oral cavity often follows predictable patterns conforming to drainage. As a consequence, it has been observed that level I and II nodes are most frequently affected. Levels III and IV can be involved without levels I and II being affected as well, a phenomenon known as “skip metastasis” [2,3]. Selective neck dissection is recommended in patients with locally and regionally advanced malignancies of the oral cavity in addition to surgical management of the primary tumour [4]. The decision to undertake elective neck dissection in such patients should also be based upon the risk of occult metastatic disease in the neck nodes. The depth of invasion is one of the most important factors in predicting the likelihood of occult metastasis [5]. Selective neck dissection has been shown to provide disease control similar to radical neck dissection with a lower rate of postoperative complications and morbidity [6-11]. Aim of our study was to assess selective neck dissection in node negative T3 oral carcinoma.

MATERIALS AND METHODS

This retrospective study was carried out from 2005-2013 in the ENT department of the Government Medical College Hospital, Chandigarh, India. Out of 90 patients that underwent surgery for oral cavity malignancies, thirty-nine patients with $T_3N_0M_0$ disease were identified. All cases with T_3 oral cancer without clinically palpable nodes and metastasis were included in the study. All other cases of oral cancers or cases with recurrence were excluded from study. Written informed consent was obtained from all patients. Detailed history and risk factors were noted. Postoperative complications were also studied. All patients underwent standard preoperative evaluation at our centre with a complete blood count, biochemical panel, X-Ray chest, histopathological examination and an Ultrasonography (USG) of the neck and abdomen.

The patients underwent wide local excision of the primary tumour with a minimum margin of two centimeters with extended supra-omohyoid neck dissection. The patients with clinically negative lymph nodes but suspected metastatic neck nodes on USG were planned for modified neck dissection. All surgical specimens were subjected to histopathological examination. The specimen was examined for margin, lymph node involvement and extracapsular involvement with lympho-vascular invasion. Patients with advanced stage, poorly differentiated tumour, positive margins and lymph-node involvement were referred for further chemotherapy or radiation therapy.

RESULTS

Thirty nine patients were available for final analysis. Thirty six (92%) were males and the age ranged from 20 to 70 years. One quarter of the patients was in the age group of 50-60 years. The follow up

period was ranging from 8 to 84 months. Patient profile, risk factors and clinical details are described in [Table/Fig-1].

Parameter	Number (N=39)	Percent
Age		
20-30	8	20.5
30-40	8	20.5
40-50	7	18.0
50-60	10	25.6
60-70	6	15.4
Sex		
Male	36	92%
Female	3	8%
Risk Factors		
Smoking	33	84.6%
Alcohol	21	53.8%
Betel nut Chewing	19	48.7%
Tobacco Chewing	14	35.9%
Carious teeth28	10	25.6%
Social Background		
Rural	25	64.1%
Urban	14	35.9%
Education status		
Uneducated	29	74.4%
Educated	10	25.6%
Site of lesion		
Tongue	21	53.8%
Floor of mouth	3	7.7%
Buccal mucosa	13	33.3%
Lip	2	5.1%

[Table/Fig-1]: Patient profile and site of lesion.

In patients with clinically negative neck nodes, ultrasonography revealed the presence of suspicious nodes in 35.9% cases (14/39). The size of node was varying from 8 mm -2.6 cm. In these patients, the plan was changed from selective neck dissection to modified neck dissection. The final histopathology report showed positive neck node at all respected level in USG.

Postoperative complications were seen in six patients. Three patients developed wound dehiscence, two patients had marginal mandibular nerve paresis and one patient had excessive postoperative bleeding. The postoperative bleeding was managed by re-exploration of wound.

Two out of 21 patients of carcinoma tongue and one out of three patient of FOM showed positive margin on histopathology and margin was revised in these cases. Occult metastasis in the nodes was identified on histopathological examination in 15 patients (38.5%). Fourteen out of 21 patients of tongue and 1 out of 13 patients of BM primary lesion showed positive lymph nodes on histopathology [Table/Fig-2]. These 15 patients were sent for postoperative radiotherapy. In follow up period, out of 24 patients, one patient developed local and nodal recurrence, two patients developed cervical lymph node recurrence and one patient developed distant metastasis. One patient of carcinoma tongue had developed local and nodal recurrence; two patient of FOM had cervical lymph node recurrence and one patient of carcinoma of buccal mucosa presented with distant metastasis at lung. First three patients were subjected for revision surgery and postoperative radiotherapy. One patient with distant metastasis received three cycle of chemotherapy. This patient showed no improvement and died due to respiratory problem. Out of 39 patients, 11 patients of BM, two patients of lip, one patient of FOM and six patients of tongue were disease free in last follow up.

Site of lesion	Total number of patients	Node positive on histopathology	Recurrence	Disease free patients
Tongue	21	14	1	6
Floor of mouth	3	0	2	1
Buccal mucosa	13	1	1	11
Lip	2	0	0	2

[Table/Fig-2]: Disease status according to site of lesion.

DISCUSSION

Patients with malignant lesion involving the oral cavity often have disease metastasizing to lymph nodes in the neck region. The incidence of disease in neck nodes ranges from 15%-26% in various series [12-14]. Our data has shown the incidence of occult nodal disease in the neck to be 38.5%. The routine pre-operative screening procedure does not include functional imaging or ultrasonography. Functional imaging techniques such as Positron Emission Tomography (PET) in combination with conventional imaging techniques have been extensively evaluated in patients with head and neck tumours. A study in 106 patients with oral cavity malignancies compared PET with CT and Magnetic Resonance Imaging (MRI) and showed a sensitivity of 70% and specificity of 82% [15]. However, a high rate of false positive and negative scans was found to complicate decision making in similar settings and the routine use of these modalities is currently not recommended [16,17]. Ultrasonographic assessment of the clinically negative neck in patients with oral cavity malignancies has been shown to be highly sensitive [15,18]. Some studies have advocated a "wait-and-see" policy with serial USG guided fine needle aspirations but this benefits only a minority of cases [19]. It is likely that the omission of such investigations from the diagnostic and staging repertoire underestimates the extent of disease in these patients, particularly in cases of locally advanced tumours. Despite these findings, there is not enough evidence to routinely recommend these investigations in patients with oral cavity malignancies. USG however, may be an accurate and cost effective in addition to the preoperative screen. Studies have reported increase in pick up rate with increase in size of nodes [20]. The detection of nodes that are not clinically apparent also indicates that these patients are likely to benefit from more extensive surgical management, such as SND in addition to local excision, and postoperative therapy such as radiation or chemotherapy.

Our study also shows that the incidence of level IV node involvement in patients with occult neck nodes was 5%. The extent of neck dissection in patients with clinically negative neck is debatable, with surgery being limited to levels II and III in most cases [21]. Our study shows that a larger number of patients may have disease reaching up to level IV lymph nodes possibly justifying the need for an extended neck dissection in oral lesion.

In our series, the patient with carcinoma of buccal mucosa and lip were 15 out of 39 patients. The recurrence rate was 1/15(6%), where as in other studies recurrence free survival was 96% [22], 77.3% [23]. The betel nut and tobacco chewing is common in Northern part of India. Patients usually keep these things in oral cavity for prolonged time. Addiction of these products can lead to epithelial atrophy and collagen deposition in submucosa and lamina propria of buccal mucosa and condition is called as Oral Submucous Fibrosis (OSMF). OSMF is one of the premalignant lesions of oral cavity but subsequent development of malignancy has better grade of differentiation. These well differentiated tumour have less chances of local and distal metastasis with good prognostic behaviour [24] as we observed in our study. The literature showed lymphatic metastasis in buccal mucosa malignancy is less as compare to other subside of oral cavity as we seen in our study [25,26]. The

Indian literature is in support of single modality treatment for buccal mucosa malignancies either surgery or brachytherapy and here we opted for surgery because it can detect local metastasis in early stage in N_0 neck [27].

LIMITATION

The limitations are small sample size of selected group and patients were often lost to follow up, restricting in long-term evaluation.

CONCLUSION

Selective neck dissection is now recommended in patients with locally advanced oral cavity malignancies. The high incidence of occult neck node disease can be used to justify the inclusion of preoperative USG or other imaging to accurately stratify the disease risk. Involvement of level IV nodes in our series may make a case for more extensive neck dissection in these patients however more data is needed for this. The role of postoperative therapy is also to be considered in these patients. In patients with carcinoma of buccal mucosa and lip, the patients can be kept under regular follow up when biopsy report showed excision with adequate margin and no nodal metastasis.

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