



A Study of Cervical Lymphnode Metastasis from Primary in Head and Neck Cancers

KEYWORDS

Head and Neck, Cancer, lymph node, metastasis.

Dr. C Ramchandriah

Assistant professor, Osmania General Hospital, Hyderabad.

Dr. G. Vijayabharghav

Assistant professor, Osmania General Hospital, Hyderabad.

Dr. K Sudarshan Reddy

ABSTRACT

The study is aimed at finding the Incidence and patterns of lymph node metastasis, relation between levels of nodal involvement and relation between nodal (N) stage with primary site, T- stage and histological grade. A series of 40 cases were studied both clinically and pathologically, from September 2013 to August 2014

INTRODUCTION:

"Head and neck cancer" refers to tumors of myriad sites of origin and histological types. Over 90% of these are squamous cell Carcinomas arising from the epithelium of the upper aero digestive tract (Oral cavity, oropharynx, Nasal cavity, Nasopharynx, Larynx, and Hypopharynx). Head and Neck cancers that are localized to the primary site without regional lymph nodes metastasis have excellent cure rates with either surgery or Radiation therapy. The presence of regional metastasis results in cure rates that are approximately half of this obtainable if metastasis to the regional lymph nodes is not present. Thus the status of the regional lymphatic is one of the most prognostic indicators in patients with Head and Neck cancers and treatment of the neck is one of the most actively debated topics in the field of Head and Neck oncology. Accurate detection and measurement of clinical and sub-clinical metastasis is important for precise staging of patients with Head and Neck cancer, because staging usually determines the treatment strategy. A series of 40 cases were studied both clinically and pathologically, from September 2012 to march 2013. We have reviewed, and evaluated the Post-Surgical Resection Specimen's (Both Primary and Neck Nodes) in the department of Pathology at M.N.J cancer hospital affiliated to Osmania General Hospital/Osmania Medical Collage, Hyderabad.

METHODOLOGY:

INCLUSION CRITERIA:

1. Primary tumor was diagnosed in UAD and clinically palpable cervical lymphadenopathy presents.
2. Histology/Cytology of the primary tumor and cervical lymph node were confirmed to be malignant before therapy.
3. Histological variants of squamous cell carcinoma, i.e. verrucous, spindle cell, etc. all were included.
4. Radical Neck dissection synchronous with the surgical excision of the primary were analysed.

EXCLUSION CRITERIA:

- A. Any previous therapy i.e., Operations, Radiotherapy, Chemotherapy
- B. Multiple Synchronous Primary tumor
- C. patients with inadequate data
- D. Pts with tumor other than squamous cell carcinoma.

General information of the patient and symptomatology of the patient analyzed. Detailed Head and neck Examination was done and clinical diagnosis was confirmed pathologi-

cally by cytological and /or histological methods. Staging of the cancer was arrived at by various techniques. Management policy and selection of therapy took into consideration. The general condition of pts (Karnofsky or ECOG scale) Age, Anatomical site, Stage of the primary tumor and metastatic neck nodes. Detailed work up for the proposed operation was done in Consultation with medical internist anesthesiologist. SURGERY WAS DONE {combined resection} i.e., RND Synchronous with surgical excision of primary. Post-surgical resection specimens were subjected to a detailed histo-pathological Evolution and records of these patients were reviewed. Compilation of the data was performed using the D-base 3- plus program (Ashtan-tate, Torrance, California). Statistical analysis was performed using Chi-square Method.

RESULTS AND ANALYSIS:

A Sample of 40 patients were studied and they were classified according to the primary site namely

- Oral cavity(n=30)75%
- Oropharynx(n=9)23%
- Larynx (n=0)02%
- Hypopharynx(n=0) 0%
- Sino-nasal cavity(n=0)0%
- Nasopharynx (n=0)0%

AGE INCIDENCE

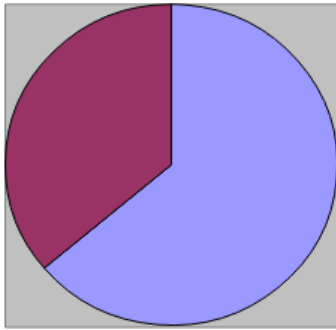
AGE INCIDENCE	NUMBER OF CASES	PERCENTAGE
0-29	2	5%
30-39	4	10%
40-49	10	25%
50-59	15	38%
60-69	08	15%
70-79	03	06%
TOTAL	N=40	100%

Peak age group was 50-59 years (38%).

SEX INCIDENCE

SEX INCIDENCE	N=40	percentage
Male	27	64%
Female	13	36%
Total	N=40	100%

There was a male predominance in head and neck cancers constituting 64%.



INCOME GROUP

INCOME GROUP	N=40	percentage
Low	31	78%
Middle	9	22%
High	0	0%
Total	N=40	100%

Majority of the patients were from low socio economic group constituting 78%.

LATERALITY OF NECK NODES

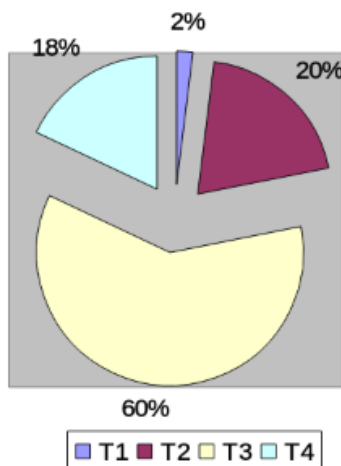
Lateralofnecknodes	N=40	Percentage
IPSI LATERAL		
Right	17	43%
left	19	47%
Bilateral	4	10%
Total	N=40	100%

Only 4 patients (10%) presented with the bilateral neck nodes which were staged separately on either side, Rest of the patients presented with the ipsilateral necknodes.

T-Tumor stage of the primary site

T1	1	2%
T2	8	20%
T3	24	60%
T4	7	18%
Total	N=40	100%

More than 50% were presented in T3 and T4 stage of the primary.



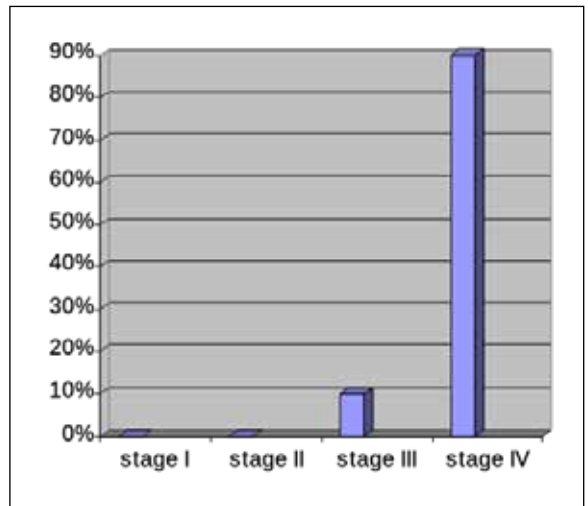
Histological grade of the primary site

Gr.I	Well differentiated	27	68%
Gr.II	moderately differentiated	11	27%
Gr.III	poorly differentiated	2	5%
Gr.IV	Un- differentiated	0	0
	Total	N=40	N=40

More than 50% were belong to well differentiated histological grade.

STAGE WISE DISTRIBUTION

Stage III	4	10%
Stage IV	36	90%



T-TUMOR & N-NODAL STAGE RELATIONSHIP

Tumor Stage	N1	N2a	N2b	N2c	Total N=40	percentage
T1	1	0	0	0	1	3%
T2	3	2	3	0	9	22%
T3	0	3	19	2	24	60%
T4	0	0	5	2	7	15%
Total	3	4	40	3	40	100%

In these study it was observed that more advanced the primary stage (T3=60% & T4=15%) the more advanced the nodal stage i.e. N2b of 80%. LEVELS OF NECK NODE

DISTRIBUTION: WITH REFERENCE TO PRIMARY TUMOR SITE ORAL CAVITY (N=30)

L1	N=28	70%
LII	N=22	55%
LIII	N=12	30%
LIV	N=4	10%
LV	N=0	0%

In patients with primary tumors of the oral cavity undergoing therapeutic RND, the majority of metastatic nodes were located in level I to III, level IV was involved in 10% and level V Was involved in none of the specimens

Oro-Pharynx (N=09)

L1	1	3%
LII	8	20%
LIII	6	15%
LIV	2	5%
LV	0	0%

In case of oropharyngeal primary tumors the majority of metastasis were located in levels II, III, Level I was involved in 3% and none of the specimen show level V. In larynx tumors a meaningful analysis is difficult due to relatively small number of cases presented.

Still 1 patient who had primary larynx tumor with neck node metastasis, underwent combined resection showing involvement of level II and III in RND specimen in addition this patient had pre-laryngeal and pre-tracheal group of lymph nodes were involved.

DISCUSSION:

The results of the present series are given in the tables charts, etc. The occurrence of upper Aero-digestive Tract (UADT) malignancies is increasing, as respect by various authors, because of increased longevity, ever increasing use of tobacco, betel nut chewing, smoking and alcohol consumption at an early age. In the present series, there was male preponderance consisting 64% and peak age group was the 5th decade although presented from 2nd and 7th decades. Majority of the patients were from low socio-economic income group constituting 78%, and most of them were in advanced stage of presentation i.e., stage IV constituting 90%. This may be attributed to delayed and misdiagnosis by clinicians at the peripheral level, ignorance on the part of the patient to report early, lack of health awareness and poverty. Sometimes, patients also try alternate native medicine, and very few bother about symptoms of early malignancy, which makes management a therapeutic problem. The highest contribution to the neck nodes in this series of study come from the oral cavity carcinomas (75%), followed by oro-pharyngeal carcinomas (23%).

Regarding the histological grading of the primary tumor specimens, 68% were graded as well differentiated, 27% begin moderately differentiated and 5% being poorly differentiated, which metastasized to the neck. This risk of lymph node involvement varies according to the site of

the primary tumor, size and histological grade for site like oral cavity & oropharynx. The risk of nodal metastasis increases as the primary tumor stage increases. The management of metastasis cervical lymph nodes remains a surgical challenge for decades. Radical neck dissection has been

considered to be the conventional surgical approach to neck node metastasis from primary squamous cell carcinoma of the upper aero-digestive tract. However, due to the significant morbidity associated with the operation. Questions have been raised in the past three decades

regarding its applicability in all patients who suffer from cancer in the head and neck region. The arguments against radical neck dissection were associated with functional disability and cosmetic deformity after operation. For these reasons, modifications of the classical radical neck dissections are proposed to avoid its attendant morbidity. Bocca et al and others based their beliefs on anatomic studies demonstrating the whole. Lymphatic system of the neck to be contained within aponeurotic envelope. By detaching this envelope from underlying vital structures, lymph nodes and lymphatic channels can be extirpated without sacrifice of other major neck structures. Bocca et al believe that adequate "cancerologic radically" can be achieved by a functional neck dissection. Indeed, recurrence rates were similar when they compared results of their functional neck dissections with historic controls undergoing radical neck dissection. Standardization of neck

dissection terminology has been proposed and introduced into clinical practice by various authors. Moreover, many modifications of neck dissections have emerged in the past 20 years and it appears that in the coming decade, the role of selective neck dissection will establish itself as the standard treatment for squamous carcinoma of the head and neck at certain stages of the disease. It is now believed that elective neck dissection is an oncological sound concept. Modification of the classic RND is based on the finding that metastatic cervical lymphadenopathy from squamous cell carcinoma of the Upper Aero-Digestive Tract has predictable pattern. As long as the lymph nodes at higher risk of having metastasis are removed, the regional control rate is similar to removing all cervical lymph nodes. In the present study of 40 RND's for primary squamous cell carcinoma of the Upper Aero-Digestive Tract, represents a small number of South Indian patients all of whom had undergone combined resection. The detailed pathological analysis of the cervical lymph node levels was available in every patient included. This study identified that neck levels I, II & III were at great risk for nodal metastasis from primary squamous cell carcinoma of the oral cavity and levels II, III & IV for nodal Mets from carcinomas of the oropharynx and hypopharynx. But still there were some patients in whom level I and V were involved by metastatic disease. It has been reported in a retrospective study of 1,277 neck dissection that only 40 patients (3%) had positive nodes at V (Davidson et al 1993). Nearly all patients with posterior triangle metastases had clinically palpable nodes. Moreover, level V involvements was always associated nodal metastases at other levels.

The present study showed similar findings. This implies that if selective neck dissection were performed for patients with cervical nodes positive necks, there may be some metastatic nodes left behind which may account for regional recurrence later. For these patients, post-operative Radiotherapy should be recommended as it has been reported that the failure rate in the neck in patients who underwent surgery alone was 18% compared to 4.7% when post-operated radiotherapy was given (Bayers, 1985). Shaw JP. et al. (1990) noted that jugulo-digestive nodes (L II) were most commonly involved nodes in the Upper Aero-Digestive Tract carcinomas. In the present study level II was also the most common in Head and Neck Cancers.

CONCLUSION:

Forty cases of metastasis in a cervical lymph nodes from known primary Head & Neck cancer patients were studied in this series. The peak age incidence was in the 5th decade, Males predominated. Majority of patients fall into low income group, who presented in an advanced stage of the disease. Most of the primary cancers were located in the oral cavity followed by oropharynx. The predominant histological grade was Gr. I and Gr. II. All the patients were treated by surgery (combined resection). Based on this series of 40 patients undergoing Radical Neck Dissection, We found that, the cervical lymph node metastasis from squamous cell carcinoma of the Upper Aero Digestive Tract has the same predictable pattern, i.e., Neck levels I, II & III are high risk regions for nodal metastasis from primary squamous cell carcinoma of oral Cavity and Neck levels II, III & IV are increased risk areas for nodal metastases from carcinoma of the oropharynx. The pattern of cervical lymph node metastases observed in this study supports the recommendation of selective neck dissection as a staging procedure for N0 & N1 patients with primary Head and neck cancers. For patients with N1 & N2 Neck, post-operative Radio-therapy Should be given to eradicate the occult nodal metastases.

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