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NON-SURGICAL MANAGEMENT OF T4A LARYNGO-HYPOPHARYNGEAL CANCER? RETROSPECTIVE INSTITUTIONAL ANALYSIS

Oncology

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ABSTRACT

Introduction – Laryngo-hypopharyngeal carcinoma constitutes one of the commonest Head and Neck cancer in India, with a high incidence seen in the North-eastern states of the country. T4a laryngo-hypopharyngeal disease has been classically treated by Surgery (Total laryngectomy) followed by adjuvant radiotherapy with or without chemotherapy. In recent decades, treatment paradigm has shifted from primary surgery towards non-surgical organ preserving treatment using chemoradiotherapy. We sought to present our experience on management of T4a laryngo-hypopharyngeal disease with extralaryngeal spread with or without cartilage erosion.

Methodology – A retrospective analysis was conducted from 2010-2015 on T4a laryngo-hypopharyngeal cancer cases from a prospectively maintained Institutional database. Only the cases who took treatment at our Institute were taken for analysis. The T4a cases with extralaryngeal spread were then analysed on the basis of whether they had cartilage erosion or not. The purpose of this study is to review the surgical and non-surgical treatment options and their impact on the survival.

Results – A total of 179 T4a cases were included in the study. 45.8% cases had extralaryngeal spread with cartilage erosion at presentation. Among the cartilage erosion group, 48.7% cases underwent primary surgery and 51.2% cases had chemoradiation. In non-cartilage erosion group with only extralaryngeal spread, only 2% underwent surgery and the rest had chemoradiation. Overall recurrence was seen in 17.3% cases, but no significant difference was noted among surgical and non surgical group. 5 years overall survival (OS) was 48.1% with surgical vs non-surgical arm having OS 55.9% vs 38.2% which was not found to be statistically significant (p value=0.052). 5 years Disease Free Survival (DFS) was 57.9% with no statistical significance noted in surgical and non-surgical arms. Also, no statistically significant difference in survival was noted among cartilage erosion and non-cartilage erosion group even when crosstabulated with surgery and non-surgical treatment.

Conclusion – Management of T4a laryngo-hypopharyngeal disease has evolved towards predominance of non surgical treatment in an endeavour to adopt organ preservation strategy. However, ongoing challenges include development of strategies to reduce toxicity and adverse functional outcome. Hence, a randomised controlled study is needed for understanding the behaviour of such cases and to chalk out an adequate treatment protocol.

KEYWORDS

Cartilage erosion, Extralaryngeal spread (ELS), Total laryngectomy

INTRODUCTION –

Laryngo-hypopharyngeal cancer is one of the most common causes of Head and Neck cancer in India, more so in the North-eastern part of India. According to the Population based cancer Registry, Kamrup district in Assam holds the top position in India among the Hypopharyngeal cancer. Majority of the cases present at a later stage. Locoregional control in these cases plays a significant role in overall survival and quality of life. Advanced laryngo-hypopharyngeal cases (T4a) are usually treated with Surgery, followed by Adjuvant Radiation/Chemoradiation, depending on the indications in post-op histopathology report. Since the Veterans Affairs (VA) and Radiation Therapy Oncology Group (RTOG) studies on organ preservation protocols, an increasing trend was seen towards organ preservation without compromising on oncological safety. There have been some studies where surgery (Total laryngectomy) is compared with organ preservation protocols in terms of disease free survival and overall survival.

A laryngo-hypopharyngeal cancer can come out of the cartilagenous framework to become extralaryngeal (T4a) through various routes like through thyrohyoid membrane, Broyle's tendon or cartilage (thyroid/cricoid) erosion. We conducted a retrospective study at our Institute from a prospectively maintained database to analyse the management of T4a laryngo-hypopharyngeal disease with or without cartilage erosion and to assess whether non surgical management can be an option in some of the subgroups of T4a disease.

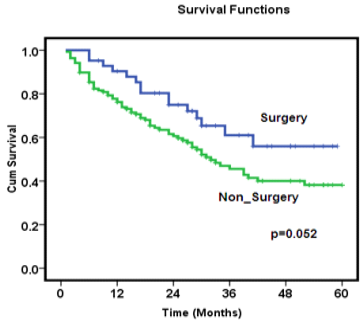
METHODS AND MATERIALS –

A retrospective study was conducted at our Institute among the T4a laryngo-hypopharyngeal cancers between the year 2010-2015. Only the cases who took treatment at our Institute were taken up for analysis. These T4a cases with Extralaryngeal extension were then analysed on the basis of whether they had cartilage erosion or not, treatment modalities received (surgical vs non-surgical) and its impact on survival.

RESULTS –

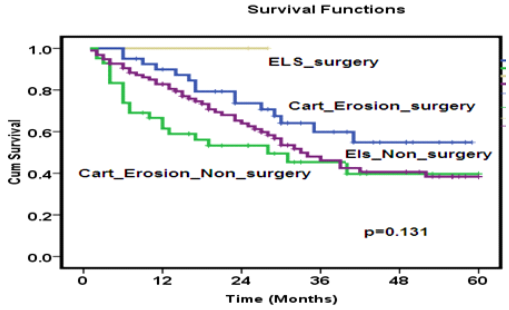
A total of 179 T4a cases were included in the study. The mean age group was 55 years with a high male gender preponderance; male - female ratio being 7:1. 45.8% (82/179) of the cases had cartilage erosion at presentation and 54.1% (97/179) was extralaryngeal without cartilage erosion.

Among the cartilage erosion group, 48.7% cases underwent primary surgery and 51.2% cases had chemoradiation. In non-cartilage erosion group with only extralaryngeal spread, only 2% underwent surgery and the rest had chemoradiation. The reasons noted for opting for non surgical management were advanced nodal disease, patient refusal and unfit for surgery due to comorbidities. Mean follow up was 18 months. When we analysed the data, no significant difference was noted among surgical and non surgical group.



5 years overall survival (OS) was 48.1% with surgical vs non-surgical arm having OS 55.9% vs 38.2% which was not found to be statistically significant (p value=0.052). 5 years Disease Free Survival (DFS) was seen to be 57.9% with again no statistical significance noted in surgical and non-surgical arms.

The data were then cross-tabulated between two subgroups – Cartilage erosion group who underwent surgery and No cartilage erosion group who underwent Non surgical management. 3 years OS between the two groups were found to be 59.8% and 46.2% respectively (p value = 0.131) and 3 years DFS was 73.2% and 70.8% respectively (p value = 0.697). Both the analysis did not show any statistical significance.



Overall recurrence was 17.3%. Recurrence pattern among the various groups also seems comparable.

	Cart_Erosion_ Surgery	Cart_ Erosion_ non surgery	ELS_ Surgery	ELS_ non surgery	Total
2ND PRIMARY	1	0	0	0	1
LOCAL RECURR	7	4	0	12	23
Metastasis	3	2	0	4	9

However, the biggest limitation of this study is its retrospective nature and the selection bias associated with it.

DISCUSSION –

Laryngo-hypopharyngeal cancers can become extralaryngeal via various routes, either through soft tissue extension through membranes/tendons or by cartilage erosion[1]. There has been studies to suggest that the behaviour of all T4a laryngo-hypopharyngeal cancers may not be the same and non surgical treatment can be tried in selected group of patients who can be candidates for laryngeal preservation in T4a disease. However, incorrect choice for initial therapy may adversely affect the survival.

In the non-operative management, various strategies were used to achieve successful management of T4a disease with voice preservation in the range of 73-90% [3,4]. In another study from Chicago, single cycle of induction chemotherapy had been tried to select candidates suitable for chemoradiation. 3 years overall survival was 80% with a larynx preservation rate of 58%. There are some other investigators who has found tumor bulk[6,7] and cartilage invasion[8,9] as the factors which decides the success or failure of non-surgical management.

T4a laryngo-pharyngeal disease can be subdivided into various groups depending on the pattern of spread and involves various heterogenosity. In our study, we tried to find any subgroup within T4a category where non-surgical management may be tried against the standard surgical management for this group. Our study did not find any significant difference in overall survival between various groups, although surgery for those with cartilage erosion showed an improving trend.

CONCLUSION –

Management of T4a laryngo-hypopharyngeal disease has evolved towards predominance of non surgical treatment in an endeavour to adopt organ preservation strategy. Some subgroups within T4a category might benefit from non surgical management like those without cartilage erosion. However, ongoing challenges include development of strategies to reduce toxicity and adverse functional outcome. Hence, a randomised controlled study is needed for understanding the behaviour of such cases and to chalk out an adequate treatment protocol.

Conflict of interest – The authors disclose no conflict of interest.

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