

# Total Laryngectomy in Laryngeal and Hypopharyngeal Malignancy

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## ABSTRACT

### Introduction

Advanced laryngeal and hypopharyngeal malignancies are associated with significant morbidity and mortality for the patients with associated financial burden for the society. Recommended treatment for such malignancies includes total laryngectomy or total laryngectomy with partial pharyngectomy with or without neck dissection, radiotherapy (RT) alone or surgery followed by radio therapy and combined chemotherapy (CT) with radiotherapy (CCRT).

### Materials and Methods

This retrospective study was conducted over a period of 5 years, in a tertiary care institute with aim to study the incidence of laryngeal and hypopharyngeal malignancy over a period of 5 years in a tertiary care institute, to assess the proportion of patients who agreed to undergo the proposed modality of treatment with surgery and post-operative radiotherapy, to note the post operative complications and also to assess the 5 year survival of the patients who completed the prescribed regimen.

### Results

This study highlights the large gap between the high incidence of this disease (a total of 170 cases of laryngeal and hypopharyngeal malignancy diagnosed in our hospital over a five year period ) and the low turnover of patients actually undergoing surgery for the same (8 out of 38 patients who were advised surgery underwent the same).

### Discussion

Vast majority of laryngeal and hypopharyngeal malignancies are squamous cell carcinomas. Though 47 proved cases of hypopharyngeal malignancy and 36 proved cases of laryngeal malignancy were assessed, only 8 patients agreed to undergo surgery, indicating a large disparity between disease burden and treatment beneficiaries, despite an excellent 5 yr survival rate.

### Conclusion

The results of this study emphasized the need for increased awareness regarding the favourable surgical outcome when associated with post-operative radiotherapy. A very high five year survival rate can be achieved by combined modality treatment. Late presentation and lack of awareness about the disease are significant hindrances for management of laryngeal and hypopharyngeal malignancy.

### Keywords

Laryngectomy, Pharyngectomy, Radiotherapy.

Patients presenting with laryngeal or hypopharyngeal malignancy are usually in the elderly age group. Laryngeal malignancy represents one of the common head and neck malignancies accounting for approximately 20% of all head and neck malignancies. Though surgical treatment in selected patients with laryngeal and hypopharyngeal malignancy provides a fairly high chance of five year survival, unfortunately very few patients receive the appropriate treatment timely. The reason could be lack of awareness, fear of morbidity or financial constraints. Our study was done retrospectively over a period of 5 years in a tertiary care institute. The aim of the study was to evaluate the proportion of

patients who agreed to undergo the proposed modality of treatment (total laryngectomy or total laryngectomy and partial pharyngectomy with or without neck dissection and post-operative radiotherapy); the post operative complications of the patients, who underwent surgery and their management; 5 year follow-up of patients who underwent total laryngectomy. This study also aimed to determine the five year survival and thus to have a

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better insight on the need to bring about awareness and motivation among those patients who could have had the advantage of survival with better quality of life.

### Materials and Methods

Retrospective assessment of incidence of laryngeal and hypopharyngeal malignancy was conducted over a period of 5 years in a tertiary care hospital. Study was focused at evaluating the percentage of patients undergoing total laryngectomy (TL), treatment compliance of the patients, post operative complications and their management and follow-up of patients over the next five years.

### Results

A total of 170 cases of laryngeal and hypopharyngeal malignancy were diagnosed clinically during the 5 years of study period. Out of these majority (96) had hypopharyngeal malignancy and the rest 74 had laryngeal carcinoma. But out of 96 hypopharyngeal malignancy patients only 47 turned up for admission and biopsy and out of 74 laryngeal carcinoma patients only 36 got admitted and biopsy was done.

Among the 47 patients with hypopharyngeal cancer 3 patients were in stage I and 3 in stage II, but majority were in stage IV (22 patients) and stage III (19 patients). Patients with advanced disease (6 patients) were not considered operable.

9 patients were subjected to radiotherapy while 10 patients were unfit for total laryngectomy due to other co-morbidities. Though remaining 22 patients were evaluated and considered fit for surgery, only 4 patients gave wilful consent for surgery and underwent Total Laryngectomy with partial pharyngectomy. 3 cases who were in stage III – T3 N0 M0 who underwent Total Laryngectomy (TL) with Partial Pharyngectomy (PP) and one patient in stage IV (T3 N2 M0) underwent TL with PP with ipsilateral Radical Neck Dissection (RND). All these 4 patients with hypopharyngeal carcinoma who consented for the surgery were subjected to total laryngectomy because in all the 4 cases patients had unilateral cord fixation and therefore organ preservation would not have subserved the purpose of functional

preservation. Also we believe that the best treatment option for these economically backward patients is ideally the one with excellent locoregional control and which requires least follow-up and has less post treatment morbidities.

Out of the 36 patients diagnosed with laryngeal cancer, majority (20 patients) were in stage III, 8 patients were in stage IV, 6 patients in stage I and only 2 patients in stage II. 4 patients were diagnosed as having advanced disease. 8 were subjected to radiotherapy (RT), while another 8 were unfit due to other co-morbidities. Total laryngectomy was advised in 16 patients but only 4 patients consented for the curative surgery.

Out of the 4 cases, who have undergone Total laryngectomy, 3 were in stage III, of which 1 was supraglottic and 2 were glottic. One case was in stage IV (T3N1M0). All the patients in our study who underwent curative surgery were males and in the age group between 36-68 years (mean age 56.80). Out of the 8 surgically treated patients, histopathological examination of 6 patients showed moderately differentiated, 1 each of well differentiated and poorly differentiated squamous carcinoma.

All the eight patients were referred for radiotherapy after wound healing. Six patients completed radiotherapy successfully while 1 patient discontinued it due to development of pharyngocutaneous fistula during RT. Another patient who refused to receive radiotherapy, developed recurrence after 2 yrs and died a year later. Speech rehabilitation was tried for the seven patients, out of which 5 successfully developed oesophageal speech.

Patients were followed up for 5 years- at the end of which 7 were alive with no recurrence.

### Discussion

Larynx plays a fundamental role in human speech and communication. Vast majority of laryngeal and hypopharyngeal malignancies are squamous cell carcinomas.<sup>1,2</sup> Upto 40% of these patients present with advanced disease.<sup>3</sup> Advanced laryngeal lesions are associated with significant morbidity and mortality for the patient and increased financial burden for the

society<sup>4,5</sup>. Management of advanced laryngeal carcinoma is complex and ideal strategy is debated.<sup>6</sup> Prevalent treatment for laryngeal malignancy included total laryngectomy (TL) with or without neck dissection, radiotherapy (RT) alone or total laryngectomy followed by radiotherapy and combined chemotherapy (CT) with radiotherapy (CCRT).<sup>6,7</sup> In laryngeal malignancy, organ preservation strategies, either surgical or non surgical have dominated the treatment of early laryngeal malignancy in recent years.<sup>8-11</sup> Billroth is credited for performing the first TL in 1873, and for many years this has been the standard of treatment for advanced laryngeal carcinoma.<sup>8,12</sup> As combined non-surgical treatment modalities – RT, CT, CCRT, are integrated in the primary management of advanced head and neck cancer it became more apparent that organ preservation did not necessarily lead to function preservation. In other words simply preserving larynx does not guarantee its function.<sup>11</sup> Late functional compromise following CT/RT might involve voice as well as swallowing difficulties and on numerous occasions may necessitate a permanent tracheostomy and / gastrostomy. In fact quality of life in many individuals may end up to be much worse after organ preservation treatment compared to cases that have undergone TL and are able to normally and sufficiently communicate with aid of a prosthesis or other methods.<sup>13</sup>

In our study though 47 proved cases of hypopharyngeal malignancy were assessed for fitness for total laryngectomy, 22 patients were considered fit for surgery and only 4 patients agreed to undergo the surgery. This shows the reluctance of people to go for surgical management of the disease. Even those patients, who agreed for surgery, had stage III or IV disease. Greater awareness and health education may help in early diagnosis and rational management of hypopharyngeal and laryngeal malignancies. Three out of 4 patients in stage III underwent total laryngectomy with partial pharyngectomy. One case was in stage IV who underwent the above surgery along with ipsilateral radical neck dissection .

Out of 36 proved cases of laryngeal carcinoma 16 were advised total laryngectomy, out of which 4 patients agreed to undergo surgery. Three were in stage III; total laryngectomy was done. One patient was in stage

IV; total laryngectomy with ipsilateral radical neck dissection was done. In all the cases who underwent Total laryngectomy (TL), Gluck Sorensen incision was used. For Radical Neck Dissection (RND), incision was extended superiorly and inferiorly. Once the larynx was delivered, pharynx was closed by T shaped repair in three layers; skin closed by interrupted sutures. Drain was removed on day 4. Stitches were removed on day 10. Oral feeding was started on day 12.

After total Laryngectomy following wound healing all 8 patients were referred for radiotherapy, 6 patients completed radiotherapy successfully while 1 patient discontinued it due to development of pharyngocutaneous fistula during radiotherapy. Another patient who refused to receive radiotherapy, developed recurrence after 2 years and died a year later.

Post-operative complications:

Two patients developed pharyngo-cutaneous fistula (PCF). One healed with conservative treatment. Second patient developed PCF during RT; he lived with it without any recurrence for over 5 years. Stomal stenosis was seen in one patient – widening / freshening of stomal edges was done and tracheostomy tube was inserted. One patient developed thyroid and parathyroid insufficiency - treated with supplements.. One patient, who refused RT, had recurrence - died a year later. Two patients with RND developed facial edema.

All 7 patients, who completed the treatment with surgery and post-operative radiotherapy, were alive with no recurrence at 5 years follow-up.

## Conclusion

Though there is a very large turnout of laryngeal and hypopharyngeal malignancy patients at a tertiary care hospital, very few are willing for surgical intervention. The reason could be - unwillingness to accept deformity and loss of important function like speech. Financial constraint could be yet another factor. However, a large section of the patients diagnosed with malignancy were not fit to undergo surgery due to other co-morbidities or advanced stage of disease. But, if the patient is fit for surgery, curative surgical management with post-operative radiotherapy can give a good 5 year survival

rate. Therefore greater awareness among the general public and the referring doctor would enable early detection and better survival chances of those affected by the disease by providing necessary surgical intervention at a tertiary hospital like this, which largely caters to rural economically constrained population, thereby reducing the burden on referral oncology centres which are already overburdened.

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