



REDO TRACHEOSTOMY: OUR EXPERIENCE IN 1.5 YEARS

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Abstract

Background: To share our experience with the redo tracheostomy during a period of 1.5 years and focuses on the number of patients requiring redo tracheostomy, the reason for doing redo tracheostomy and the difficulties faced during the procedure.

Methods: The present prospective study was conducted for a period of 1.5 year from May 2021 to October 2022. During a time period of 1.5 years, a total of 52 patients, who have undergone redotracheostomy, were taken for this study. Flexible Nasopharyngo-laryngoscopy and indirect laryngoscopy was done in all patients. Appropriate radiographic evaluation was performed, including chest X-ray and X-ray soft tissue neck. Most of the patients presented with severe respiratory distress so they were immediately shifted to operation theatre for redotracheostomy.

Results: Out of 52 eligible patients, 51 patients were diagnosed with cancer of upper airway and 1 patient with bilateral vocal cord paralysis. Out of these 52 patients, 25(48%) patients had received chemoradiation as the primary treatment for cancers of Hypopharynx and larynx. Reasons for redo tracheostomy are: 21 (40.4%) patients had accidental expulsion of tube on follow up, 18 (34.6%) patients had recurrence/residual disease, 7 (13.5%) patients were planned for second surgery due to recurrence of disease, 5 (9.6%) patients had tracheal stenosis and 1 (1.9%) patient had bilateral vocal cord paralysis. No major complication was noted during the stay of patients in the hospital. Surgical emphysema developed in 5 patients which settled of its own.

Conclusion: Redo tracheostomy is difficult to perform as there are marked changes in the normal anatomy of neck, particularly in patients who have received chemoradiation. Complications like excessive bleeding should be expected and procedure should be done by or under the supervision of senior surgeon.

Keywords: Head & neck cancers; Redotracheostomy ; Chemoradiation

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Introduction:

In India the incidence of cancer is 100/100,000, which is lower than the global incidence.^[1] Globally Head and neck carcinoma remains the 6th commonest cancer, while in India these cancers represent commonest cancer in men and 3rd most common cancer in women.^[2] This high incidence of head and neck cancers in India is due to high consumption of tobacco, which according to one survey is 34.6% in Indian adults.^[3] The most common sub site in head and neck is the oral cavity cancers, which constitute 40–70%.^[1] In India laryngeal cancers account for about 29000 cases per year.^[4] Because of lack of proper education and common practice of visiting quacks, the presentation of patients with head and neck cancers to the tertiary care hospitals is late in India. In a survey conducted amongst patients with advanced cancer presenting to a tertiary cancer center in India, majority delayed the decision to seek medical attention despite observing abnormal lesion in their mouth.^[5] Due to these factors majority of patients in India seek medical advice when the cancer has already reached stage III and IV.^[6,7] Due to the late presentation, most of these patients present with compromised airway, requiring emergency tracheostomy, while others require the same at some point of time during treatment. Locally advanced head and neck cancers are mostly treated with radiation or chemotherapy or chemoradiation.^[8, 9] Chemoradiation maintains the structural integrity of laryngopharynx, but their function is compromised. There is persistent bulky edema, fibrosis, hypomobility causing airway obstruction and chronic aspiration, thereby rendering the patient to be tracheostomy dependent.^[10]

The current study was taken with the purpose to share our experience with the redo tracheostomy during a period of 3 years and focuses on the number of patients requiring redo tracheostomy, the reason for doing redo tracheostomy and the difficulties faced during the procedure.

Materials:

Study type, place and duration: The present prospective study was conducted in the department of ENT and Head & Neck surgery, SMGS Hospital, Govt. Medical College Jammu, which is a tertiary care centre, for a period of 1.5 years from May 2021 to October 2022.

Selection criteria: 1) All patients who reported to the ENT emergency with distress and previous history of tracheostomy.

2) All the patients of cancer of upper airway, who were planned for second surgery.

Procedure: Written Informed consent from patients/attendants in their local language was always taken prior to this emergency life saving procedure. So, no separate ethical clearance was taken. Detailed history from the patients/attendants was taken. Systemic examination and detailed examination of Ear, Nose and Throat was done. Flexible Nasopharyngo-laryngoscopy and indirect laryngoscopy was done in all patients. Appropriate radiographic evaluation was performed, including chest X-ray and X-ray soft tissue neck. Since most of the patients presented with airway compromise, so CECT neck was done after redo tracheostomy in most of the patients. Most of these patients presented to ENT emergency with difficulty in breathing except 7 patients, who were planned for second surgery. These patients after quick assessment were shifted to Operation Theater. All procedures were done under local anesthesia. In patients with severe distress, procedure was done in presence of an anesthetist, who kept on monitoring the vitals and oxygen saturation during procedure. However no patient required intubation. After maintaining proper aseptic conditions, infiltration was given with 2 % xylocaine: adrenaline(1:100000). All procedures were done in supine position by placing a sand bag under the shoulder. A straight vertical incision was given at the previous scar in the midline. The incision was then opened with artery forceps. The tracheal stoma was identified and widened with artery forceps to temporarily relieve the distress of patient. The stoma was then enlarged by removing the fibrosed tissue around the previous tracheal stoma. In our experience a small area of puckered skin is usually seen at the corresponding closed tracheal stoma. The incision was given above and below this area. The dissection is limited around the puckered area. Initially resident doctor started the procedure but due to fibrosis and lack of planes most of the times, need for a senior surgeon was required. After completing the procedure the patients were kept under observation for development of any complication.

Results:

The present study included 52 patients diagnosed and treated in our institute, out of which 45 (86.5%) patients presented to our emergency with respiratory distress and 7 (13.5%) patients were planned for second surgery. Out of 45 patients who presented with respiratory distress, 21(40.4%) patients had accidental expulsion of

tracheostomy tube at home. 18 (34.61%) patients, who had completed treatment and were decannulated had recurrence of disease. 5 (9.6%) patients, who had history of prolonged intubation followed by tracheostomy and were decannulated 1 year before, presented with respiratory distress had developed tracheal stenosis. 1 (1.9%) patient had bilateral vocal cord paralysis, after doing tracheostomy the patient was advised to go for Kashima surgery at higher centre. But, patient had self removed tracheostomy tube at home and presented to emergency with distress, where redo tracheostomy was done. The distribution and

reasons for redo tracheostomy are given in table 1 and 2.

The procedure was started by resident doctors in all the 52 patients but due to distorted anatomy, fibroses and difficulty in getting planes, senior surgeon had to complete the surgery in 30 (57.7%) patients. Worrisome bleeding was seen in 6 (13.3%) patients, which was controlled by bipolar cautery and ligation. 3 (5.7%) patients required blood transfusion. In the post-operative period 5 patients developed surgical emphysema, which settled of its own. No other major complication was noted in the post operative period.

Table 1: Distribution of Redo tracheostomy.

Diagnosed disease	Number of Redo tracheostomy done (n=52)	Percentage (%)
Ca oro-pharynx	10	19.2
Ca Larynx	19	36.5
Ca hypopharynx	22	42.3
Bilateral vocal cord paralysis	1	1.9

In the present study of 52 patients who needed redo tracheostomy, 22 (42.3%) had carcinoma hypopharynx, 19 (36.5%) had carcinoma larynx and 10 (19.2%) cases had carcinoma oropharynx.

Table 2: Reason for Redo tracheostomy.

Reason for Redo tracheostomy	Number of patients(n=52)	Percentage%
Accidental expulsion	21	40.4
Recurrence of disease	18	34.6
Tracheal stenosis	5	9.6
Second surgery	7	13.5
Bilateral vocal cord paralysis	1	1.9

Discussion:

Concurrent chemo-radiation has gained preference in treatment of certain hypopharyngeal and laryngeal cancers due to its organ preservation property. Some studies have shown that concurrent chemoradiation may give results equivalent to surgery, thus preventing over 70% of patients from laryngectomy.^[11,12] But concurrent chemo-radiation causes acute toxicity like bulky edema, fibrosis and hypomobility, which makes patient tracheostomy dependent.^[13] Accidental expulsion of tracheostomy tube may occur at home during follow up, reinsertion is difficult in such patients and at the same time there is non availability of trained medical staff in the peripheral areas. Such patients often present with closure of stoma and respiratory distress. Redo tracheostomy is almost always required in these patients, which is difficult to perform and often turn out as a challenge to the surgeon. In our experience often need of a senior surgeon was required to complete the procedure.

In the present study, 52 successful redo tracheostomies were performed out of which 45 (86.5%) patients presented to our emergency with respiratory distress and 7 (13.5%) patients were

planned for second surgery. Out of 45 patients who presented with respiratory distress, 21 (40.4%) patients had accidental expulsion of tracheostomy tube at home. 18 (34.61%) patients, who had completed treatment and were decannulated had recurrence of disease. 5 (9.6%) patients who had history of prolonged intubation followed by tracheostomy and who were decannulated 1 year before, presented with respiratory distress had developed tracheal stenosis. 1 (1.9%) patient had bilateral vocal cord paralysis, after doing tracheostomy the patient was advised to go for Kashima surgery at higher centre. But, patient had self-removed tracheostomy tube at home and presented to emergency with distress. Similarly **Chanmiki et al** performed successful redo tracheostomy in 39 patients with diagnosed cancer in head neck region.^[10] Twenty-six patients were had received chemoradiation for their primary cancer and 6 patients were planned for second surgery due to recurrent disease in oral cavity. Reasons for redo tracheostomy were: sixteen patients were post chemoradiation on follow up with accidental expulsion of tube, 17 patients were having recurrence/residual disease and 6 patients were

planned for second surgery due to recurrence of disease.

In the present study marked difficulty was observed during redo tracheostomy because of fibrosis, lack of proper planes and increased bleeding. Worrisome bleeding was seen in 6 (13.3%) patients, which was controlled by bipolar cautery and ligation. 3 (5.7%) patients required blood transfusion. **Chanmiki et al** in their study of redo tracheostomy in 39 cases reported profuse bleeding in 5 cases.^[10] The reasons for excessive bleeding and difficulty in performing the redo tracheostomy has also been supported by literature.^[13,14]

In the present study of 52 redo tracheostomies, no major complication was seen in the post operative period. 5(9.6%) patients developed surgical emphysema, which settled of its own. **Chanmiki et al** reported almost the same complication rate.^[10]

Conclusion:

In the present study 52 successful redo tracheostomies were done during a period of 3 years. Redo tracheostomy is difficult to perform as there are marked changes in the normal anatomy of neck, particularly in patients who have received chemoradiation. Complications like excessive bleeding should be expected and procedure should be done by or under the supervision of senior surgeon.

Conflict: No conflict of interest declared.

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Ethical statement:

Informed consent was taken at the time of surgery. This surgery is routinely done worldwide including our hospital, so no ethical aspect is involved in this study.

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