



ORIGINAL RESEARCH PAPER

Oncology

Effect Of Chemoradiation On Postoperative Complications After Total Laryngectomy

KEY WORDS: QR Code, Bharat QR Code, Digital Payment, Cashless Payment

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ABSTRACT

BACKGROUND The objective of current study was to compare the post operative complications of salvage total laryngectomy with primary total laryngectomy and to identify the factors predictive of such complications.

METHOD A total of 50 patients were studied retrospectively. 25 patients had undergone primary total laryngectomy while 25 patients had total laryngectomy for recurrence after chemoradiation. Post operative complications in each group were compared by univariate and multivariate analysis.

RESULTS Salvage total laryngectomy was more frequently associated with local complications. The most common local complication was pharyngocutaneous fistula. Statistical analysis showed that there was a greater number of complications with salvage total laryngectomy group (60% vs 24% p<0.05). Multivariate analysis showed that preoperative chemoradiation was an independent predictor of pharyngocutaneous fistula.

CONCLUSION Pharyngocutaneous fistula was the most common complication after total laryngectomy which was significantly higher in salvage total laryngectomy as compared to primary total laryngectomy. Pre operative chemoradiation was an independent predictor of pharyngocutaneous fistula.

INTRODUCTION

Total laryngectomy may be associated with many complications like pharyngocutaneous fistula, wound infection, chyle leak, and airway problems. Such complications have significant morbidity causing prolonged hospitalization and increased health care costs. Many factors have been implicated in the development of complications including previous radiotherapy (RT), preoperative tracheostomy, radical neck dissection, and extensive surgery and flap reconstruction¹⁻⁴. Preoperative radiation affects wound healing and increases the risk of developing wound complications. Although the effects of chemotherapy on wound healing are controversial, combined chemotherapy and RT have an additive effect on its impairment. The objective of the current study was to study the patients with squamous cell carcinoma (SCC) of the larynx who were treated at our institution and to report the incidence of postoperative complications for salvage total laryngectomy compared with primary total laryngectomy.

PATIENTS AND METHODS

Patients with squamous cell carcinoma of larynx who underwent total laryngectomy were analysed. A total number of 50 patients were studied. Out of these 25 patients had undergone primary total laryngectomy and remaining 25 patients had undergone salvage total laryngectomy. Patients who had laryngopharyngectomy for primary oropharyngeal or hypopharyngeal carcinoma were not included in the study. Details regarding patient characteristics, tumor characteristics, previous treatment, surgical outcome, and postoperative complications were recorded. A statistical comparison of frequencies of complications between groups was performed using the Fisher exact or chisquare tests. To identify patient and tumor factors predictive of complications, multivariate analysis was done.

RESULTS

Patient characteristics in each group are shown in table no 1.

Table 1: patient characteristics

	Primary total laryngectomy (n=25)	Salvage total laryngectomy (n=25)

Age group	<50yrs	3 (12%)	5 (20%)
	>50yrs	22 (88%)	20 (80%)
Gender	male	25	23
	female	0	2
Smoking	Yes	24	22
	No	1	3

Table 2: stage of primary tumor

	Primary total laryngectomy (n=25)	Salvage total laryngectomy (n=25)
T1	2	1
T2	2	2
T3	9	14
T4	12	8

Table 3: incidence of postoperative complications

Type of complication	Primary total laryngectomy (n=25)	Salvage total laryngectomy (n=25)	p value
Overall complications	19 (76%)	10(40%)	<.05
No	6(24%)	15 (60%)	
Wound Infection	20 (80%)	15 (48%)	>.05
No	5 (20%)	10 (52%)	
Pharyngocutaneous fistula	21 (84%)	11(44%)	<.05
No	4 (16%)	14 (56%)	

Table 4: Factors predictive of complications

Characteristics	Complications	P value
Age group	2/8 (25%)	>.05
<50yrs	19/42 (45%)	
>50yrs		
Smoking	2/4 (50%)	>.05
No	19/46 (41%)	
Yes		

T stage	0/3 (0%)	>.05
T1	1/4 (25%)	
T2	12/25 (48%)	
T3	8/20 (40%)	
T4		
Preoperative chemoradiation	6/25 (24%)	<.05
No	15/25 (60%)	
Yes		

As shown in table no 3, overall complications and pharyngeal fistula rate are significantly higher in salvage laryngectomy group. On multivariate analysis preoperative chemoradiation was found to be an independent predictor of postoperative complications after total laryngectomy (table 4).

DISCUSSION

Organ-preserving RT and CRT for laryngeal carcinoma produce comparable survival outcomes to primary laryngectomy and postoperative RT with the benefit of preserving voice and swallowing in a significant number of patients. However, not all patients respond and some have disease recurrence after successful therapy. Surgical salvage for these patients requires total laryngectomy. In an ideal situation, the question of whether salvage total laryngectomy is associated with a higher postoperative complication rate will need a prospective randomized comparison with patients undergoing primary total laryngectomy. Previous studies have reported an increased incidence of wound and systemic complications for salvage total laryngectomy. A recent study by Schwartz et al.⁵ comprising 2000 patients from multiple institutions from 1989 to 1999 reported an increased incidence of wound complications in patients with a history of previous RT. The incidence of pharyngocutaneous fistula has also been reported to be increased for salvage total laryngectomy. Sarker et al.⁶ reported a fistula rate of 34.7% of which 65% had received previous RT. Johansen et al.⁷ reported an overall fistula rate of 32% with an increase in fistula rate with RT dose (a fistula rate of 25% for patients who had received 57 Gy compared with 92% for those receiving a dose of 72 Gy). They also reported an increase in fistula rate with RT field sizes 50 cm².

Our results were in agreement with the current literature findings. This most likely can be attributed to the diminished healing capacity of the irradiated tissues secondary to obliterative endarteritis, fibrosis, and overall decreased vascularity of the tissues.

CONCLUSION

Pharyngocutaneous fistula was the most common complication after total laryngectomy which was significantly higher in salvage total laryngectomy as compared to primary total laryngectomy. Pre operative chemoradiation was an independent predictor of pharyngocutaneous fistula. The high incidence of wound complications and poor wound recovery in patients after chemoradiation should be taken into account before the initiation of chemoradiation and salvage surgery for laryngeal cancer.

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