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SHORT TERM OUTCOME OF TRANSORAL ROBOTIC SURGERY IN THE MANAGEMENT OF EARLY TUMOURS OF OROPHARYNX.

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ABSTRACT

Introduction: The incidence of oropharyngeal squamous cell carcinoma has increased during the past decade and is related primarily to the human papillomavirus. The advent of transoral surgery has led to an increase in surgery as the primary treatment for both early- and advanced-stage oropharyngeal squamous cell carcinoma because it has potential advantages over open surgery and nonsurgical modalities. **Aims:** To study short term outcome of TROS for early tumours of oropharynx. **Methodology:** This study was conducted in patients of T1 & T2 oropharynx tumours admitted in ENT ward of PGIMER, Chandigarh. **Results:** 42 patients were enrolled for the study. After 6 months, there was recurrence of tumour in 4/37 (10.81%) patients.

KEYWORDS

Oropharynx Tumors, Transoral Surgery, Robotic Surgery.

INTRODUCTION:

The present strategy of treatment for oropharyngeal squamous cell carcinoma of the head and neck is either surgery, radiotherapy or chemoradiotherapy used either alone or as multimodality approach. For stage I & II oropharyngeal carcinoma, available options are Radiotherapy and surgery. Radiotherapy is associated with significant morbidity which gets more worse with concomitant radiation or chemotherapy use[1]. Open surgical approaches for OPSCC require either anterior or lateral mandibulotomy and they carry risk of long term morbidity. These include cosmetic issues, malocclusion and trismus and they have negative impact on patient's quality of life[2,3].

The introduction of robotic technology for transoral surgery has rekindled interest and its use for management of patients of oropharyngeal cancers. O'Malley and Weinstein et al[4] in their study had shown the benefits of Transoral robotic surgery(TORS) for the management of oropharyngeal tumors with the use of Robotic surgical system. They reported that Transoral Robotic surgical system is a safe surgical option for use in human patients.

The potential benefits of Transoral Robotic surgery as compared to conventional surgical approaches in the management of head and neck cancers is due to the better visualisation and access to the surgical site . Moreover, due to the use of flexible or angled telescopes which provides direct line of surgical site visualisation. Moreover, use of specialised retractors in robotic surgery and three dimensional view of surgical site allows the easy access and helps in complete resection of tumor safely without morbidity associated with the procedures like mandibulectomy or pharyngotomy used in conventional surgical procedures.

TORS was approved in the year of 2009 for Head and Neck surgery by United States Food and Drug Administration (USFDA) and has become a recognised first line treatment option in oropharyngeal squamous cell carcinoma. Several studies had trusted TORS to be safe and effective surgical option with decreased positive surgical resection margins[3,5].

Methodology:

This prospective study was conducted on 42 patients of T1 & T2 tumours of the oropharynx at the Department of Otolaryngology and Head and Neck surgery, PGIMER, Chandigarh.

All patients were preoperatively worked up with detailed history, clinical examination, CT scan and MRI to assess the extent of tumour, FNAC, X-ray chest, blood tests and biopsy of the lesion. The excised lesion was sent for histopathological examination. All the patients were operated by TORS. Patients with positive surgical resection margins and lymph node involvement were advised for adjuvant treatment with radiation therapy.

The outcome of the treatment was studied in two ways :-

1. **Treatment perspective:-** The primary outcome was to see successful excision of the tumor .
   The secondary outcome measures was to see outcome in relation with status of resection margins, lymph node involvement, HPV positive and HPV negative, subsite of the lesion, Tumor stage and complications if any.
2. **Patients perspective:-** Two years overall survival and disease free survival, recurrence & mortality.

RESULTS:

Table 1: Socio-demographic profile of enrolled patients

Demographic variable		Frequency	Percentage
Age (Mean±SD)		53.16±11.49	
Gender	Male	38	90.5
	Female	4	9.5

The mean age of patients enrolled in the study was 53.17 ± 11.491years, ranging from 28 - 70 years. There were 38 males (90.5%) and 4 females (9.5%) in the study with a male to ratio of 9.5:1.

Table 2: Type of surgery and other modalities needed and related complications

		Frequency	Percentage
Type of surgery	Salvage surgery	9	21.4
	Upfront (Primary)	33	78.6
Ryel's tube	Yes	19	45.2
	No	23	54.8
Complications	Local pain	42	100
	Odynophagia	19	45.23
	Oral Bleeding	1	2.38
Adjuvant RT	Yes	16	38
	No	26	62

33 patients (78.6%) had upfront surgery whereas salvage surgery was performed in 9 patients (21.4%).These 9 patients had failure of primary treatment with radiation therapy or chemotherapy. Ryle`s tube was inserted immediately after surgery in 19 (45.2%) patients. The average duration of Ryle`s tube feeding was 6.4 days. There was post operative local pain in all the operated patients and painful swallowing was complained by 19(45.2%) patients. One patient developed oral bleeding after radiotherapy and presented to emergency OPD and was tracheostomised at 6 months of follow up.

Table 3: Disease free survival at follow up

	Disease free survival	Recurrence	Expired	Loss to follow up

Follow up at 2 months	42	0	0	0
Follow up at 6 months	33	4	0	5
Follow up at 1 year	31	1	2	8
Follow up at 18 months	24	0	2	14
Follow up at 2 years	7	5	1	26

Patients were followed up regularly at 2nd month, then after every 6 months for 2 years. At the end of 2 months there was no evidence of recurrence in any patient. Four patients (10.81%) developed recurrence at primary site during follow up at 6 months out of which two patients had undergone salvage surgery and two patients had robotic surgery Upfront(Primary) . At one year follow up, 31 patients (91.17%) were free of disease, 1 patient (2.94%) had recurrence. One patient in salvage surgery developed recurrence and referred for palliative radiotherapy. At 2 years of follow up 7 patients(87.5%) had disease free survival,patient,one patient (12.5%) expired and one patient developed second primary in the (L) Tonsil and he underwent TORS and post operative radiotherapy was given due to positive resection margins on histopathological report.

DISCUSSION:

TORS is a new tool for the management of oropharyngeal tumours. Robotic surgery has facilitated improved visualisation of the tissues of oropharynx without disfiguring incisions causing less speech and swallowing dysfunction.

In our study men out numbered women which is in line with the study by Patel MM[6]. Males are more than four times as likely as females to develop oropharyngeal carcinoma.

Garden AS et al[7], reported high rate of subsequent requirement of radiotherapy in 60-90% patients following TORS. In our study adjuvant radiotherapy had to be administered following TORS in 16 (38.0%) patients. Lukens JN et al[8] , have highlighted the risks of triple modality therapy which include late consequential surgical bed soft tissue necrosis in advanced oropharyngeal squamous cell carcinomas treated with Transoral robotic surgery and postoperative radiation therapy.

Two studies have shown good locoregional control for patients operated with TORS. Weinstein GS, et al[9], showed 97% local control for 30 patients not receiving any postoperative adjuvant radiotherapy. A study conducted by Choby GW, at el[10] on 34 patients at university of Pittusburg showed only two patients (6%) with disease recurrence. The patients had significant improvement in there global QOL scale over 2 years after surgery. In our study, 5 patients (14.70%) experienced disease recurrence in 34 patients during follow up at the end of two year. In our study locoregional control was 89.65% for 26 patients not receiving any post operative adjuvant radiotherapy. Sixteen patients requiring adjuvant radiotherapy as a result of positive resection margins and lymph node involvement have done well as far as recurrence is concerned in patients at 2 year follow up. A long term follow up of these patients is required to assess the benefits of adjuvant radiotherapy.

We also found that mortality in patients with positive surgical margins on histopathological examination was significantally more than those with free surgical margins. The difference was statistically significant (p=0.037). Moreover as regards the mortality in patients with involved deep resection margins, patients with involved deep margins had more mortality compared to those with uninvolved deep margins(p=0.018). Hence ensuring free surgical margin resection is of paramount importance in transoral robotic surgery.

CONCLUSION:

Based on our study and comparison with the earlier studies TORS has better outcome in terms of low surgical margins positivity rate, low rate of feeding tube use and its duration. Although long term oncologic outcomes are yet awaited, but the current evidence of local regional control is extremely promising.

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