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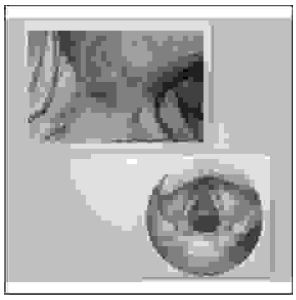

LARYNGEAL CANCER;
EXPERIENCE OF 50 CASES TREATMENT AT FAISALABAD.

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ABSTRACT... drnaeemakhtar_ent@yahoo.com Laryngeal cancer remained the most common malignant tumour of the head and neck despite an increase in the tumours of the oral cavity and oropharynx in the past two decades. However, it is the malignancy which has a high cure rate if diagnosed early and treated correctly. **Objective:** To analyse the results of treatment offered to laryngeal cancer patients. **Design:** Prospective study. **Setting:** Department of ENT and Head & Neck Surgery Unit-II Allied Hospital Faisalabad. **Study Period:** Nov 2003 to Oct 2005. **Material and Methods:** 50 cases of laryngeal cancer were selected at random who presented with hoarseness and /or respiratory distress in the out patient department. Majority of these patients were smokers. All these 50 cases were analysed from treatment point of view. **Results:** Out of 50 cases of laryngeal cancer, 12 patients (24%) presented with supra-glottic growth. Only one patient (02%) involved the sub-glottic region. The trans-glottic growth was noted in 16 patients (32%). We had to perform emergency tracheostomy in 19 patients (38%). 16 patients (32%) underwent total laryngectomy as the primary mode of treatment. 18 patients (36%) were referred to oncology department for primary therapeutic radiotherapy. Salvage total laryngectomy after primary radiotherapy failure was offered to 7 patients (14%). It was noted that recurrence of the lesion was more in those patients who received primary radiotherapy, 9(18%) showed recurrence in case of primary radiotherapy while 5(10%) showed the recurrence after total laryngectomy. **Conclusion:** Early diagnosis of laryngeal cancer pays a lot of dividends and makes the difference between life and death. Therefore more emphasis should be made on early diagnosis.

Key words: Laryngeal Cancer, Total Laryngectomy, Primary Radiotherapy, Radical Neck Dissection.

INTRODUCTION

Life is a balanced blend of pain and pleasure. It gifts us so many charms; but on the other hand we also see it doing some injury work. Cancer is the one of the most dangerous weapons through which it torments humanity. However carcinoma of larynx is the malignancy which has a high cure rate if diagnosed early and treated correctly. Laryngeal cancer places upon the clinician a

much greater responsibility than usual because careful evaluation and treatment offers a probability of cure while failure may be followed by a relatively uncomfortable death. About 95% to 98% of all malignant neoplasm of the larynx are squamous cell carcinoma; the remaining 2-5% include adeno-carcinoma, verrucous carcinoma, adenoid cystic carcinoma, oat cell carcinoma fibro-sarcoma, chondro-sarcoma and lymphomas[1]. The majority of the patients of laryngeal cancer present with hoarseness (81%)[2]. Other major presenting complaints are dyspnoea, stridor, dysphagia and a mass in the neck. CT scan, MRI diagnostic direct laryngoscopy and biopsy remains the most important investigations in laryngeal cancer patients. CT scan and MRI have become valuable complements in the radiological diagnosis of laryngeal cancer and add important information about deep tumour invasion., cartilage destruction and extension of tumour outside the larynx[3,4,5,6]. Pre-epiglottic space invasion is a feature in the majority of supra-glottic infra-hyoid carcinomas and for theseT3 & T4 lesions imaging confirmation may assist the decision to perform total laryngectomy as the primary procedure. MRI with gadolinium enhancement and subtraction studies is the investigation of choice in such cases[7]. Treatment philosophy in laryngeal cancer is multi-dimensional. The two most important factors which decide the modality of treatment are topography and the clinical stage at which the patient presents. Other factors which influence the pattern are age, general condition of the patient, histopathology, facilities available and experience of the surgical team. According to Watkinson, Gaze Wilson over 95% of the patients with laryngeal carcinoma are treatable[8]. Surgery is the effective and cheap modality of treatment, especially in our country where facilities for radiotherapy and chemotherapy are not easily available.

PATIENTS AND METHODS

This study was conducted at Department of ENT and Head & Neck Surgery Unit-II, Allied Hospital Faisalabad, during the period of two years from November 2003 to October 2005. We analysed the results of treatment offered to 50 patients of laryngeal cancer in this study. In all the patients detailed history was taken regarding various symptoms. All the patients underwent through clinical examination, including examination of ear, nose, throat and larynx. Investigations was also done both routine as well as specific investigations. The investigations included were blood routine examination, urine routine examination, bleeding profile, screening for hepatitis B & C viruses, blood sugar, blood urea, creatinine, liver function tests, ECG & ultrasonography (U.S.G) of abdomen. Radiological investigations were also performed especially the x-rays chest-PA view, x-rays soft tissue neck lateral view and CT scan of head neck with contrast. The last but not the least investigation was diagnostic direct laryngoscopy under general anaesthesia. A biopsy tissue was taken in each case to confirm the diagnosis and know the type of malignancy. Finally the counseling was done in each case regarding the final mode of treatment considering all aspects of surgery and radiotherapy.

RESULTS

In this study, out of 50 cases of laryngeal cancer, 12 patients (24%) presented with supra-glottic growth. Out of these 12 patients, one patient presented at T1 stage; 4 patients presented at T2, 6 patients at T3 stage while one patient presented at T4 stage. Twenty one patients (42%) had glottic growth with 2 patients at T1, 5 patients at T2, 14 at t3 & none patient at T4 stage. Only one patient (02%) involved the sub-glottic region at T1 stage in out study. The trans-glottic growth was seen in 16 patients (32%) with 12 patients at T3 & 4 patients at T4 stage (Table I).

Table II illustrate the topographical 'N' staging of our studied patients. It shows that only 4 patients (8%) presented with neck lymph node metastasis. Two patients (16.6%) belonged to supra-glottic growth group while another 2 patients 912.5%) belonged to trans-glottic growth group. We had to perform emergency tracheostomy in 19 patients (38%) because they presented with dyspnoea/stridor stage. Table III shows the different modalities of treatment which were offered to the patients in our study.

Table-I. Topographical 'T' Staging						
Region	**T1**	**T2**	**T3**	**T4**	**Total**	**% Age**
Supra-glottic	1	4	6	1	12	24%
Glottic	2	5	14	0	21	42%
Sub-glottic	1	0	0	0	01	02%
Trans-glottic	0	0	12	4	16	32%
Total	4	9	32	5	50	100%

Table-II. Topographical 'N' Staging					
Region	**N1**	**N2**	**N3**	**Total**	**% Age**
Supra-glottic (n = 12)	2	0	0	2	16.6%
Supra-glottic (n = 21)	0	0	0	0	0%
Sub-glottic (n = 01)	0	0	0	0	-
Trans-glottic (n = 16)	2	0	0	2	12.5%

Table-III. Modalities of Treatment		
Modality	**No. of Pts**	**% Age**
Total laryngectomy only	16	32%
Therapeutic primary radiotherapy only	18	36%
Salvage total laryngectomy after primary radiotherapy failure.	07	14%
Combined total laryngectomy + post operative radiotherapy	06	12%
Combined total laryngectomy & chemotherapy	00	00%
Combined total laryngectomy + radiotherapy + chemotherapy	00	00%
Combined palliative radiotherapy + chemotherapy	03	06%
Total	50	100%

Table IV shows that radical neck dissection along with total laryngectomy was performed in 4(6.6%) patients, while 2(33.4%) patients were operated for radical neck dissection for nodal recurrence after primary radiotherapy. All the 29 laryngectomixed patients were offered speech rehabilitation. 13 patients (45%) could acquire good esophageal speech while 16 patients (55%) developed poor esophageal speech after one month speech rehabilitation training course.

Fig 1 shows that 18 patients (66.6%) received radiotherapy as primary mode of treatment while 6 patients (22.2%) received post-operative radiotherapy. Palliative radiotherapy was offered to only 3 patients (11.2%) in the study. Recurrence pattern in total laryngectomy and primary radiotherapy is evident from (Table V) which shows that 5 patients of total laryngectomy developed recurrence where as 9 patients of primary radiotherapy group developed recurrence.

Table VI shows different complications which developed in our laryngectomizd patients where as illustrate the cause of death in our surgically treated patients. Fig 2 shows overall results of our surgically treated patients. It shows that 72.4% of our laryngectomized patients are

disease free to date. 10.3% patients are living with disease while 17.3% patients expired due to disease.

Fig-1. Radiotherapy

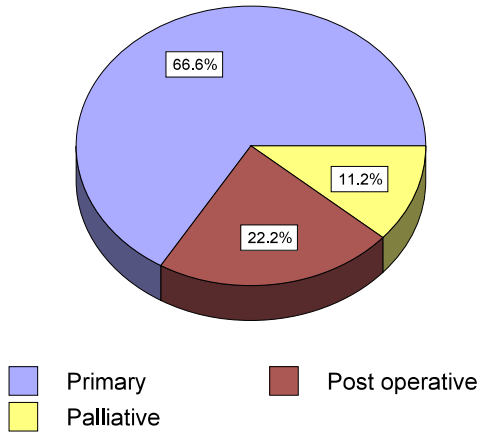


Table-IV. Radical Neck Dissection		
Radical Neck Dissection	**No. of Pts**	**% Age**
Along with laryngectomy	04	66.6%
For nodal recurrence after radiotherapy	02	33.4%
Total	06	100%
n = Total number of patients receiving radical neck dissection.		

DISCUSSION

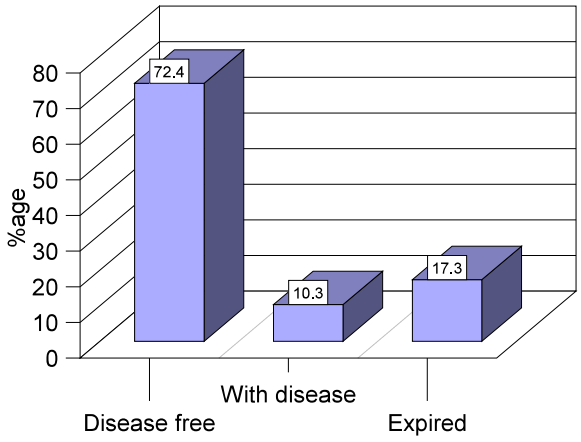
Life is balanced blend or pain and pleasure. It gifts us so many charms; but on the other hand we also see it dong some injury work. Cancer is one of the most dangerous weapons through which it torments humanity. However, cancer of larynx is the malignancy which has a high cure rate if diagnosed early and treated correctly. In this study 50 cases of laryngeal cancer have been managed and the results of treatment have been analysed.

Laryngeal cancer places upon he clinician a much greater responsibility than usual because careful evaluation and treatment offer a probability of cure while failure may be followed by a relatively uncomfortable death. About 95% to 98% of all malignant neoplasms of the larynx are squamous cell carcinoma.

Table-V. Recurrence Pattern			
Modality	**Recurrence Pattern**	**No. of Pts**	**% Age**
Primary Total Laryngectomy (n = 16)			
1	Locoregional	03	18.75%
2	Nodal	02	12.50%
3	Local + Nodal	00	00%
4	Pulmonary	00	00%
5	Bone	00	00%
Total		05	31.25%
Primary Radiotherapy (n = 18)			
1	Locoregional	07	38.88%
2	Nodal	02	11.11%
3	Local + Nodal	00	00%
4	Pulmonary	00	00%
5	Bone	00	00%
Total		09	49.99%

Table-VI. Complications of total laryngectomy (n=29)		
Complications	**No. of Pts**	**% Age**
Pharyngocutaneous fistula	02	6.8%
Stenosis of tracheal stoma	04	13.6%
Haematoma	01	3.4%
Tracheoesophageal fistula	00	00%
Post operative bleeding	00	00%
Stomal recurrence	07	23.8%
	14	47.6%
n = No. of patients having total laryngectomy (Primary + Salvage).		

Fig-2. Overall results of total laryngectomy



Topographically majority of our patients (42%) belonged to glottic growth group.32% patients had trans-glottic, 24% were diagnosed as supra-glottic and only 02% patients were diagnosed as having sub-glottic lesion. In international reports the site distribution of laryngeal carcinoma is variable e.g. in Belgrade, 60% of the tumours occur in the supra-glottic region; where as in Scandinavia, this site accounts for only approximately 15% of the tumours. Other regions of the world report supra-glottic cancers ranging from 11% (Sweden) to 22% (Finland) to 35% (Germany). In Japan, England and most of Asia, the proportion of supra-glottic to glottic cancers in approximately equal. In the Chicago cooperative study of 682 cancers, 40% of the tumours were glottic[1]. These results were almost similar to the study carried by us.

Treatment philosophy in laryngeal cancer is multi dimensional. The two most important factors which decide the modality of treatment are topography and the clinical stage which the patient presents. Other factors which influence the pattern are age, general condition of the patient, histopathology, facilities available and experience of surgical team. In the present study, surgery in the form of total laryngectomy with or without radiotherapy and therapeutic primary radiotherapy alone were the main modalities of treatment offered to our patients, at our centre. Except for advanced cases need palliative treatment we do not use chemotherapy as the primary mode of treatment. Surgery is the effective and cheap modality of treatment especially in our country where the facilities for radiotherapy and chemotherapy are not easily available.

The majority of head and neck surgical oncologists in the United Kingdom and world wide accept the proposition that radiotherapy is the treatment of choice for early (T1 & most T2) laryngeal cancer[9,10]. Many also support the use of radiotherapy for T3 carcinoma, especially for glottic tumours, reserving the salvage surgery for irradiation failure[11]. The management of T4 laryngeal cancer is more controversial, but it is possible to defined a practice of primary irradiation, again with salvage surgery appropriate, particularly in elderly patients and in those with co-existing medical problem[12,13]. At our centre 36% patients of the laryngeal cancer were treated with therapeutic primary radiotherapy which was successful in 22% of the cases. The radiotherapy failure cases (14%) were treated by salvage total laryngectomy. The more advanced supra-glottic and glottic tumours (T3 & T4), all sub-glottic tumours and radiotherapy and chemotherapy failure need total laryngectomy[14]. Total laryngectomy alone was performed in 32% of the cases. Out of these 10% showed locoregional and nodal recurrences which were treated with post-operative radiotherapy. 6% of the patients were treated with combined palliative radiotherapy and chemotherapy. 66.6% of the patients with clinically positive lymph nodes were treated with radical neck dissection at the time of total laryngectomy where as 33.4% cases were offered radical neck dissection for nodal recurrence after therapeutic primary radiotherapy.

The success rate in acquiring esophageal speech is much variable world wide. It was reported to be 25% by Gates et al[15], 65% by Premalatha[16]and 90%by hunt[17]. The experience of the esophageal speech therapy at our centre is not very much encouraging. Good esophageal speech was developed by 45% of the patients while 55% of the patients showed poor result. Good speech development requires an intelligent, educated and fully motivated patient, early institution of esophageal speech

and availability of a trained speech therapist with patience and skill.

Stenosis of the terminal tracheostome is a distressing complication of total laryngectomy. The different etiological factors responsible for this complication include excessive scar tissue formation, keloid formation, inadequate peristomal fat excision, defective or absent tracheal rings, recurrent tumour, wound infection, pre operative and post operative radiotherapy and poor surgical technique. In our study we encountered this complication in 13.6% of the cases which is very similar to the results obtained by Michael Kuo et al[18]. The incidence of pharyngocutaneous fistula formation in our study was only 6.8%, where as it varies within wide limits, from 7.4% to 65%[19,20]. Many factors have been suggested as contributing to the formation of fistula. Such factors include pre and post operative hemoglobin levels, operative technique, pre operative radiotherapy, nutritional status, general health of the patient and diabetes mellitus. Other possible factors include early removal of nasogastic tube, onset of oral feeding, tumour staging and infection[21]. The international results after total laryngectomy are quite variable world wide. In japan during 1960 to 1969 the overall result after total laryngectomy for all types of vocal cord cancer is in the rage of 55% to 80%[22], whereas we noted that 72.4% of the patients were disease free at the end of out study. This shows that our results are quite close to the results obtained in Japan.

CONCLUSION

1. Squamous cell carcinoma is the commonest form of the laryngeal cancer in our study.

2. It seems reasonable to advocate therapeutic primary radiotherapy alone for early T1, and most T2 supra-glottic and glottic tumours. Radiotherapy failure cases can be managed by salvage total laryngectomy.

3. The more advanced supra-glottic and glottic tumours (T3 & T4), all sub-glottic tumours and primary radiotherapy failure cases are best treated by total laryngectomy.

4. Early diagnosis of laryngeal cancer pays a lot of dividends and makes the difference between life and death. Therefore more emphasis should be made on early diagnosis.

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