

Cancer of the Larynx- Management Challenges in Calabar, South-South Nigeria.

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Abstract

Aims: To review the management challenges and outcome of advanced carcinoma of the larynx associated with patient treatment preference regardless of available or clinically appropriate treatment modality. **Materials and methods:** This was a retrospective review of the records of patients with laryngeal cancer managed in the Otorhinolaryngology department of the University of Calabar Teaching Hospital, Calabar South eastern Nigeria. The period under review was April 2001 to march 2011. The age, sex, presentation, history cigarette smoking and alcohol consumption, histopathological diagnosis, patient treatment preference and outcome of management, were analysed. **Results:** There were 10 patients, all males in the age range 42 to 75 years. Hoarseness was the initial symptom in all the patients (100%) with stridor and difficulty in breathing in 8(80%) at presentation. There was history of recent or past cigarette smoking in all but 2 (20%) of the patients. Tumour was transglottic in 7 (70%) patients, glottic in 2 (20%) and supraglottic in 1 (10%). Emergency tracheostomy was done in 8 (80%) cases as the first line of treatment to relieve upper airway obstruction. The histological diagnosis was exclusively squamous cell carcinoma of variable degrees of differentiation in 9 (90%) cases and carcinoma in situ in a case (10%) patient. Clinical staging was T₃ No in 8(80%) of cancer. Nodal staging was not confirmed by CT or MRI scans. There was biased to any form of laryngeal surgery as treatment option because of societal believes and ignorance. Chemoradiation therapy without surgery preferred by all the patients regardless of advanced stage of disease. There was high morbidity including disease recurrence within 1 year in 7(70%) patients and dependence on tracheotomy in 8(80%), feeding gastrostomy, intractable pain and pharyngocutaneous fistula. Voice optimisation was achieved only in the 2 patient with early glottic tumours. Mortality within 1 year was recorded in 5 patients despite Chemoradiation Therapy (CRT). Mortality was attributable to liquid morphine overdose/toxicity in 1 patient. Prognosis was abysmally poor. **Conclusion:** Treatment of Ca larynx in Calabar South eastern Nigeria is a management challenge with considerable morbidity and mortality. Cure rate and prognosis are very poor because of late presentation and patient's preference for inappropriate treatment modality in advanced disease. Refusal of laryngeal surgery as treatment option even when conservative non-surgical options have failed was because of Beliefs and ignorance. There is need for public enlightenment on the possibility of high cure rates and voice preservation in early laryngeal cancer. Cost of oncology care should be subsidized by government while an oncology centre should be established in each of the six geopolitical zones in Nigeria.

INTRODUCTION

The Larynx is divided into 3 anatomical regions; the supraglottic, glottic and subglottic. Most laryngeal cancers are glottic and histologically are usually squamous cell carcinoma. Males are mostly affected but the sex ratio is narrowing in the western world. Hoarseness is an early symptom of glottic cancer while sore throat, ear pain, dysphagia and enlarged neck nodes are typical presentations of supraglottic cancer.

Neck node involvement is common in 25-50% of supraglottic and subglottic cancers¹

There is a clear association between smoking and excessive

alcohol ingestion and the development of laryngeal cancers.^{2,3} Three-quarters of the patients in the US and UK present with early cancer as defined by the AJCC as T₁ or T₂ tumour without nodal involvement or distant metastasis (T₁NoMo or T₂NoMo)^{4,5}

Most patients in Nigeria, Sub-Saharan Africa, present late in upper airway obstruction requiring emergency tracheostomy as the first line of management.^{6,7,8} The most important goal for treatment is cure with laryngeal preservation, optimal voice quality and minimal risk of serious complications.

⁹Available treatment modalities include Radiotherapy, Surgery and Chemotherapy. Recommended therapy is based

on a variety of complex anatomic, clinical and social factors which should be individualised and discussed in multidisciplinary consultation before prescription.

Most important adverse prognostic factor includes increasing T stages and N stage. Age, sex and pathological features of tumour, including grade and dept of invasion are also important factors.¹⁰ Staging is clinical and determination of extent by CT / MRI of Head or Neck. Inspection by indirect mirror examination, direct fibre optic and rigid endoscopy and palpation when possible are important before treatment.

Treatment choice takes into account the likely post treatment morbidity, quality of life, patients preference and voice quality. Also important is the cost of treatment to the treating institutions, the patient and those involved in the patients care at home.¹¹

Radiotherapy tends to be the treatment of choice for early cancers in Northern Europe, Canada and Australia while Surgery is the choice in US and Southern Europe.¹² Cure rates of 75-95% is possible with small early cancers without LN involvement,⁹ but depends on site, tumour bulk and degrees of infiltration. Patients with Hb>13gld have better control and survival than anaemic patients.¹³ Smoking also diminishes likelihood of cure by any treatment modality.^{2,3}

Recurrent risk is high in the 1st 2 – 3 years for early cancer but recurrences after 5 years are rare. While most early laryngeal cancers can be cured by either radiotherapy or surgery, radiotherapy is a reasonable option to preserve voice while surgery is reserved for salvage. Late tumours require combined modality treatment.

The aim of our review was to determine the possible prognostic factors and challenges in the management of advanced carcinoma of the larynx in our region.

MATERIALS AND METHODS

We reviewed the records of patients managed in the ORL department of University of Calabar Teaching Hospital, Calabar Nigeria for laryngeal cancer between April 2001 and March 2011. In the period under review, 12 patients were clinically diagnosed of laryngeal cancer based on symptoms including hoarseness, stridor and difficulty in breathing and signs of laryngeal mass at indirect mirror or direct flexible fiberoptic laryngoscopy. The clinical T-stage of the tumour was determined using the American Joint Committee System (AJC) at Direct rigid endoscopic evaluation. Biopsy specimens were also taken at the same time for

Histopathological diagnosis. Nodal metastasis was not assessed by CT or MRI scans because these facilities were not available in the centre. Two cases were excluded from the review because of lack of histological confirmation. Patient's records were reviewed for age, sex, history of cigarette smoking, alcohol consumption habits, clinical presentation and histological assessment. Patients Treatment preference and outcome were also reviewed and analysed.

RESULTS

There were 10 patients and all males within the age range 42 to 75 years with a mean of 56.6 years. Hoarseness was the initial symptom in all the patients (100%) with a duration ranging from 5 to 24 months before hospital presentation. At presentation, there was stridor in all (100%) of the patient, severe difficulty in breathing in 8(80%) and dysphagia in 3(30%) of the cases. There was history of recent or past cigarette smoking in 8 (80%) patients. Only 2 (20%) of the patients had never smoked cigarettes. There was a history of significant alcohol consumption in 3(30%) of patients. - Table I Emergency tracheostomy was done in 8 (80%) cases to relieve upper airway obstruction at presentation. Tumour site was transglottic in 7 (70%) patients, glottic in 2 (20%) and supraglottic in 1 (10%). Glottis movement was remarkably impaired in 5 (50%) cases, fixed unilaterally in 3 (30%) and free in 2 (20%) of cases. The histological diagnosis was exclusively squamous cell carcinoma of variable degrees of differentiation in 9 (90%) cases and carcinoma in situ in a case (10%). Clinical staging was T₃ No in 8(80%) of cancer and T₂ No in 2 (20%). The N stage was not confirmed by CT or MRI scan of the neck. Chemoradiation therapy (CRT) without surgery was the treatment option preferred by all the patients regardless of stage of disease.-Table II

There was recurrence of disease within 1 year in 7(70%) patients, dependence on tracheotomy in 8(80%), and voice preservation with poor quality in 8(80%). Voice optimisation was achieved only in the 2 patient with early glottic tumours. Feeding gastrostomy for severe dysphagia was necessary in 3(30%) while intractable pain was present in 3(30%) post CRT. One patient was a controlled diabetic on insulin but developed deep space neck infection, pharyngocutaneous fistula and died within 6 months of CRT. Mortality within 1 year was recorded in 5 patients despite CRT. Mortality was attributable to liquid morphine overdose/toxicity in 1 patient. The patient complained of sudden onset of malaise and respiratory difficulty after the first dose of liquid morphine prescribed at the oncology

centre. - Table IV

The only patient with established cure presented early with a globular left glottic stage T₂ No tumour with a short peduncled base. Treatment was by excision biopsy and RT and has remained healthy with normal voice for 10 years now.

Figure 1

Table 1: History and Clinical Features at presentation

Symptomatology	Number of patients/%
Hoarseness	10 (100%)
Stridor	10 (100%)
Difficult in breathing	8 (80%)
Neck swelling	nil
Dysphagia	3 (30%)
Cigarette smoking	8(80%)
Alcohol consumption	3(30%)

Figure 2

Table; II Clinical findings, diagnosis, treatment and treatment response

Age	Sex	Vocal cord involvement/ Site	Histology	Treatment option	Outcome
59	M	Impaired/Transglottic	Sq.Cell Ca (SCCa)	Tracheostomy(Trach)	Poor
42	M	Impaired/transglottic	SCCa	Trach /CRT	Poor
73	M	Impaired/transglottic	SCCa	Trach /CRT	Poor
45	M	fixed /transglottic	SCCa	Trach / faith	Poor
50	M	Freely mobile/glottic	SCCa	Trach / RT	cure
75	M	Impaired /transglottic	SCCa	Trach /CRT	Poor
57	M	Impaired/ transglottic	SCCa	Trach. only	Poor
62	M	Unilaterally fixed /transglottic	SCCa	Trach/CRT	Poor
45	M	Freely mobile/glottic	SCCa	Trach/CRT	cure
55	M	Unilaterally fixed/ supraglottic	SCCa	Trach. only	Poor

Figure 3

Table III: Reasons for delayed hospital presentation and rejection of surgical treatment option.

Reasons	Number of patients/%
It is not a hospital illness	5(50)
Life without a voice is meaningless	5(50)
Fear of surgery	8 (80)
Fear of Mutism in next life (Reincarnation)	5(50)

Figure 4

Table IV: Post treatment morbidity

Post CRT Morbidity	Number of patients/%
Dependence on Tracheostomy	8(80%)
Voice preservation	10(100%)
Voice optimization	2(20%)
Dysphagia/Feeding Gastrostomy	4(40%)
Intractable pain	3(30%)
Deep space Neck infection	1(10%)
Pharyngocutaneous fistula	1(10%)
Recurrence within 1 year	7(70%)
Mortality within 2 years	7(70%)

DISCUSSION

The most important goal for treatment of laryngeal cancer is cure with laryngeal preservation, optimal voice quality and minimal risk of serious complications.⁹

The sex incidence of the disease was exclusively male in our region. This is unlike in the US, UK where though the males are mostly affected but the sex ratio is narrowing. This may be because smoking is still uncommon among females in Nigeria.

Most of our patients had a variable history of tobacco and alcohol consumption. These are well documented risk factor.^{2,3} Two patients had never smoke cigarette, but passive smoking can not be excluded since there is no strict enforcement of the law against smoking in most public places in Nigeria. Amusa et al in Ife⁶ South-West, Nigeria, had similarly documented the condition in 8 non-smokers while Onakoya et al in Ibadan,¹⁴ South-West Nigeria, also found that smoking and alcohol consumption were not common risk factors in their series. South West Nigeria and our region South- South Nigeria have similar racial population and the same legislation on public smoking. Therefore, the hazard of passive smoking remains a serious concern and may be an important risk factor in genetically predisposed individuals.

Most patients in our region require emergency tracheostomy as first line of treatment because they presented with late cancers (T₃-T₄). Upper airway obstruction was the reason for hospital presentation despite having hoarseness as a long standing initial symptom. This is similar to studies from the south-west and north-west of Nigeria by Amusa et al,⁶ and Iseh⁷ respectively. Preventable high morbidity associated with late presentation and biased to surgery makes the optimal goals of treatment for laryngeal cancer unattainable in our region. In the US and UK, 75% of patients present

early and cure rates as high as 95% are achievable.⁹ Amusa et al with laryngectomy in 9 of 13 patients reported good results over an average duration of 58.5 months follow up.⁶

The reasons for late presentation of larynx cancer in Calabar are multifactorial and may be deeply rooted in societal beliefs. There are misconceptions such as: hospital treatment for hoarseness is the removal of the voice box, cancer of the larynx is not a hospital ailment while deaf mutism may be a consequence of laryngeal surgery in the previous life.

Udosen et al (2006),¹⁵ in Calabar found societal beliefs and misconception to be responsible for patronage of traditional bone setters even by highly enlightened and educated patients in our region.

Lack of Supplementary facilities for oncology management may also be a challenge. While clinical assessment of primary tumour is available, supplementary head and neck CT and MRI scan for better assessment of extent of nodal involvement before treatment is lacking. Therefore our patients at the best are under staged as a clinically T₃. These patients may actually be in the T₄ stage with inoperable to terminal laryngeal cancer.

Treatment biased to any form of surgery may be a considerable management challenge in our series. This has been reported in south west Nigeria by Somefun et al, 2003,⁸ as an important prognostic factor, however they recorded some patients who accepted total laryngectomy as the best management option for their late presentation. In our region of Nigeria, there is still biased to surgery even when Chemoradiation therapy (CRT) fails. Consent for emergency tracheostomy and tissue biopsy was given in most cases for the relief of upper airway obstruction only. In highly developed medical facilities in the US and UK, the role of open surgery is greatly diminishing with the advent of multimodal protocols particularly concomitant chemoradiotherapy and the development of transoral endoscopic laser microsurgery. Nevertheless, total laryngectomy is still the usual procedure for salvage of failure after non-surgical treatment.¹⁶ These detrimental social beliefs can only be eradicated through public awareness.^{17, 18}

Lack or poor access to oncology facilities was a considerable challenge to treatment and proper follow up. There is no oncology centre on the South-South and South-Eastern geopolitical regions of Nigeria. Available oncology centres are in the South-West and North-Central regions, a distance of over 1000km away. Radiotherapy in these centres is often

done on out-patient for ambulant patients. Therefore patients from our region are faced with the additional financial burden and stress of long journeys, accommodation and feeding of themselves and accompanying person(s).

Chemotherapy is often begun at the oncology centre but to be continued and completed in our centre. These drugs are not routinely stocked in our local pharmacies, but are ordered on patient request. These add to the cost of drugs and treatment.

The high incidence of post CRT morbidity and mortality associated with laryngeal cancer in our region may be due to the inappropriate treatment modalities preferred by our patients, associated effects of radiation and chemotherapy and age related or pre-existing morbidity.

There was poor laryngeal function, dependence on tracheostomy, intractable neck pain and dysphagia. Therefore continuous tracheostomy care, use of narcotic analgesics and feeding gastrostomy became necessary. These added considerable morbidity and challenge to patient management.

Accidental overdose of liquid morphine was the suspected cause of worsening morbidity and death within 72 hours of one patient. Accidental overdose with liquid morphine has been recently identified. The prescribed milligram when mistaken for the mls of liquid drug to be taken by the patient results in 20 fold overdose¹⁹

Another patient, a diabetic on insulin had recurrent deep neck space abscesses, with multiple residual pharyngocutaneous fistulae. This morbidity and mortality was attributed to radiation therapy he received as well as his diabetic state.

In conclusion Ca larynx in our region is a management challenge with considerable morbidity and preventable mortality. Cure rate and prognosis is very poor because of late presentation, patient's preference for inappropriate treatment modality in advanced disease and refusal of laryngeal surgery even when conservative non-surgical options have failed. There is need for public enlightenment on the high cure rate and voice preservation in early laryngeal cancer. An oncology centre should be set up in the south-south geopolitical zone of Nigeria

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