

Original Research



Palliative Management of Unresectable Oral Carcinoma in Geriatric patients by Laser Ablation and Radiotherapy

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Abstract:

Introduction:

Oral carcinoma in Geriatric age group presents a challenge in terms of Morbidity and Mortality. There are challenges in form of Age related illnesses and ability of the oncologist to administer surgery and chemotherapy.

Most patients have a bad prognosis due to above factors. This study was carried out in 10 patients over a 4-year period in patients aged 65 and above.

Patients and Methods: Laser ablation was offered as an alternative to patients not fit or willing for a long duration surgery. Diode laser was used under sonography control for the procedure in all patients. Multiple small sessions were used to control the growth of tumor. Post procedure various adjuvant modalities were used depending on patient acceptance which are enumerated in the study.

Results: .All patients had a very good pain relief and freedom from tumor swelling .Most patients had an Overall Survival increase from 8 months to 2 yrs. There was no on table mortality. The overall ablation time was under 1 hour in most patients. Quality Index measurements showed as satisfactory score. The OS was largely dependent on overall health status of the patient and size of tumor.

Conclusion: Laser ablation for geriatric patients of oral carcinoma is a viable alternative procedure for palliation and overall survival increase. It gives a better quality of life and it is a safer procedure for palliation than a full scale surgery in Geriatric stage 4 inoperable patients.

Keywords: Laser ablation for oral cancer, Geriatric oral cancer, Unresectable Oral carcinoma, radiotherapy for oral carcinoma

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Introduction:

Oral cancer is leading public health problem in India. Around 77000 cases are reported annually in India. 65 to 70% cases are reported in Geriatric age group. 70 % of patients in this age group present with advanced stage 4 disease (1)(2). Geriatric oral cancer in India has a lot of demographic issues .Chief among them are lack of Social security and illiteracy. The dentist: population ratio is 1:27,000 in urban areas and 1:300,000 in rural areas, whereas 80% of the elderly population reside in rural India. Dental programs catering to special needs of the geriatric population are almost nonexistent. Geriatric patients lack adequate information about dental care.(3).Chief problems include missing dentition, Ill-fitting dentures, Periodontal disease, Long term Tobacco use. Nutritional decrease and decrease in Vit D levels contribute to increased incidence of oral problems including carcinoma. Mobility issues and Financial issues contribute to a late presentation. (4)

Traditionally advanced Oral cancer has been a multidisciplinary approach. Radiotherapy in Stage 4 disease is accompanied by surgery or chemotherapy as the preferred approach.

Radiotherapy alone is advocated only in early Oral carcinoma (5)(6)(7). Conventional surgery which involves radical resection followed by reconstruction is a time consuming affair. The surgery lasts anywhere from 8 to 12 hours. Many geriatric patients are not medically fit to undergo the resection procedure.

Barely 20% of unresectable patients reach respectability following Neoadjuvant chemotherapy. The median OS in resectable patients is 19 months and in unresponsive patients is 8.8 months. (8)

Chief Comorbid conditions which compromise the management of Oral carcinoma include Cardiac compromise, Hepatobiliary compromise, Chronic kidney disease, Recent cardiac surgery, Recent stroke, Suboptimal weight .These were also the main problems encountered in our study.

The main treatment which is regularly employed in our patients is Laser Ablation followed by Chemotherapy in stage 4 disease. Radiotherapy is employed in very selected cases where chemotherapy cannot be administered due to patient constraints.(9).

All patients were analysed on basis of Quality Index. (9)

Patients and Methods:

10 patients were included in this study over a 5 year period. Their age groups ranged from 65 to 85 years of age. With a mean of 75 yrs.

Laser Diode machine was used in this study of 60W. This was of a standard make by Gigaa laser. All the patients were assessed for inoperability of standard surgical procedure. The patients had been deemed inoperable due to various factors .(table 1) .The lesions were distributed all over oral cavity with majority of them in the buccal mucosa.

This study was carried out between January 2017 and July 2020. A written and informed consent was obtained from all patients.

The first procedure was a major debulking procedure carried out under General Anesthesia. Time for all procedures was under 1 hour. .Minor Laser procedures were carried out in 2 patients for small recurrences. These sessions were under 5 minutes in duration. The bleeding in most cases was not significant and no patient has had a blood transfusion due to blood loss during surgery.

Radiotherapy was administered as a palliative dose of 10 sessions at 2 Gy /session.

All patients were male. The lesions were distributed between Buccal, RMT and Hard palate

Table 1 Distribution of Medical problems in the patient group

Medical problems	Number N=10
Cardiac insufficiency	2
Cirrhosis	3
Chronic Renal disease	2
Advanced age	3

The procedure was explained to the patient and the oncologist opinion as to inability to administer Chemotherapy was taken into account and explained to the patient.

Results:

All patients had a satisfactory result and the OS was comparable to surgical resection in an ideal condition with age and extent of tumor taken into account. (Table 2)

OS was between 8 month minimum to 2 yrs maximum. All patients had a good palliative relief from swelling and pain within 1 month of the procedure with Radiotherapy.

2 patients had to undergo nasogastric tube feeding for a month due to radiotherapy mucositis of oral cavity. 1 patient has osteoradionecrosis of the mandible after 6 months. 2 patients had initial relief but subsequently had a progression of disease after 3 months. They had a survival period of 8 and 10 months.

Patients with intact buccal pad of fat and skin (no infiltration into skin over Buccal region) had the best results.

Table 2 Survival time for the patients

Time				
Months	0 to 6 months	6 to 18 months	18 months to 24 months	More than 24 months
Pt Nos	0	8	1	1

Quality Index

Quality of Life X Quantity of Life

Individual patient’s result were summed up on Quality index.(9). 7 pts (70%) had a satisfactory outcome) ,3 patients(30%) had a good outcome. It is significant that all pts a good palliation beyond 6 months.

Illustrated case:

72 year old patient with history of Systolic dysfunction .He had ejection fraction of 25 %. No prolonged surgery or Post laser chemotherapy was possible without endangering his life. He underwent laser ablation of tumor and Post laser radiotherapy of 10 sessions of 2 Gy each.

Illustrated case	
<p>Fig 1. Carcinoma buccal ith extensive involvement showing swelling and Skin involvement</p> 	<p>Fig2 Post laser and radiotherapy after 6 months. Swelling decreased and skin lesion healed.</p> 
	 <p>No sign of previous tumour</p>
<p>Figure 3 Angle of Mouth Involvement with intraoral growth</p>	<p>Figure 4 Resolution of lesion with healing of Angle of Mouth</p>

Discussion:

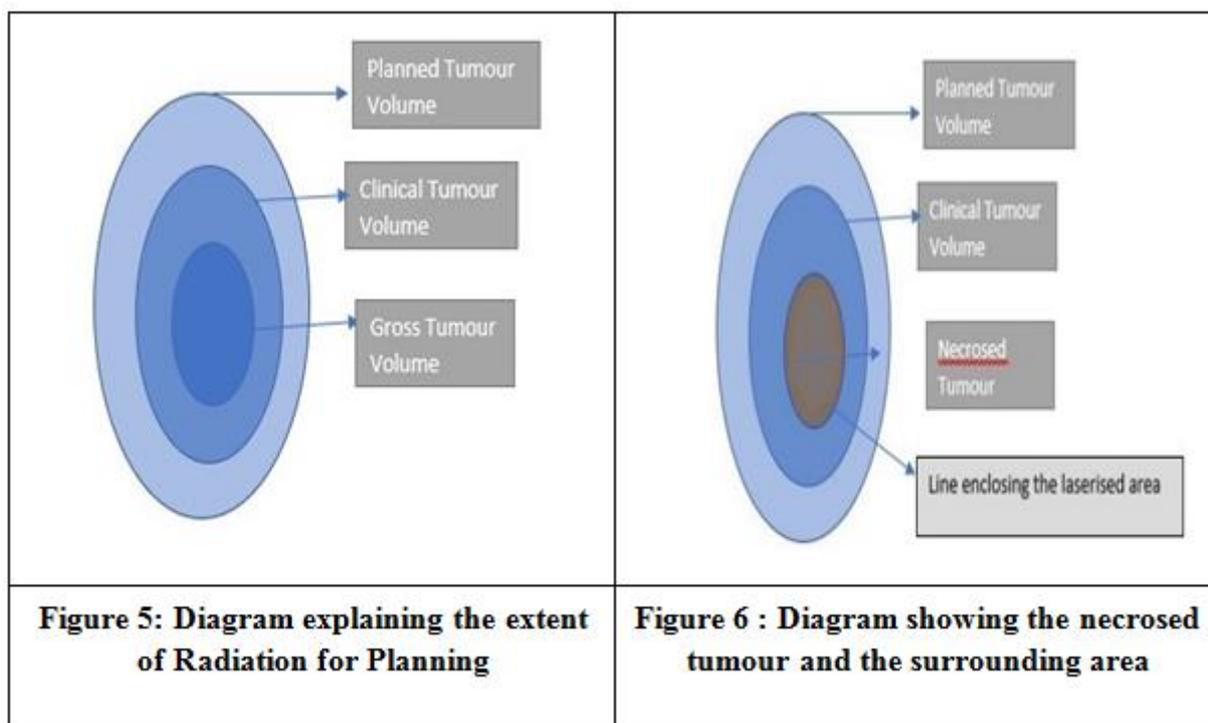
Oral cancer as discussed earlier is a major health problem in India .Wide consumption of Tobacco and Alcohol is attributed to the alarming statistics in India. Dental problems in the form of sharp tooth or ill-fitting dentures are also causative factors in this cancer. [10]. Most patients present in India with stage 4 cancer also called inoperable or unresectable cancers due to late diagnosis and lack of primary health care in many areas.[10].

For resectable OSCC, surgery is the mainstay of treatment. In unresectable tumors radiotherapy and chemotherapy become the second option. In old patients and with multisystem disorders radiotherapy becomes the sole option in large unresectable cases. Brachytherapy is recommended in only small well-defined lesions.(11).

Laser works by exposing the tumour to localized heat. It causes local death of tissue, Denaturation of proteins , Endothelial damage and retrograde thrombosis.(11)(12) The time of surgery is significantly lower ,about 1 hour in most cases. (9) Therefore the risk of anesthesia is lowered .

The OSCC in India is different from western countries since the cause is Tobacco and related products. This leads to an extensive infiltrative disease with marked surrounding dysplasia which in course of time returns or transforms into anaplasia.(13) . The survival rates therefore are significantly lower in Indian setting.(14)(15).

Radiation dosage is calculated on basis of Gross tumour volume (GTV), Clinical target volume(CTV) ideally. and Planned Tumour Volume(PTV) (16)



GTV is the seen and palpable tumor and CTV is the area around it. PTV is the area beyond CTV

With approximately 95% of GTV tumour necrosed by laser and viable tumour only in peripheral areas, lesser amount of radiation can be used. It is assumed that the tumour cell density in the CTV is lower than in the GTV and

consequently the radiotherapy dose may be lower.(16) (fig13 and Fig 14)

The side effects of Radiotherapy are quite significant. Chief amongst them are Xerostomia, Mouth ulceration, Hyperpigmentation, Oral fibrosis, freezing of tongue.

These side effects were less and for a shorter duration in these patients due to a decreased amount of radiation dosage.

Quality of life in these patients and survival were significantly better as seen in the analysis in Quality index.(Table 3,4,5).

There have been some studies for giving a lower dose of 20Gy with and without concurrent cisplatin.

In geriatric patients where chemotherapy is not an option the median OS was 3 months, the OS of 8 months was comparable to palliative dose for unresectable cancer with cisplatin . (17)

At present after surviving from a primary malignancy, 17%–19% patients develop second malignancy(19)

In IMRT technique, higher amount of normal tissue is exposed to low dose of radiation that may lead to higher integral dose and thus high risk of (RISM) Radiation induced Secondary Malignancies are a growing concern especially with IMRT radiotherapy (19)

Conclusion:

Laser ablation in Geriatric Unresectable oral cancers can play a significant role in coming years to give a quality palliation to these patients. The morbidity is considerably lower and OS is better with a combination of laser with radiotherapy. Lower dose of radiotherapy is an added advantage in this modality. A lower dose of Radiotherapy will give lesser side effects and decrease the chances of RISM . Best results as in all oral cancers are seen in patients presenting with an early stage of cancer.

A larger trial is required to substantiate the results.

Conflict of Interest statement:

Not applicable. Written informed consent was obtained from the patients for the publication of this case reports and any accompanying images. The authors declare that they have no competing interests. No funding was raised for the treatment of the cases and the publication

All authors read and approved the final version of the manuscript.

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