

Recurrent Squamous Cell Carcinoma Hard Palate: Palatectomy and Reconstruction of Palate V/S Neoadjuvant Radiotherapy- A Case Study

Dr. Jay Pittman,

Assistant Professor, Sikkim Manipal University of Medical Sciences, 5th mile road, Gangtok, East Sikkim, India

E mail: jaypittmanksa@gmail.com

ABSTRACT:

Squamous cell Carcinoma of hard palate is rare. Recurrent SCC of hard palate treated with neoadjuvant external beam radiotherapy has high mortality and morbidity. We received 10 patients over a period of 4 years. New technique was applied in all cases.

Key words: Hard palate, Neoadjuvant Radiotherapy, Squamous cell Carcinoma

INTRODUCTION

Hard plate cancer (HPC) is an uncommon malignant tumor. Etiologic factors dominated by alcohol and tobacco consumption, are similar to those of other oral cavity cancers.¹ The anatomical and histological constitution of the hard palate, with firm attachment of the mucosa to the underlying periosteum and the abundance of minor salivary glands, make the hard palate a site of different histopathologic type of neoplasms.² HPC represents approximately 1–3.5% of oral cavity cancers and is most often a squamous cell carcinoma.³

A variety of treatments have been used to treat hard palate cancer, including surgery, radiotherapy, chemoradiation and combinations of these modalities. This Radiotherapy leads to recurrence. Some surgeons treat them with partial Maxillectomy.⁴

Surgery is the treatment of choice. It is usually performed via a transoral approach without the need to use facial incisions. The choice of the technique is based on location and size of the tumor. Cervical lymph node metastases are associated with decreased survival rates.⁵ The deciding factors for clinician's decisions on whether an elective neck dissection is necessary or not, are the presence of cervical lymph nodes, the primary site of cancer, tumor size and histological study results.⁶ The present study reported 10 patients with recurrent carcinoma of Hard Palate at Sikkim Manipal University of Medical Sciences, in Gangtok, Sikkim state, over a period of 4 years.

CASE STUDY

We reported 10 patients with recurrent carcinoma of Hard Palate were received at Sikkim Manipal University of Medical Sciences, in Gangtok, Sikkim state, over a period of 4 years. They were initially treated elsewhere and they were given neoadjuvant external beam Radiotherapy. This resulted in temporary regression and recurrence within 6 months. (Fig- 1). Histopathology report showed occurrence of squamous cell carcinoma. Instead of a partial maxillectomy, we performed different approach. We took a forehead flap based on Superficial Temporal Artery, tunelled it through the cheek to go inside oral cavity and it was sutured to the excised margins of the hard palate. We excised the hard palate from inside the oral cavity itself. The entire hard palate was excised leaving some mucosa at the margins and

leaving the soft palate intact. (Fig-2) We then raised a forehead flap of full thickness and made a tube roll by suturing the opposite margins. We made an incision in the cheek, anterior to the border of Parotid Gland. We tunnelled the tube roll through the incision in the cheek. (Fig-3) The flap was opened inside the oral cavity and it was sutured to the cut margins of the palate and the anterior border of soft palate. (Fig- 4). The whole palate became like soft palate. All the patients healed well. Patients were followed up for average 2 years and none had a recurrence. Unfortunately, the previous external beam radiation had produced fibrosis of Masseter and Pterygoids. This resulted in closure of the mouth and failure to open it wide. The fibrosis continued till the mouth was completely shut within 1 more year. Patients were unable to speak well or eat. Eventually, we had to put a ryle's tube through a nostril and feed liquids. Patients became malnourished. About half the patients were from Nepal and they were eventually lost from follow up. We assumed that they died from malnourishment.



Fig- 1 showing a recurrent malignant palatal perforation



Fig-2 showing the result of wide excision of the malignancy by near total excision of the palate



Fig-3 showing tunnelling the tube roll through the incision in the cheek



Fig- 4 showing flap suturing to the cut margins of the palate and the anterior border of soft palate

DISCUSSION

The hard palate (also known as the 'roof of the mouth'), forms a division between the nasal and oral cavities, the palatine process of the maxillary bone and the horizontal plate of the palatine bone constitute the skeleton of the hard palate.⁷ It is 1 of 7 subsites of the oral cavity. Oral cancer is the sixth most common malignancy worldwide.⁸ The most common tumors of the oral cavity involve the oral tongue and the floor of the mouth however It is estimated that 1–3.5% of oral cancers are located at the hard palate.⁹ Several risk factors linked to cancer of the hard palate have been described in epidemiological studies around the world. Major risk factors are cigarette smoking and alcohol misuse. Although poor oral hygiene and poor dentition have been implicated in a few epidemiological studies.^{10,11}

For HPC, primary reconstruction surgery has been developed allowing an improvement of the quality of life after surgery and avoiding the predisposition to hyper nasal speech, leakage

of foods and liquids into the nasal cavity, difficulty swallowing, and improved masticatory function.¹² Squamous cell carcinoma (SCC) of the hard palate extend often superiorly to involve the nasal cavity and maxillary sinuses best evaluated with CT scan. However, perineural spread of palatine lesions is best evaluated with MR imaging.¹³

The external beam radiation from both sides of the face is a very wrong method of treating palate. The rays pass through the muscles of mastication, produce fibrosis and the progressive fibrosis closes the mouth. We treated with a good surgical method and none of the patients had any recurrence. The success of surgery was marred by the fibrosis from external beam radiotherapy. Hence, neoadjuvant radiotherapy by external beam radiation from both sides of face should be strongly discouraged. Partial Maxillectomy is a major and complicated surgery. Our surgical method was easier and created less morbidity. We recommend it as a primary method of treatment as well as recurrent carcinoma. The patients were then able to eat soft food and liquids. They were able to talk but there was some problem in speech. They were not able to pronounce certain consonants. Patients were seen regularly for follow up for one year to 3 years.

Our results are against the results obtained by Yorozu et al¹⁴ in which twenty-six patients received radiotherapy alone and five were treated for post-operative positive surgical margins. The 5-year actuarial survival rate was 55%. The actuarial 5-year local control rate was 53%, rising up to 69% after salvage surgery. Survival was 48% for squamous cell carcinomas and 63% for salivary gland carcinomas, the difference was not significant. The only significant predictor of local control was T-stage, with 80% 5-year local control of T1–2 lesions and 24% control of T3–4 lesions. N-stage was the only significant factor predicting for survival. Radiation necrosis occurred in one patient. Radical radiotherapy for carcinoma of the hard palate is safe and well tolerated. It is an effective treatment for both squamous cell carcinoma and salivary gland carcinoma.

Chung et al¹⁵ studied 32 patients with squamous cell carcinoma of the hard palate were seen at the University of Virginia Hospital. These have been reviewed with regard to race, age, sex distribution, histology and clinical presentation. The results of treatment have been analyzed by stage and mode of therapy. Finally, the time of appearance of local recurrence following initial therapy, the incidence of distant metastases and second primary tumors presented. The authors compared the treatment results obtained between the orthovoltage and supervoltage eras. There has been an improvement in results since the advent of supervoltage and this is especially attributable to improvements in the radiotherapy group. Considering radiotherapy the primary control was 2/6 patients (33%) in the orthovoltage era compared with 9/10 patients (90%) in the supervoltage era.

CONCLUSION

In our opinion, Radiotherapy induces fibrosis in the jaw muscles, it causes serious morbidity that our patients were cured of cancer but were not able to eat for the rest of their life due to this fibrosis. We recommend that External Beam Radiation should not be given to the palate for treatment of palatal cancers. Partial or Total Maxillectomy is not necessary, if the malignancy is localized to the hard palate. Our method of treatment had good results.

REFERENCES

- 1.U. Aydil, Y. Kızı, F.K. Bakkal, A. Köybas, Ioglu, S. Uslu, Neoplasms of the hard palate, J. Oral Maxillofac. Surg. 72 (3) (2014) 619–626.
2. I. Ganly, T. Ibrahimasic, S.G. Patel, et al., Tumors of the oral cavity, in: P.Q. Montgomery, P.H. Rhys Evans, P.J. Gullane (Eds.), Principles and Practice of Head and Neck Surgery and Oncology, ed 2, InformaHealthcare, London, UK, 2009, pp. 160–191.

3. Alfred A. Simental Jr., Eugene N. Myers, Cancer of the hard palate and maxillary alveolar ridge: technique and applications, *Oper. Tech. Head. Neck Surg.* 16 (2005) 28–35.
4. S.J. Crean, C. Bryant, J. Bennett, et al., Four cases of polymorphous low-grade adenocarcinoma, *Int. J. Oral Maxillofac. Surg.* 25 (1996) 40.
5. Urken M.L., Advances in head and neck reconstruction, *Laryngoscope* 113 (2003) 1473–1476.
6. J. Beumer, T.A. Curtis, M.T. Marunick, Maxillofacial rehabilitation: prosthodontic and surgical considerations, IshiyakuEuroAmerica, Inc., St. Louis, 1996.
7. LaleKostakoglu PET/CT Imaging in Squamous Cell Carcinoma of the Head and Neck Problem Solving in Neuroradiology, Chapter 4, 126-207.
8. T.Z. Zheng, P. Boyle, Hu, et al., Dentition, oral hygiene and risk of oral cancer: a case-control study in Beijing, Peoples Republic of China, *Cancer Causes Control* 1 (1990) 235–241.
9. J.R. Marshall, S. Graham, B.P. Haughey, et al., Smoking, alcohol, dentition and diet in the epidemiology of oral cancer, *Eur. J. Cancer B Oral Oncol.* 28B (1992) 9–15.
10. S. Warnakulasuriya, Causes of oral cancer – an appraisal of controversies, *Br. Dent. J.* 207 (2009) 471–475.
11. Z. Tian, L. Li, L. Wang, et al., Salivary gland neoplasms in oral and maxillofacial regions: a 23-year retrospective study of 6982 cases in an eastern Chinese population, *Int. J. Oral Maxillofac. Surg.* 39 (2010) 235.
12. Bruce M. Wenig MD Neoplasms of the Oral Cavity Atlas of Head and Neck Pathology, Chapter 6, 273-383.e15.
13. Carlo M. Oranges, Giovanni Sisti, DimitriosNasioudis, Mathias Tremp, PietroG.Disomma, Daniel F. Kalbermatten, RenéD. Largo, Dirk J. Schaefer, Hard palate melanoma: a population-based analysis of epidemiology and survival outcomes, *Anticancer Res.* 38 (2018) 5811–5817.
14. Yorozu A, Sykes AJ, Slevin NJ. Carcinoma of the hard palate treated with radiotherapy: a retrospective review of 31 cases. *Oral oncology.* 2001 Sep 1;37(6):493-7.
15. Chung CK, Rahman SM, Lim ML, Constable WC. Squamous cell carcinoma of the hard palate. *International Journal of Radiation Oncology Biology Physics.* 1979 Feb 1;5(2):191-6.