

## CASE REPORT

# Prospects of Radiotherapy In A Case of Squamous Cell Carcinoma of The Nasal Cavity: A Case Report And Review of Literature

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## ABSTRACT

**Introduction:** Squamous cell carcinoma of sinonasal cavity with oronasal fistula is a very rare complication and the previous case reports on this condition have cited surgery to be a better option for treatment followed by radiotherapy and chemotherapy.

**Aim :** To correlate the findings of our study with the other works done for this condition

**Case report:** Radiotherapy is an important tool in the treatment of cancer. The patient presented with bleeding from a sinonasal growth .The diagnosis was made by HRCT of faciomaxillary region. Squamous cell carcinoma melted like snow with radiotherapy and chemotherapy was given and the patient was further planned for surgery.

**Conclusion :** Radiotherapy and chemotherapy followed by surgery is a better option for the treatment of sinonasal carcinoma.

**Keywords:** Radiotherapy, Squamous cell carcinoma, Nasal cavity

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## INTRODUCTION

Squamous cell carcinoma developing from the sino-nasal cavity is a rare condition. It has the ability to invade the underlying structures and cause other complications. The diagnosis is made by FNAC and radiography is required for the knowledge of the extent of the tumour. Sino nasal tumours are rare, with an annual incidence of approximately 1 case per 100,000 inhabitants worldwide, a fact that together with histological diversity have hampered diagnosis, genetic analyses, classification, and staging, and prevented the accumulation of clinical experience at individual institutions. Nevertheless, the clinical management of sinonasal cancer has improved owing to advances in imaging techniques, endoscopic surgical approaches, and precision radiotherapy<sup>1</sup>

## CASE REPORT

A 55 year old male presented to the Emergency Department, Department of Otolaryngology and Head and Neck Surgery, Assam Medical College, Dibrugarh, Assam, India, with a chief complain of bleeding from the mass overlying the full left and almost half of the right anterior nasal opening (Fig.1). The bleeding was profuse and with proper conservative medication and surgical dressing it stopped. It was seen that the hard palate had been eroded and the alveolus had also been involved (Fig.2). The patient complained of regurgitation from the right nasal cavity and difficulty of respiration.

His blood pressure was 96/64 mm of Hg. Laboratory data were as follows: Hb 7.6 , white blood counts 9600per mm<sup>3</sup>, ESR 100 mm AEFH, Differential count N<sub>75</sub> L<sub>14</sub> M<sub>4</sub>B<sub>0</sub> E<sub>7</sub>, random blood sugar 102 mg/dl, serum Na<sup>+</sup> 151.8

mmol/l,  $K^+$  4.07 mmol/l, PT 11.1, INR 0.97, urea 30mg/dl, creatinine 1.3 mg/dl, ALT 29, AST 33 and platelet count 1.77 lac. His CT report showed ill defined heterogenous predominantly hypodense soft tissue density lesion measuring  $4.33 \times 3.93 \times 3.81 \text{ cm}^3$  with large exophytic component noted in the region of right superior alveolar process involving part of left superior alveolar process, hard palate on right side with patchy destruction of inferior part of nasal septum and oronasal fistula formation on left side. On NECT 40-50 HU and CECT 170-190 HU it showed intense heterogenous enhancement. The lesion extended superiorly into inferior aspect of left nasal cavity. Hypodense collection was noted in left nasal cavity above the mass (Fig. 3). His histopathological examination report showed it to be well differentiated squamous cell carcinoma. The patient was treated by single anterior field dose of 1.8 Gy per fraction to a total dose of 54 Gy in 30 fractions. After radiotherapy patient went for a course of chemotherapy using 5-Flourouracil and Cisplatin. The patient was then prepared for surgical excision. The patient is on continuous follow up and no complications have occurred till date.



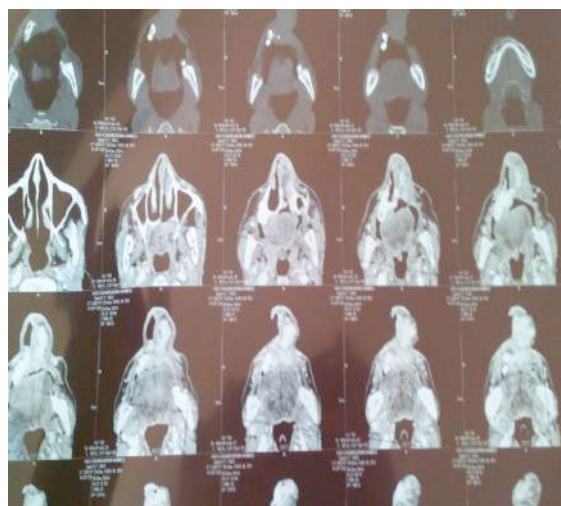
**Figure-1:** Squamous cell carcinoma of the left nasal cavity with ulceration and keratinisation

## DISCUSSION

Sino nasal tumours are rare, with an annual incidence of approximately 1 case per 100,000 inhabitants worldwide, a fact that together with histological diversity have hampered diagnosis, genetic analyses, classification, and staging, and prevented the accumulation of clinical experience at individual institutions.



**Figure-2:** Oronasal fistula with squamous cell carcinoma over the left sinonasal cavity and alveolus.



**Figure:3-** CT-Faciomaxillary

Nevertheless, the clinical management of sinonasal cancer has techniques, endoscopic surgical approaches, and precision radiotherapy.<sup>1</sup> Squamous cell carcinoma of nasal floor and underlying structures including alveolus and oronasal fistula is a very rare case. The conventional treatment always had been mid facial degloving and post operative radiotherapy. In our patient we tried an another approach by treating him by radiotherapy first. It was found that after a full course of radiotherapy the mass had shrink almost to pin head size at the attached part of the inferior portion of the nasal septum. The patient was next given a course of chemotherapy. It was seen that there was extensive reduction of the mass and the field for operation had reduced to a pin head size. The patient was further planned for surgical removal. The patient is on continuous follow up and no complications have occurred till now. This shows that inspite of treating in the conventional manner which has a disfiguring effect of the face prior treatment with radiotherapy and chemotherapy

before surgery is a better option.

In operable sinonasal IP/SCC, upfront surgery and postoperative radiotherapy to the tumor bed with dose levels comparable to those used for invasive SCC are recommended. For non-resectable disease, radical radiotherapy to a dose of 66-70 Gy could be of benefit.<sup>2</sup>

Two studies conducted in Belgium cited that post op radiotherapy in sinonasal carcinoma has good local control and low rate of toxicity.<sup>3,4</sup> One more study done in Turin, Italy cited that radiotherapy alone has low local control although 3D-CRT reduces risk of optical pathways but did not modify survival.<sup>5</sup> Two more studies by UCSF have cited that radiotherapy alone has no improvement in disease control or survival, but decreased incidence of complications.<sup>6,7</sup> However MSKCC has cited that modern radiotherapy is safe and recurrence is very less.<sup>8</sup> Outcome with adjuvant or definitive RT however has so far been hampered by high rates of accompanying toxicity. Modern radiotherapy techniques such as IMRT and image-guided RT (IGRT) have improved toxicity. Despite these sophisticated new techniques, it remains challenging to apply sufficient doses to the tumour in order to improve control rates.<sup>9</sup>

Preservation of visual acuity is crucial for patients' quality of life after treatment. Radiation induced brain injury is classified as an acute, early delayed, or late reaction according to its timing after radiotherapy. Acute injury occurs during or just after completion of radiation therapy; early delayed injury develops few weeks (up to about 12 weeks) after radiation therapy. Late reaction is one of the most serious complications of radiation therapy of head and neck tumors and develops after few months to several years after radiation therapy. The spectrum of late radiation injury ranges from faint and limited damage to white matter to complete ischemic necrosis. Radiation induced brain necrosis is thought generally to be progressive and irreversible.<sup>10</sup> A high incidence of severe optic toxicity was observed following concurrent intra-arterial chemotherapy and 3D RT as shown by Homma et al.<sup>11</sup> despite the excellent local control of 83% achieved in their study. Thus, concurrent chemotherapy, such as intra-arterial cisplatin in this study, may potentially be a contri-

buting factor to severe optic toxicity after radiotherapy for sinonasal malignancies.<sup>11</sup> Such high rate of optic toxicity was not observed in the other study<sup>11</sup> where patients of sinonasal malignancies received chemotherapy following radiotherapy. Therefore, whether the addition of chemotherapy worsens optic toxicity following RT for sinonasal malignancies is unclear at this time. A multimodal approach is best when treating SNUC patients. The prognosis for patients treated with definitive RT ± chemotherapy is less promising than for those who receive surgery and postoperative RT ± chemotherapy. Severe complications occur in about 17% of patients due to the high dose of RT alone or combined with surgery required for acceptable disease control<sup>12</sup>. In another study<sup>13</sup> clinical presentation of cervical lymphadenopathies, sinonasal symptoms and unilateral blindness was in keeping with the usual presentation of sinonasal cancers in their case. The treatments of sinonasal small cell carcinomas have been varied, with reports of chemotherapy, radiotherapy and surgery being used. The use of cisplatin based chemotherapy is common. Radiotherapy is also very commonly used either with concurrent chemotherapy or alone in sequence with chemotherapy. The patient being a young child and considering his advanced disease presentation was taken up for neo-adjuvant combination chemotherapy followed by radical radiotherapy. Despite completing his planned treatment he developed early large-volume local failure in the brain that could not be salvaged.<sup>13</sup>

## CONCLUSION

Squamous cell carcinoma of the nasal floor and alveolus is rare and a disfiguring condition which needs immediate treatment before the other structures had been extensively involved. Radiotherapy has emerged as an important tool in the treatment by the last decade and combined radiotherapy and chemotherapy should be the first line of treatment in such disfiguring condition followed by minimal surgical intervention.

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