

## Key takeaways from the Columbia HICCC Cancer Series: Head & Neck Cancer – From Diagnosis to Therapy webinar

This collaborative webinar, hosted by Columbia Global Center Mumbai and Columbia University's Herbert Irving Comprehensive Cancer Center (HICCC) in partnership with Tata Memorial Center and Rajiv Gandhi Cancer Institute, brought together leading oncologists and researchers to explore comprehensive care strategies for head and neck cancers. The discussion highlighted the pressing need for multidisciplinary collaboration, particularly in light of India's high burden of advanced oral cancers.

### **Surgical Management of Locally Advanced Oral Cancers (Dr. Sudhir Nair, Head, Surgical Oncology, Advanced Centre for Treatment, Research and Education in Cancer)**

India faces a high burden of head and neck cancers, with oral cancers being particularly common among Indian men.

Around 60% of oral cancers in India present at a locally advanced stage, often due to late diagnosis, socioeconomic disparities, and limited access to specialized care.

#### **Disease Characteristics and Challenges**

Locally advanced oral cancers (Stages III, IVA, IVB) require multimodal treatment (surgery, radiation, chemotherapy).

Many patients present with complex, late-stage tumors (e.g., skull base involvement, carotid artery encasement), requiring careful staging and planning.

#### **Staging and Preoperative Evaluation**

Staging involves clinical and radiological assessment (CT, MRI, PET-CT as needed); examination under anesthesia is often required for advanced cases.

Surgical principles include achieving clear margins ( $\geq 5\text{mm}$ ), proper specimen orientation, and multidisciplinary tumor board discussions.

Advanced oral cancers (T4A, T4B) may be resectable with modern techniques; compartmental resections and neoadjuvant chemotherapy can improve outcomes in borderline cases.

## T4B Buccal Mucosa Cancers

Although classified as unresectable by NCCN, Indian experience shows that some T4B tumors can be surgically removed with good outcomes if margins are clear.

Survival for resected T4B cancers can approach that of T4A, especially with proper technique and preoperative imaging.

### Reconstruction and Rehabilitation

Reconstruction strategies aim to restore form, function, and aesthetics:

- Free flaps are the gold standard but require technical expertise.
- Pedicled and local flaps (e.g., PMMC, nasolabial) are used when free flaps are not feasible.
- Postoperative care includes speech and swallowing therapy, nutritional counseling, and psychological support.

### Conclusion

Surgery remains central in the treatment of locally advanced oral cancers when feasible.

Multidisciplinary planning and rehabilitation support are key to achieving meaningful, quality outcomes for patients.

### Why Adjuvant Therapy Matters in Oral Cavity Cancers (Dr. Shwetabh Sinha, Associate Professor, Radiation Oncology, Advanced Centre for Treatment, Research and Education in Cancer)

India has higher incidence and mortality of oral cavity cancers compared to the US due to advanced stage at presentation. **Local recurrence remains a major challenge:** 70–85% of oral cavity cancer recurrences are local/regional, despite squamous carcinomas being radio- and chemo-sensitive.

**Salvage outcomes are poor:** Only ~10% of locoregional recurrences are salvaged with curative intent; 2-year overall survival is just 20–30%.

**Best outcomes rely on the first-line treatment—making adjuvant therapy essential.**

Adjuvant RT is guided by histopathological risk factors (positive margins, perineural invasion, lymphovascular emboli, etc.).

Ongoing research includes de-escalation of RT volumes/doses, hypofractionation, and trials like APRON and RS for early cancers.

For advanced cancers, post-operative RT (PORT) and concurrent chemoradiation are standard, with ongoing trials exploring systemic therapy and immunotherapy (Keynote689, NRG, etc.).

Timely initiation of RT (within 6 weeks post-surgery) is crucial for optimal outcomes.

### Conclusion:

**Adjuvant RT ± chemo** is the **cornerstone of oral cancer care**, especially in India where late-stage presentation is common.

**Future direction:** More personalized treatment using **genomic profiling, immunotherapy, and proton therapy.**

**Toxicity and QoL must be factored in,** alongside survival benefits.

**Multidisciplinary care,** including rehabilitation, is essential for optimal patient outcomes.

**Modern Radiation Therapy & Practice Building (Dr. Luqman Dad, Assistant Professor, Radiation Oncology, Director for Global Engagement and Outreach, Co- Director Head and Neck Cancer Program, Columbia HICCC)**

Despite geographic differences, Columbia's Washington Heights population and urban Indian populations share similarities: lower socioeconomic status, substance abuse (tobacco/alcohol), and late-stage presentation. These commonalities present opportunities for aligned clinical strategies and collaborative solutions.

### **Importance of Interdisciplinary and Coordinated Care**

Columbia's model includes weekly tumor boards and care team huddles with ENT, oncology rehab, medical oncology, and other specialists.

Emphasis on patient navigation and interdisciplinary coordination improves outcomes and helps address complex patient needs.

### **Total Package Time (TPT) as a Critical Outcome Factor**

Strong evidence links delays between surgery and radiation (>100 days) with decreased overall survival and disease control.

Factors influencing TPT include wound healing, insurance issues, comorbidities, and socioeconomic barriers—suggesting efforts by the interdisciplinary team, including oncology rehab, patient navigation and social work, as important as our specific adjuvant treatment modalities.

### **Technological Advances and Precision Care**

Columbia is integrating **online adaptive radiation therapy** (Ethos platform) to accommodate anatomical changes and tumour response.

The institution is also leveraging **machine learning and mathematical modeling** (with researchers Dr. Igor Shuryak and Dr. David Brenner, from the Center for Radiological Research (CRR) to refine predictive tools and personalize treatment.

Dr. Dad highlighted the **HYPNO trial**, which demonstrated the non-inferiority of moderately hypofractionated radiation schedules (20 fractions) for patients in low-resource settings.

Such strategies are vital for patients with advanced disease and limited support, and were tested across 12 centers in 10 LMICs, including India.

### **Role of Translational Research and AI**

Columbia is exploring how tumor heterogeneity can guide personalized treatment decisions. This research is actively being done by ENT-Surgeon-Scientist, Dr. Anuraag Parikh.

Efforts are ongoing to integrate artificial intelligence to improve both clinical decision-making and patient education.

### **Opportunities for Global Collaboration**

Dr. Dad expressed enthusiasm for building partnerships with Tata Memorial, Rajiv Gandhi Cancer Institute, and others in India.

- Proposed collaborations include:
  - Trainee exchanges and global health education.
  - Joint clinical symposia and clinical trials.
  - Co-development and implementation of machine learning tools and patient education platforms to enhance the provider and patient experience.
  - Sharing best practices, like EMR-integrated tumor boards, patient navigation, and psychosocial aspects of survivorship.

### **Conclusion:**

Dr. Dad emphasized that survivorship begins at diagnosis and holistic care—including rehabilitation and psychosocial support—is central to improving long-term outcomes: ‘As part of Columbia’s commitment to advancing cancer care globally, we’re grateful for the opportunity to share expertise and learn from one another, and we look forward to building a thoughtful and collaborative partnership that strengthens outcomes for patients across all regions of the world.’

### **Palliative Care in Head and Neck Cancer (Dr. AK Dewan, Director, Surgical Oncology, Rajiv Gandhi Cancer Institute & Research Centre (RGCIRC))**

Palliative care is essential due to high symptom burden, disfigurement, psychological and social impact in advanced cases.

Common issues include pain, wounds, cachexia, bleeding, mucositis, dysphagia, xerostomia, and malnutrition.

Total pain concept includes physical, psychological, social, and spiritual aspects; analgesia follows the WHO stepladder.

Procedures like tracheostomy, wound debridement, and palliative RT/chemotherapy may improve quality of life, but overtreatment should be avoided.

Communication, patient-centric decision-making, and focus on quality of life and good death are emphasized.

### **Audience Q&A and Future Directions**

Prevention in India is limited to opportunistic screening and awareness campaigns; organized government programs are lacking.

HPV's role is significant in oropharyngeal cancers (more in the US than India); de-escalation strategies are limited in India due to tobacco use and lower HPV prevalence.

Immunotherapy is being explored in low-dose regimens for cost-effectiveness in India, especially in palliative and neoadjuvant settings.

Proton therapy is currently reserved for select head and neck cases (skull base, nasopharynx, re-irradiation) due to limited availability; future trials may expand indications.

Betel nut chewing is strongly associated with oral and hypopharyngeal cancers; smoking with laryngeal and oropharyngeal cancers; tongue cancers can occur without risk factors.