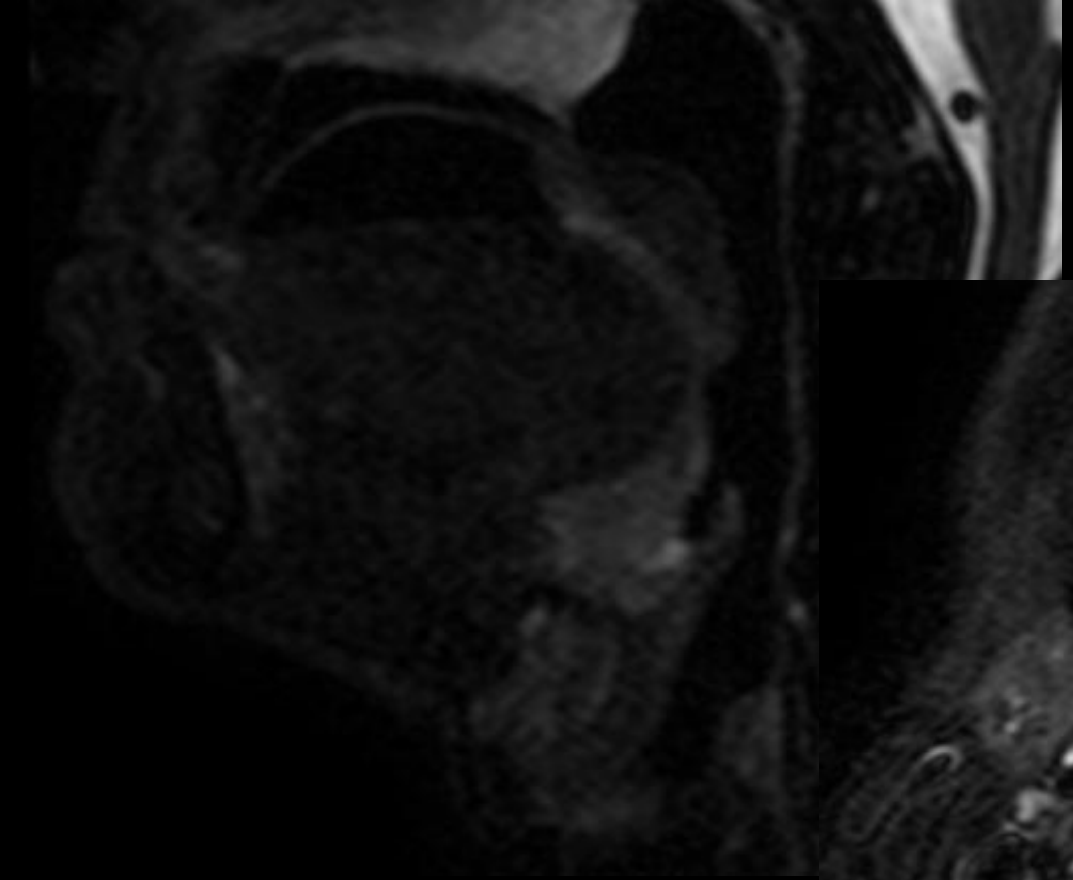
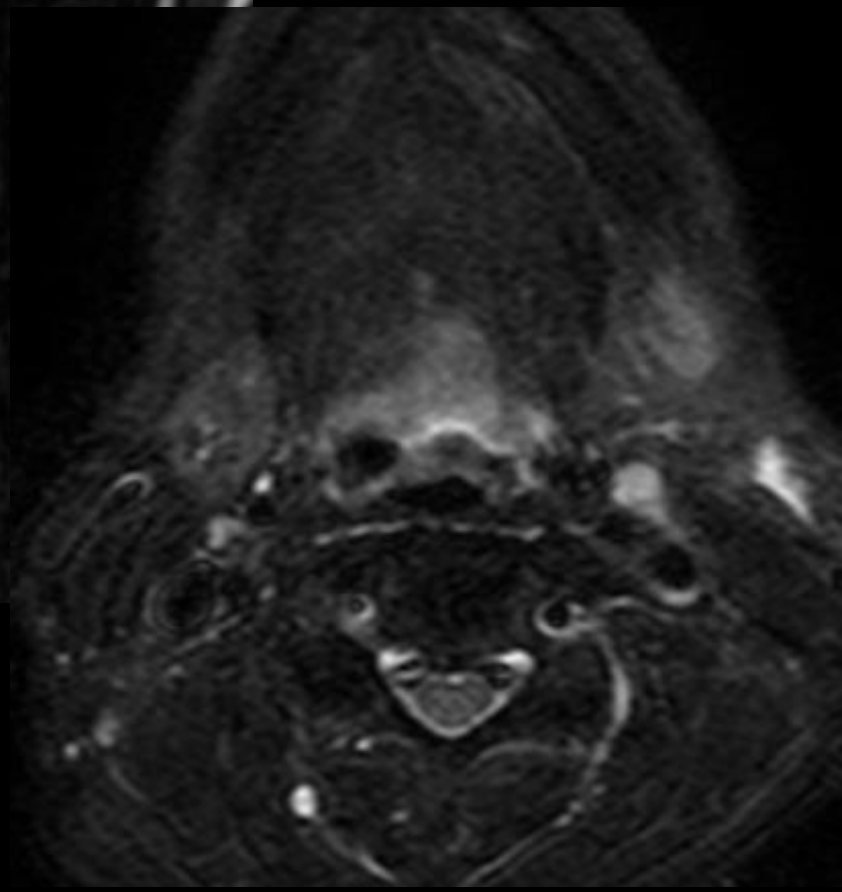
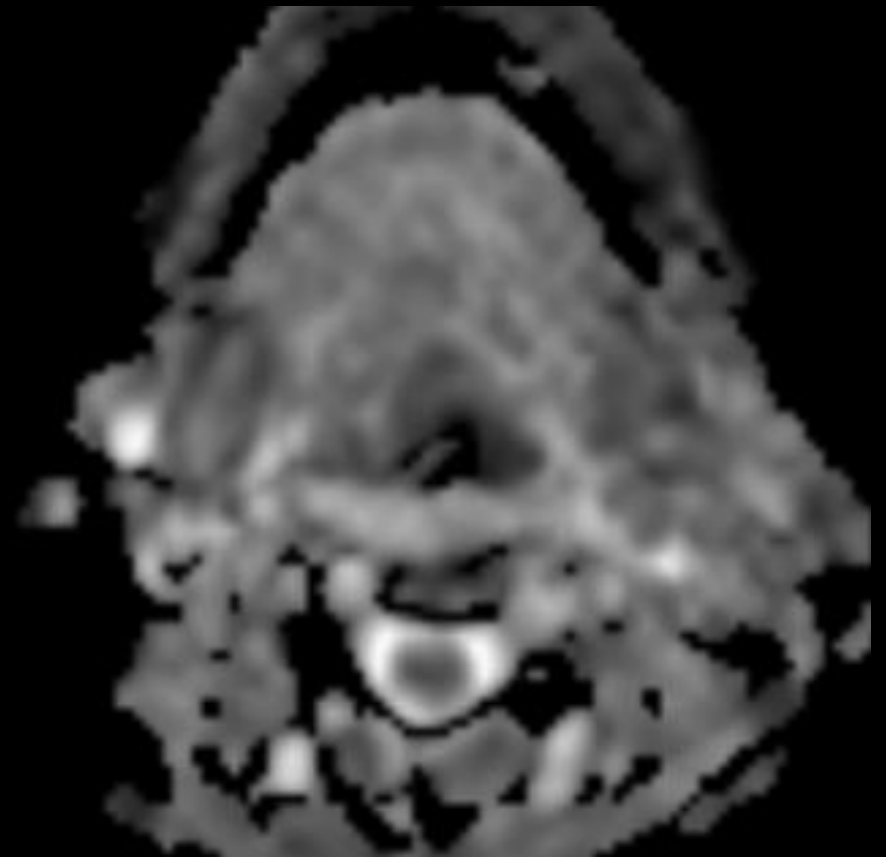
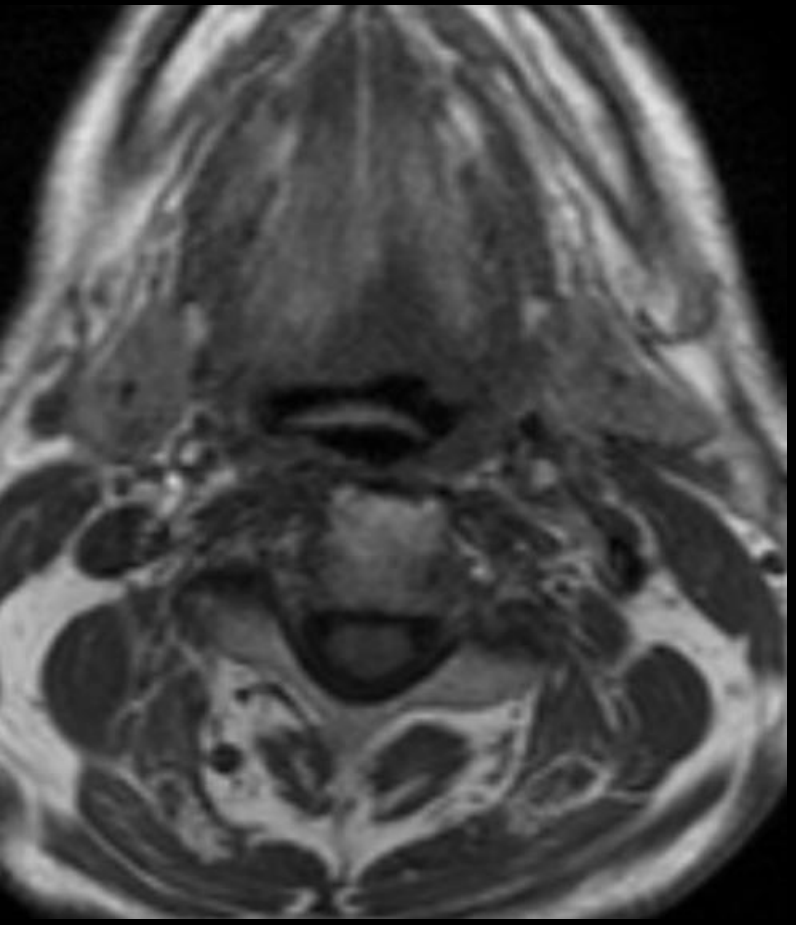
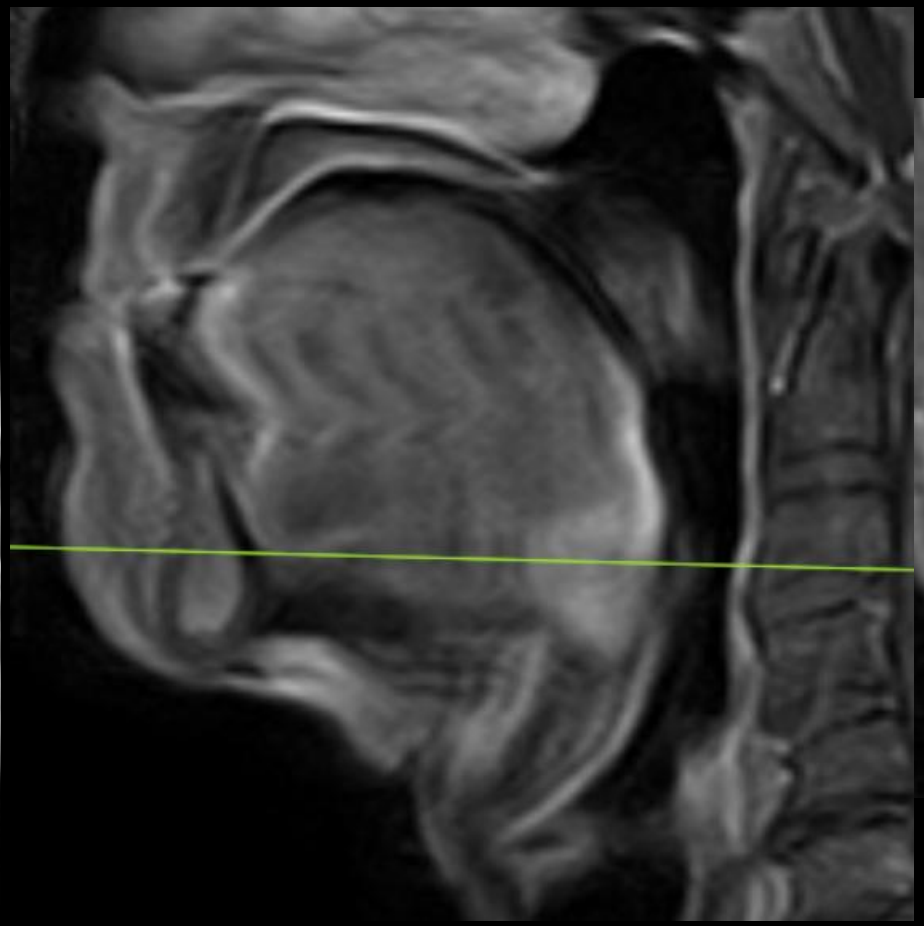
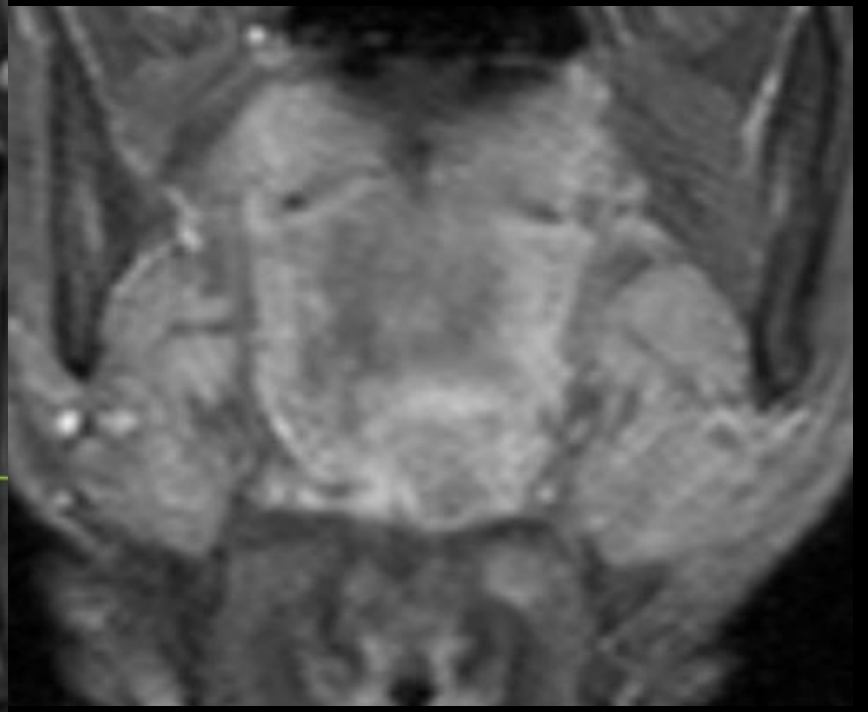
SJMCH, Bengaluru

Contributor of the Series



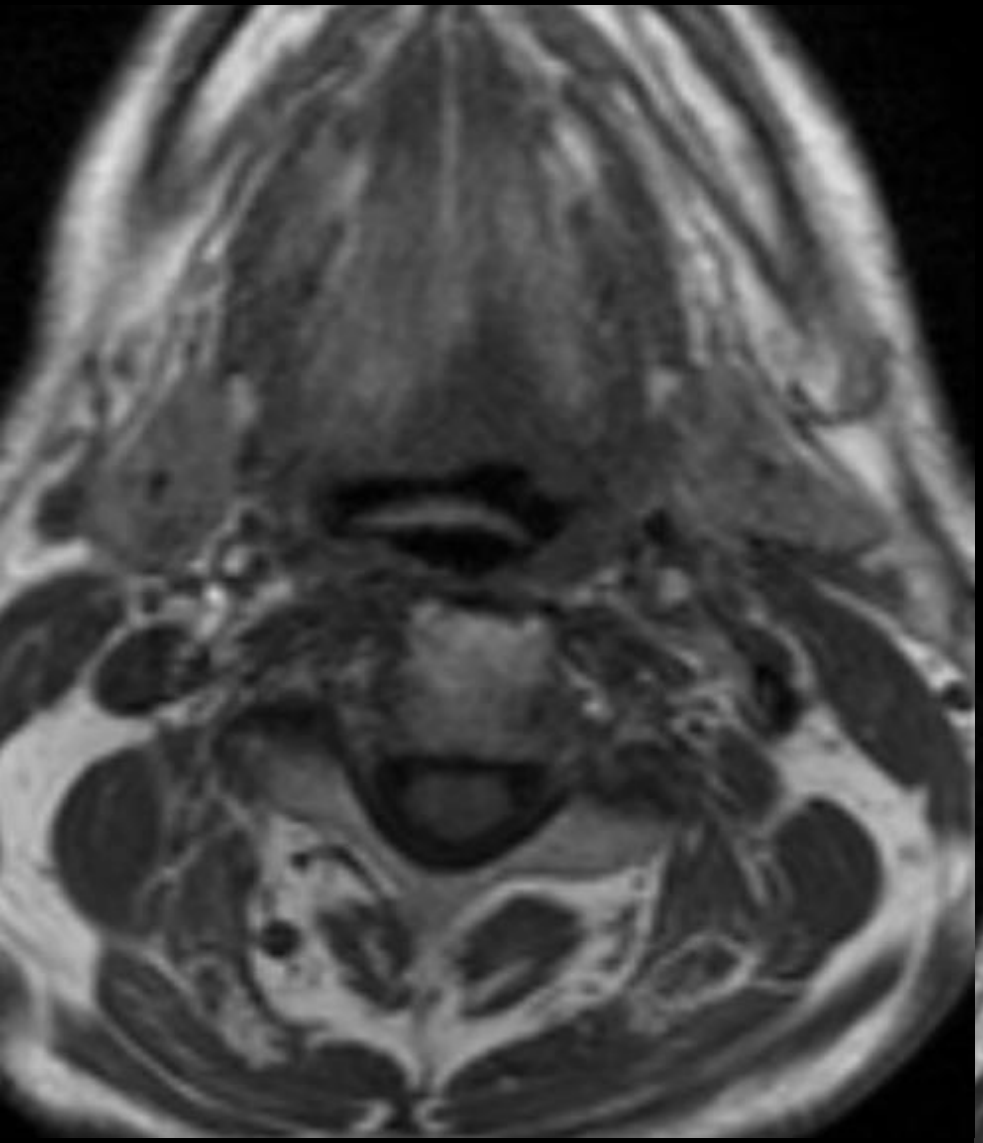


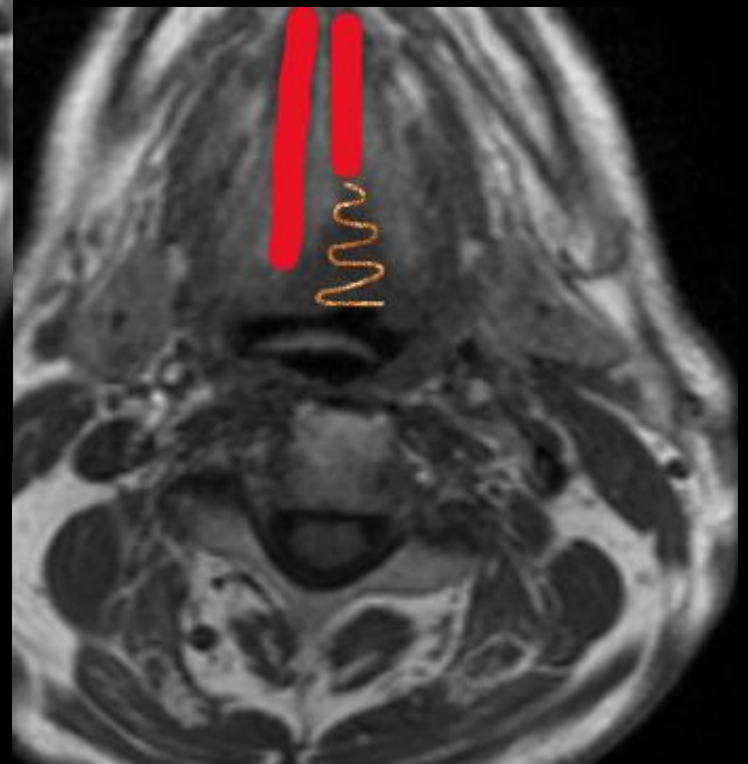


What is the stage?

Lesion description

- Ulcerating lesion epicentered on left side of base of tongue measuring about 2.4 x 1.9 x 2.2 cm (AP x TS x CC) showing diffusion restriction and heterogeneous enhancement.
  - Anteriorly there is suspicious extension to left genioglossus.
  - The lesion shows infiltrative margins and crossing across the lingual septum.
- No extension to glottis, dorsum of tongue, glossotonsillar sulcus or tonsils.
- No perineural extension.





- Stage cT4a.
- T1 non fat suppressed images are very good for muscle invasion assessment

Oropharynx – HPV Associated

The definitions of the T, N and M categories are new and are expected to correspond with the AJCC 9th version.

T – Primary Tumour

cT0	No evidence of primary tumour, but p16 positive (HPV-associated) cervical node(s) metastasis present
cT1	Tumour 2 cm or less in greatest dimension*
cT2	Tumour more than 2 cm but not more than 4 cm in greatest dimension
cT3	Tumour more than 4 cm in greatest dimension or extension to lingual surface of epiglottis
cT4	Tumour invades any of the following: larynx**, deep/extrinsic muscle of tongue (genioglossus, hyoglossus, palatoglossus and styloglossus), medial or lateral pterygoid muscle, hard palate, mandible, pterygoid plates (medial and/or lateral), nasopharynx, skull base, encases carotid artery

Notes

* The anatomical structure of the tonsillar crypts and lingual tonsil means that the basement membrane is incomplete and no carcinoma in situ is recognised.

** Mucosal extension to lingual surface of epiglottis from primary tumours of the base of the tongue and vallecula does not constitute invasion of the larynx.

Oropharynx – HPV Independent

The definitions of the T,N and M categories correspond with the AJCC 8th edition/version.

T – Primary Tumour

cTX	Primary tumour cannot be assessed
cT0	No evidence of primary tumour
cTis	Carcinoma in situ
cT1	Tumour 2 cm or less in greatest dimension
cT2	Tumour more than 2 cm but not more than 4 cm in greatest dimension
cT3	Tumour more than 4 cm in greatest dimension or extension to lingual surface of epiglottis
cT4a	Tumour invades any of the following: larynx,* deep/extrinsic muscle of tongue (genioglossus, hyoglossus, palatoglossus and styloglossus), medial pterygoid, hard palate, mandible
cT4b	Tumour invades any of the following: lateral pterygoid muscle, pterygoid plates, nasopharynx, skull base; or encases carotid artery

Note

* Mucosal extension to the lingual surface of epiglottis from primary tumours of the base of the tongue and vallecula does not constitute invasion of the larynx.

1. **Anatomic & Clinical Context:**

   The **base of tongue (posterior one-third)** forms the anterior wall of the oropharynx, rich in **lymphoid tissue (lingual tonsil)** and supplied by **lingual and glossopharyngeal nerves** — explaining its tendency for **submucosal spread and early nodal metastasis**.
2. **Etiopathogenesis:**
   - **HPV-positive squamous cell carcinoma (p16+)** predominates, especially in younger non-smokers, and carries a **favorable prognosis**.
   - **HPV-negative tumors** (tobacco/alcohol related) are more **invasive and poorly differentiated**.
3. **Clinical Presentation:**

   Usually presents **late**, with **neck metastasis, dysphagia, odynophagia, altered speech, or referred otalgia**.

   The **primary lesion may be small or submucosal**, often detected only on imaging or PET/CT.
4. **MRI — Modality of Choice:**
   - Defines **tumor volume, depth of invasion, and muscle infiltration** (genioglossus, hyoglossus, intrinsic tongue, pre-epiglottic fat).
   - Lesion is **T1 hypointense, T2 hyperintense**, and **heterogeneously enhancing**; diffusion restriction indicates cellularity.
   - Critical to assess **midline crossing, vallecular extension**, and **floor-of-mouth involvement**.

5. **CT & PET/CT Contributions:**
    - **CT**: Evaluates cortical **mandibular, hyoid, or lingual cortical invasion**, and detects **calcified or necrotic nodes**.
    - **PET/CT**: Defines **metabolic tumor volume**, identifies **occult primaries**, and is vital for **radiotherapy planning** and **response assessment**.
6. **Patterns of Spread:**
    - **Local:** To **glossotonsillar sulcus, vallecula, epiglottis, or pre-epiglottic fat**.
    - **Perineural:** Along lingual or glossopharyngeal nerves.
    - **Lymphatic:** High propensity for **bilateral level II–III and retropharyngeal nodal metastases**.
7. **Key Imaging Features Suggesting Advanced (T3–T4) Disease:**
    - **Infiltration of deep tongue musculature, extrinsic muscle involvement, midline crossing**, or **epiglottic/preepiglottic extension**.
    - **Carotid encasement** or **mandibular cortical breach** indicates unresectability.
8. **Oncoradiologic Impact:**

    Imaging defines **tumor epicenter, invasion depth, and nodal/vascular involvement**, guiding **TNM staging, surgical feasibility**, and **IMRT target delineation**.

    HPV status and imaging phenotype together influence **prognosis and treatment de-escalation** strategies.

Contributor

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