



# Hyoid Osteoradionecrosis after ChemoIMRT for Pharyngeal Cancer

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# Purpose

## Subtitle

- To review treatment and clinical factors that may be related to the development of osteoradionecrosis of the hyoid bone after intensity modulated radiotherapy (IMRT) with concurrent chemotherapy for pharyngeal cancer.

# Background

- The hyoid, like other small bones, is at risk for necrosis following chemoradiation. This presents a clinical dilemma as it is often difficult to differentiate necrosis from tumor recurrence and biopsy of this region can be technically challenging.

# Methods

- We reviewed all head and neck patients treated over the last 4 years using IMRT plans and concurrent chemotherapy that have developed hyoid necrosis. All patients underwent biopsy. Mean and maximum dose to the hyoid were evaluated. Smoking status, chemotherapy, and weight loss during treatment was also assessed.

# Results

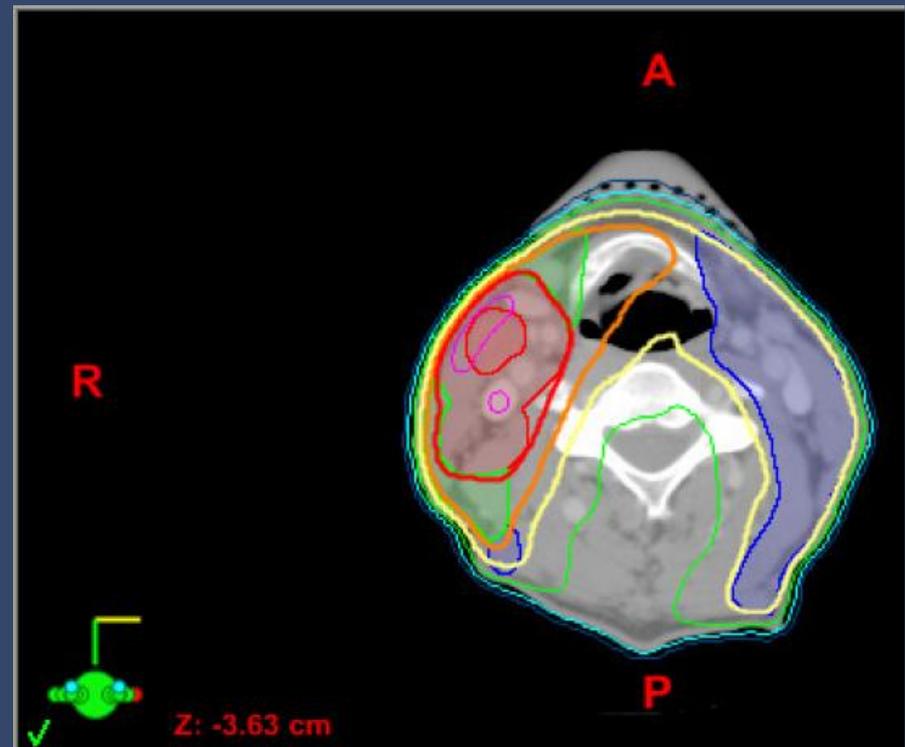
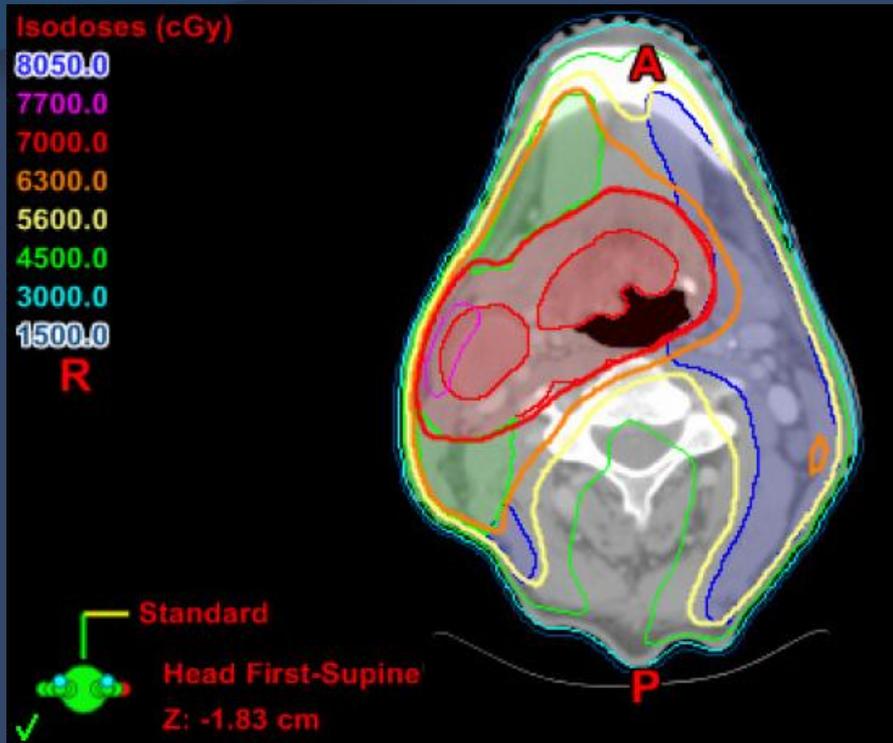
Three patients were identified:

	Age at Day 1	Tumor	Conc. Chemo	p16+	Time to necrosis dx (mo)	Dose to PTV (cGy)
Patient 1	56	T4N2b R BOT	Carboplatin	Y	27	7400
Patient 2	61	T2N1 R BOT	Carboplatin	Y	12	7000
Patient 3	54	T4N2c R pharynx	Cisplatin	Y	4	7000

# Treatment

- All patients were treated with static field step and shoot IMRT (9-14 fields) with 200 cGy fractions

# Patient 2: Isodose lines



# Hyoid Dose

	Hyoid Vol (mL)	Hyoid mean (Gy)	Hyoid max (Gy)	PTV overlap (mL)	V60 (%)	V70 (%)
Patient 1	3.5	74.6	79.2	2.3	100	88
Patient 2	1.5	65.3	76.0	0.1	94	14
Patient 3	4.0	70.0	77.3	2.8	96	63

# Smoking status and weight loss:

	Pack years	Smoked during treatment	Time since quitting	Weight loss during Treatment	Weight loss %
Patient 1	80	No	1 month	37 lb	10
Patient 2	1	No	>40 years	12 lb	7
Patient 3	23	No	9 years	17 lb	10

# Time to presentation:

- Mean time to presentation of osteoradionecrosis was 14.4 months (4-27 mo)
- All 3 patients had the same presenting symptom: **pain**
- Patient 1 eventually underwent repeat biopsy 10 months after initial biopsy and was found to have recurrent malignancy and then underwent salvage surgery.

# Conclusion:

- Hyoid necrosis, although rare, is a difficult clinical dilemma
- Pain is a common presenting factor
- Recurrence should always be considered and persistent/worsening symptoms are worrisome for malignancy

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