

Radiotherapy for Sialorrhea

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Holy Cross Health



Cancer

Cancer

Cancer

ALS

A large, vibrant red heart is centered on a solid blue background. The heart has a thin, light blue outline. Inside the heart, the word "HOPE" is written in a bold, black, sans-serif font, centered horizontally and vertically.

HOPE

HOPE



Outline

- Sialorrhea: definition and treatments
- Role of radiotherapy
- Data on RT for Sialorrhea
- Conclusion

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Sialorrhea

- Excessive salivation.
- Affects 80% of patients with ALS due to inability to seal their lips or impaired coordination of the palate-lingual muscles.
- Leads to constant drooling → aspiration pneumonia and issues with ventilation.

First line therapy

- Oral anticholinergic medications. These medications can be effective but lead to:
 - Constipation
 - Drowsiness
 - Urinary dysfunction

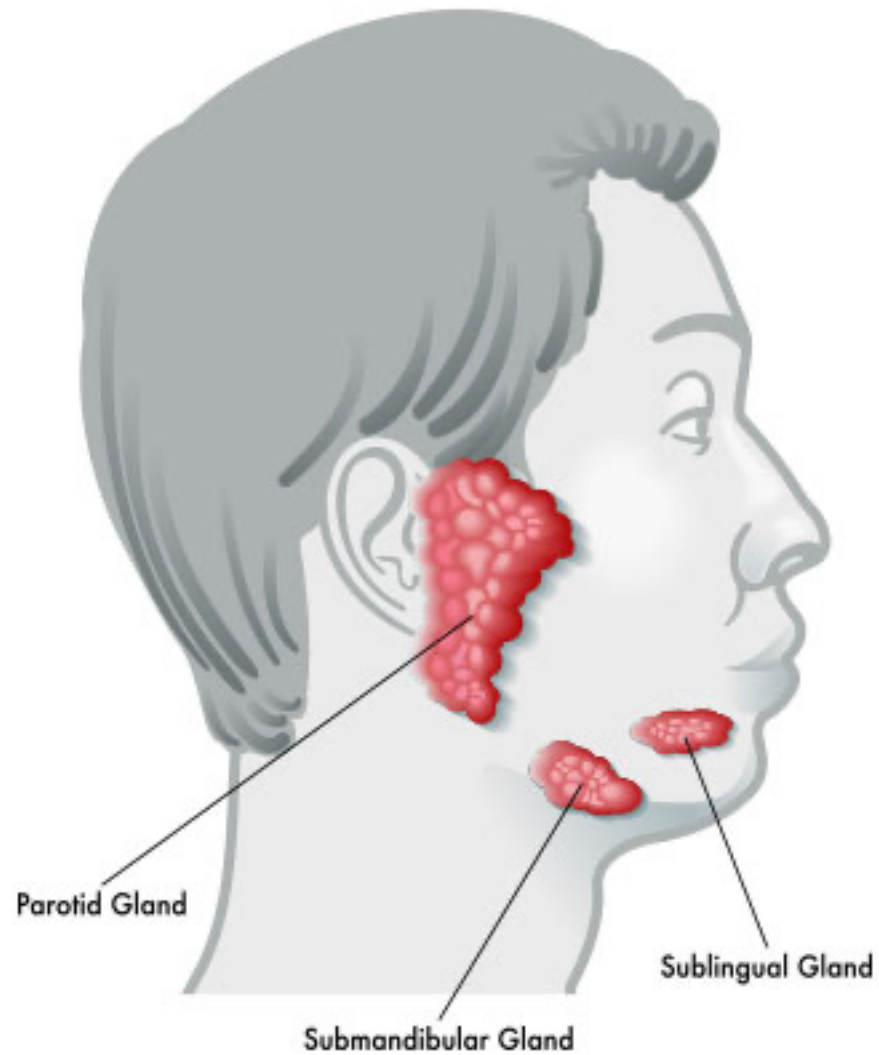
2nd line therapy

- Botulinum toxin injections in the salivary glands are a 2nd line in treatment.
 - Repeat injections are often needed.
 - Waning treatment effects.

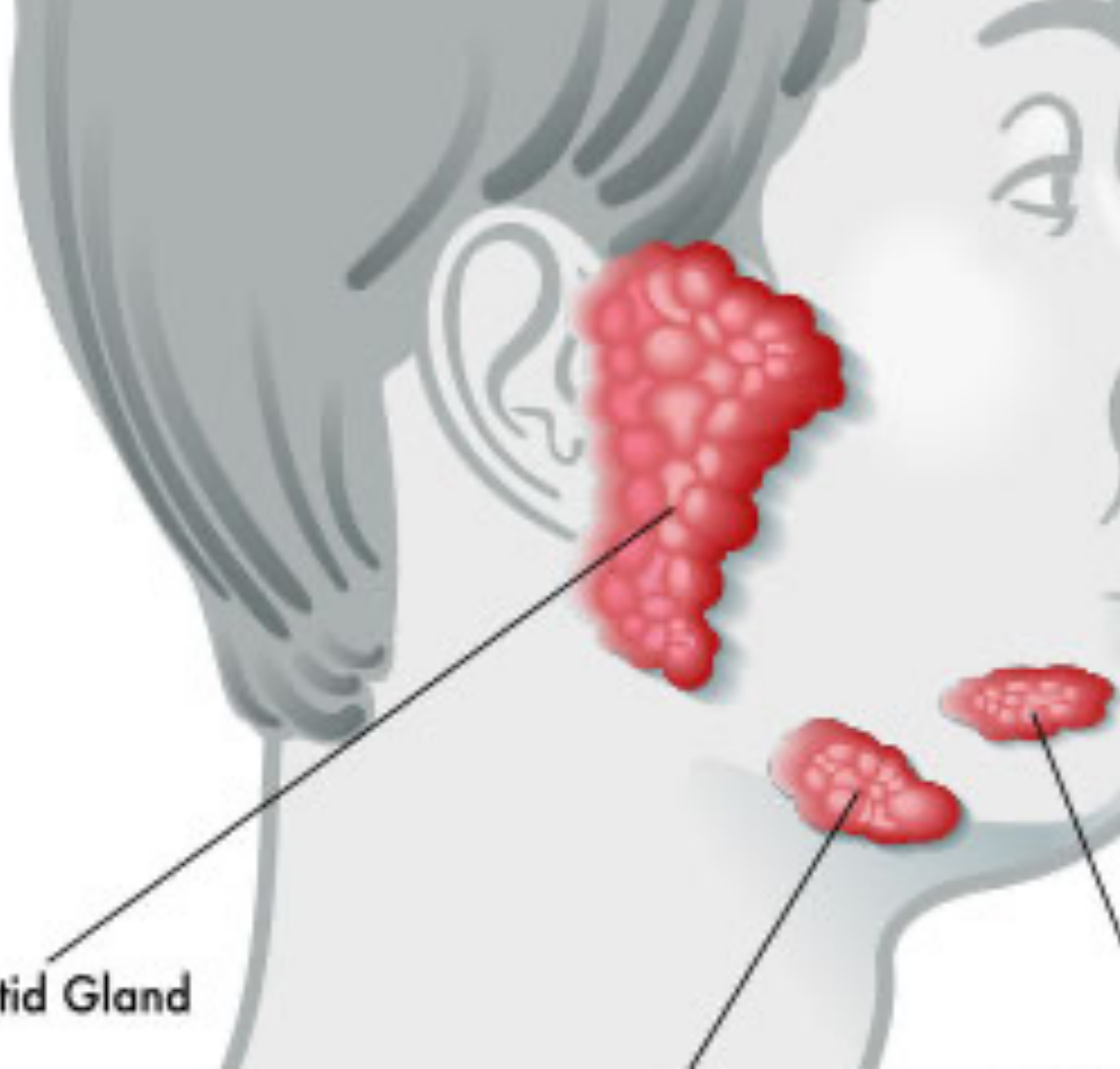
Rationale for radiotherapy

- Salivary glands are very sensitive to radiotherapy.
- Experience from treatment of head and neck cancers suggest only moderate doses of radiotherapy can produce xerostomia.

Salivary Glands



Parotid Gland

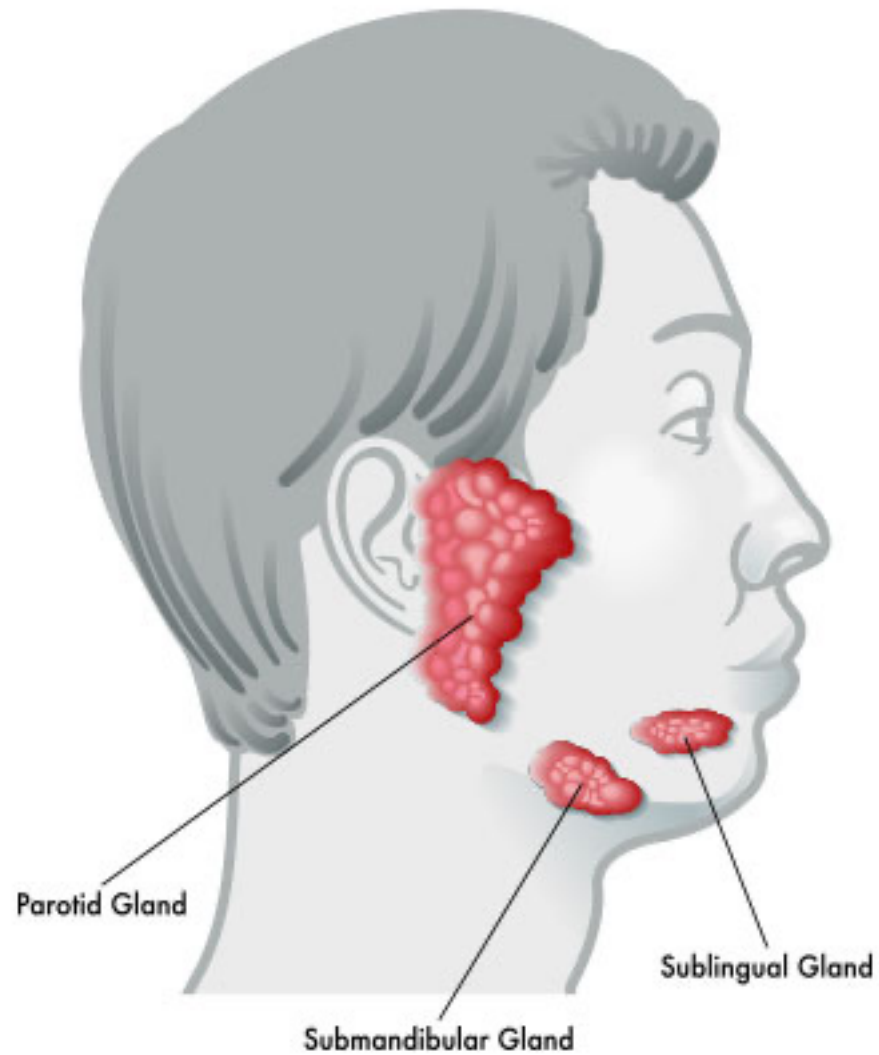




Sublingual Gland

Submandibular Gland

Salivary Glands



Trial: APPROVED

Absolute

2200.0 cGy

2100.0 cGy

2000.0 cGy

1900.0 cGy

1800.0 cGy

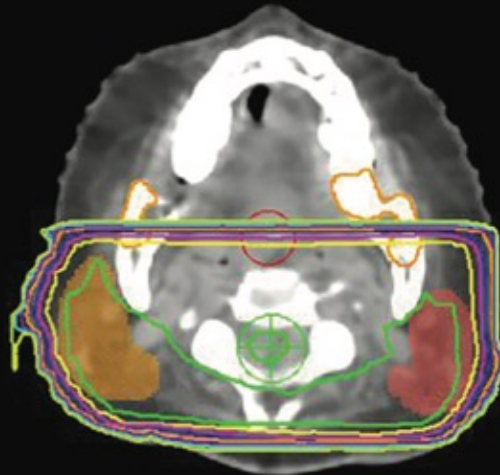
1600.0 cGy

1400.0 cGy

1200.0 cGy

1000.0 cGy

B



Slice 73: Z = 8.16 cm

Trial: APPROVED

Absolute

2200.0 cGy

2100.0 cGy

2000.0 cGy

1900.0 cGy

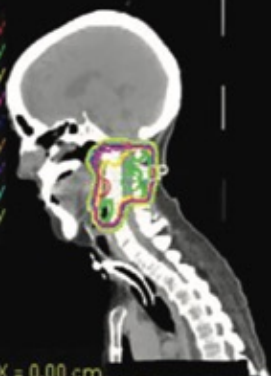
1800.0 cGy

1600.0 cGy

1400.0 cGy

1200.0 cGy

1000.0 cGy



Slice 257: X = 0.00 cm

Trial: APPROVED

Absolute

2200.0 cGy

2100.0 cGy

2000.0 cGy

1900.0 cGy

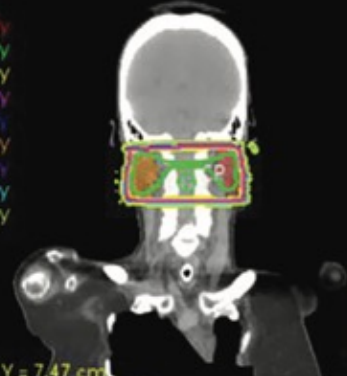
1800.0 cGy

1600.0 cGy

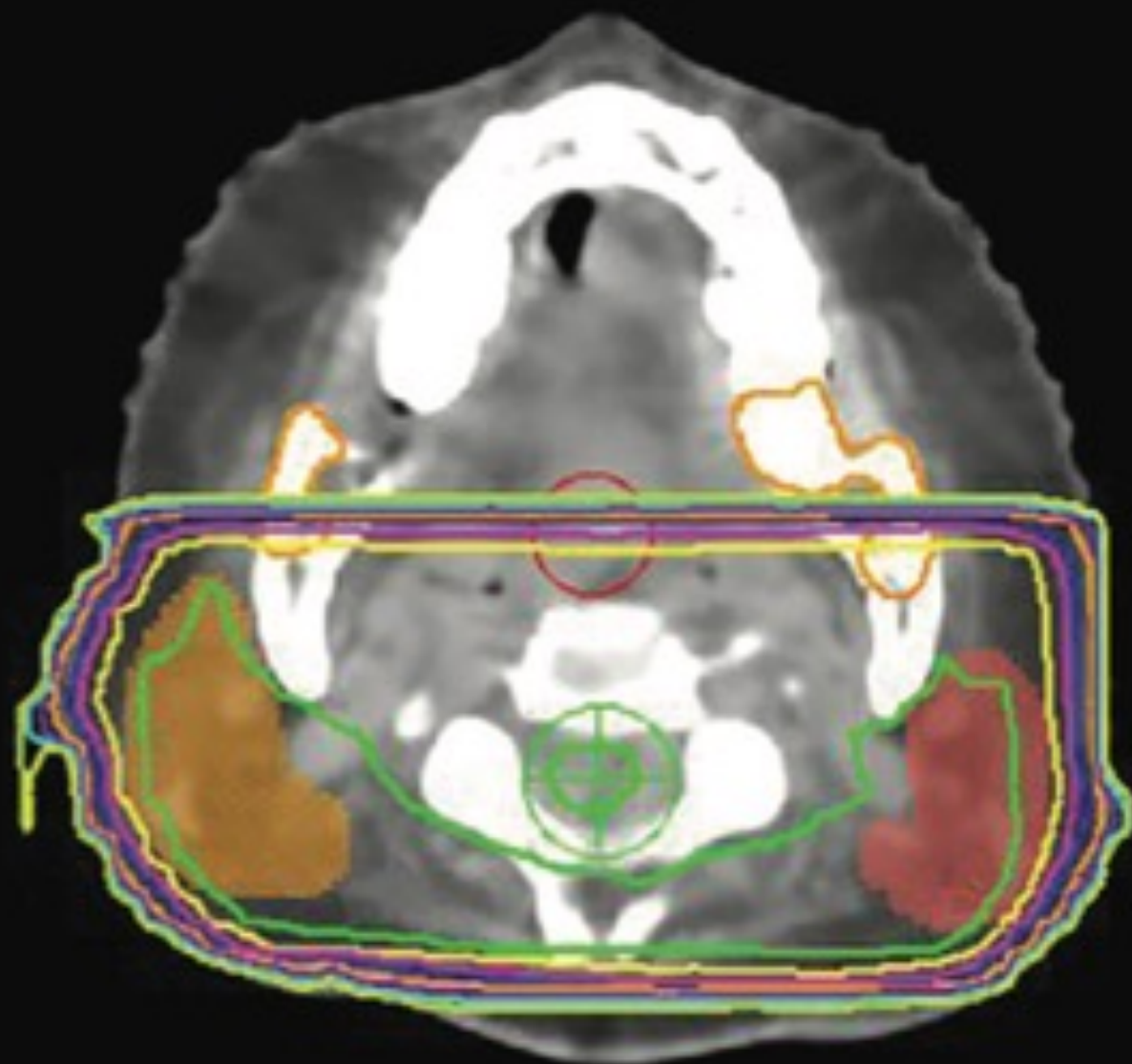
1400.0 cGy

1200.0 cGy

1000.0 cGy



Slice 305: Y = 7.47 cm



Trial: APPROVED

Absolute

2200.0 cGy

2100.0 cGy

2000.0 cGy

1900.0 cGy

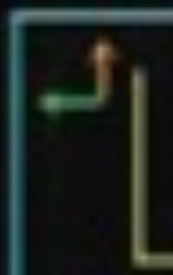
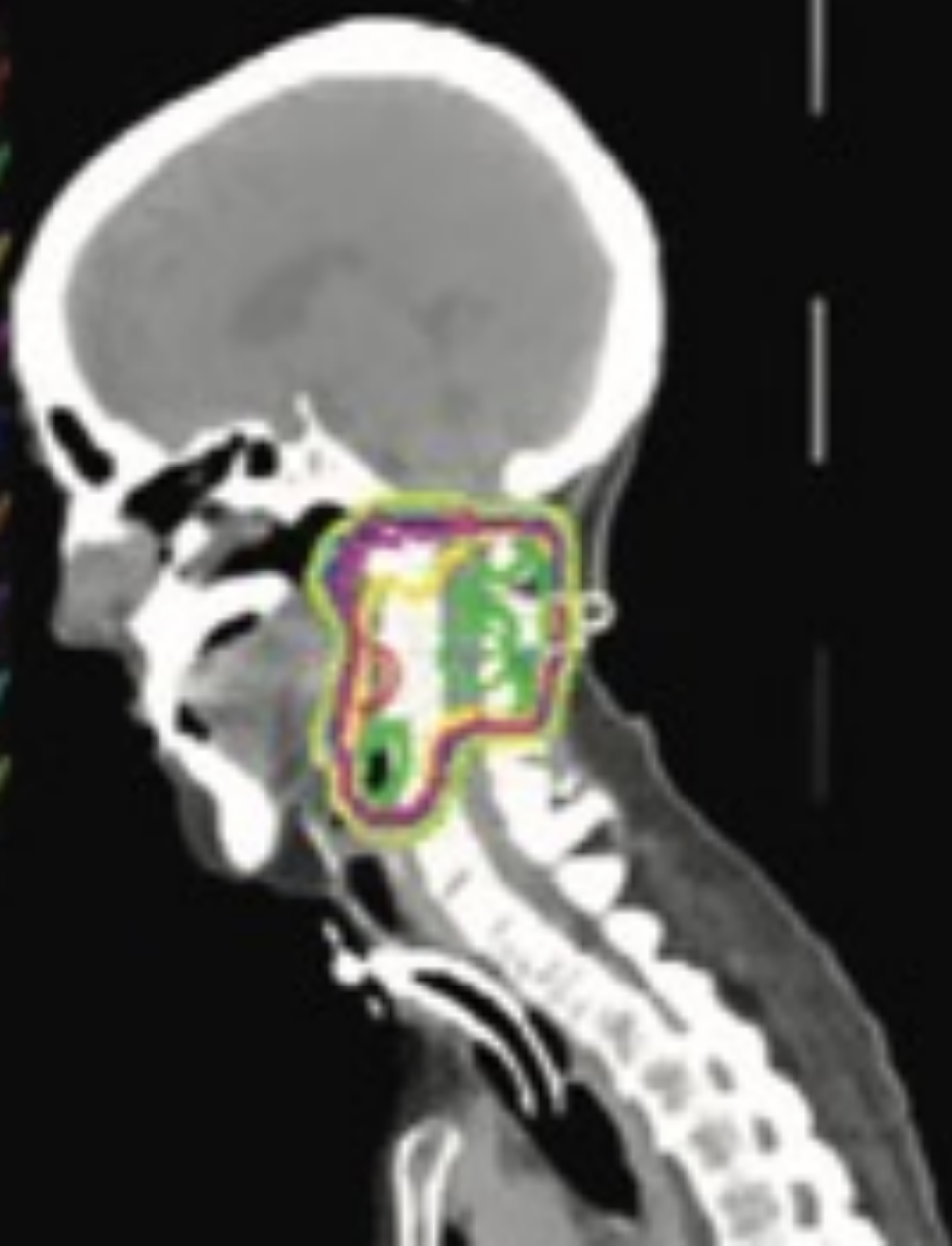
1800.0 cGy

1600.0 cGy

1400.0 cGy

1200.0 cGy

1000.0 cGy



Trial: APPROVED

Absolute

2200.0 cGy

2100.0 cGy

2000.0 cGy

1900.0 cGy

1800.0 cGy

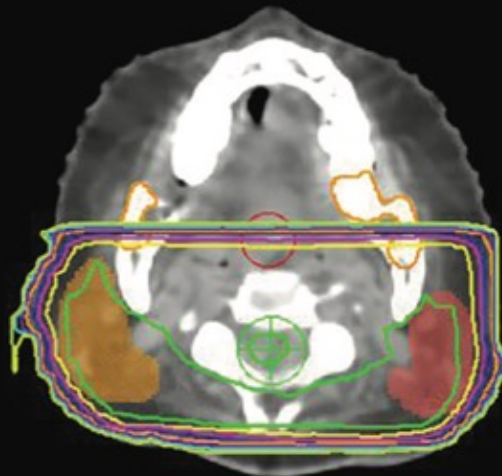
1600.0 cGy

1400.0 cGy

1200.0 cGy

1000.0 cGy

B



Slice 73: Z = 8.16 cm

Trial: APPROVED

Absolute

2200.0 cGy

2100.0 cGy

2000.0 cGy

1900.0 cGy

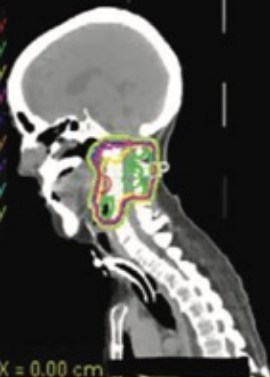
1800.0 cGy

1600.0 cGy

1400.0 cGy

1200.0 cGy

1000.0 cGy



Slice 257: X = 0.00 cm

Trial: APPROVED

Absolute

2200.0 cGy

2100.0 cGy

2000.0 cGy

1900.0 cGy

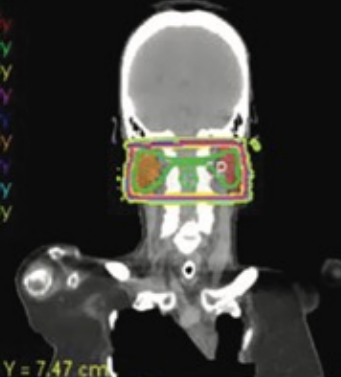
1800.0 cGy

1600.0 cGy

1400.0 cGy

1200.0 cGy

1000.0 cGy



Slice 305: Y = 7.47 cm

XRT for Sialorrhea

Assouline et al

- Retrospective study of 50 patients with ALS treated with XRT.
 - 46 had CR and 4 had PR
 - After 6 months, **71% had CR** and **26% had PR**.
 - Nine patients required re-irradiation.

XRT for Sialorrhea

Postma et al

- Retrospective study of 28 patients
- All patients improved significantly at one month.
- Most frequent adverse effect was transient dry mouth and loss of taste.
- **80% of patients were satisfied with RT.**

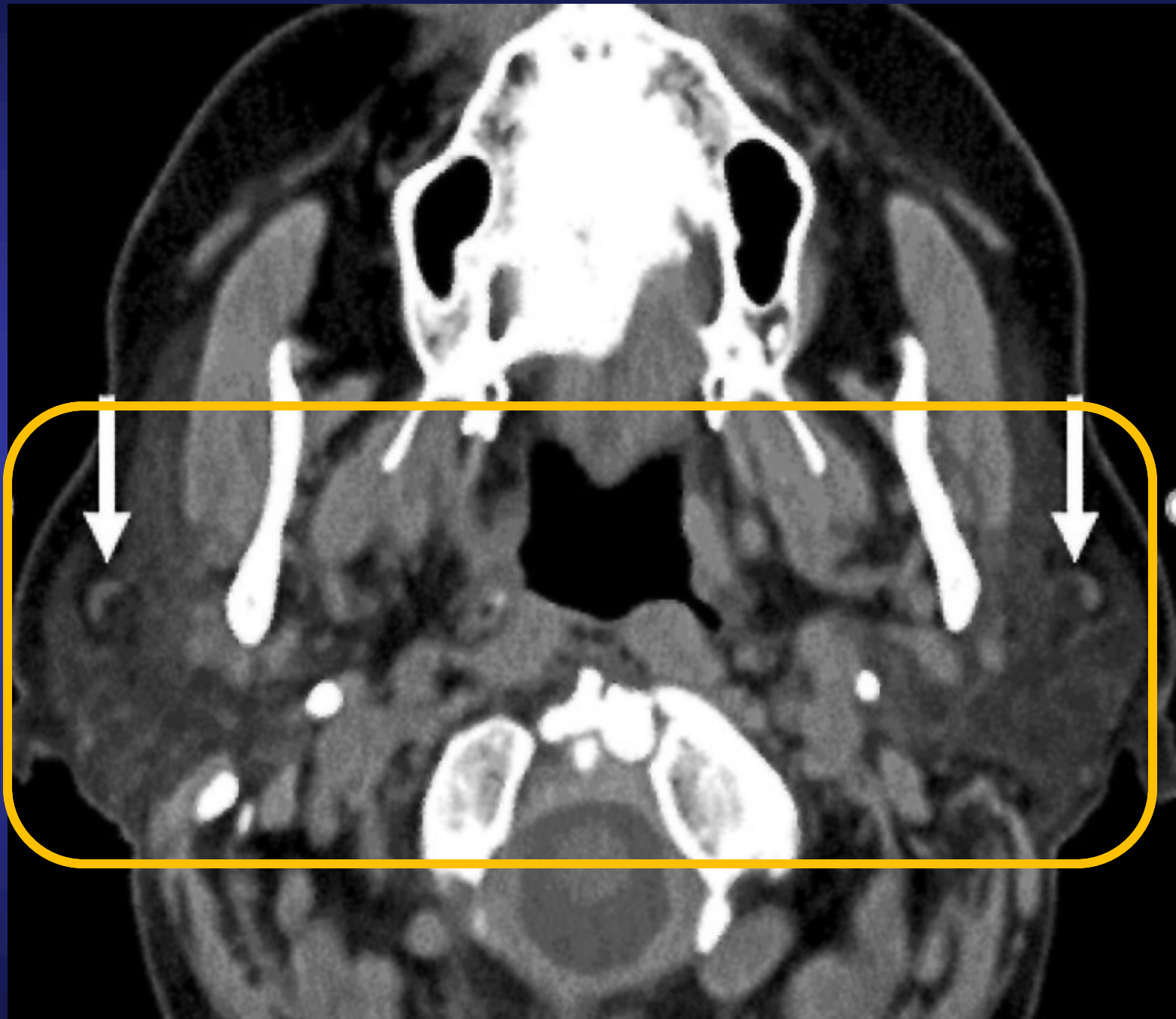
XRT for Sialorrhea

Slade et al published a meta-analysis

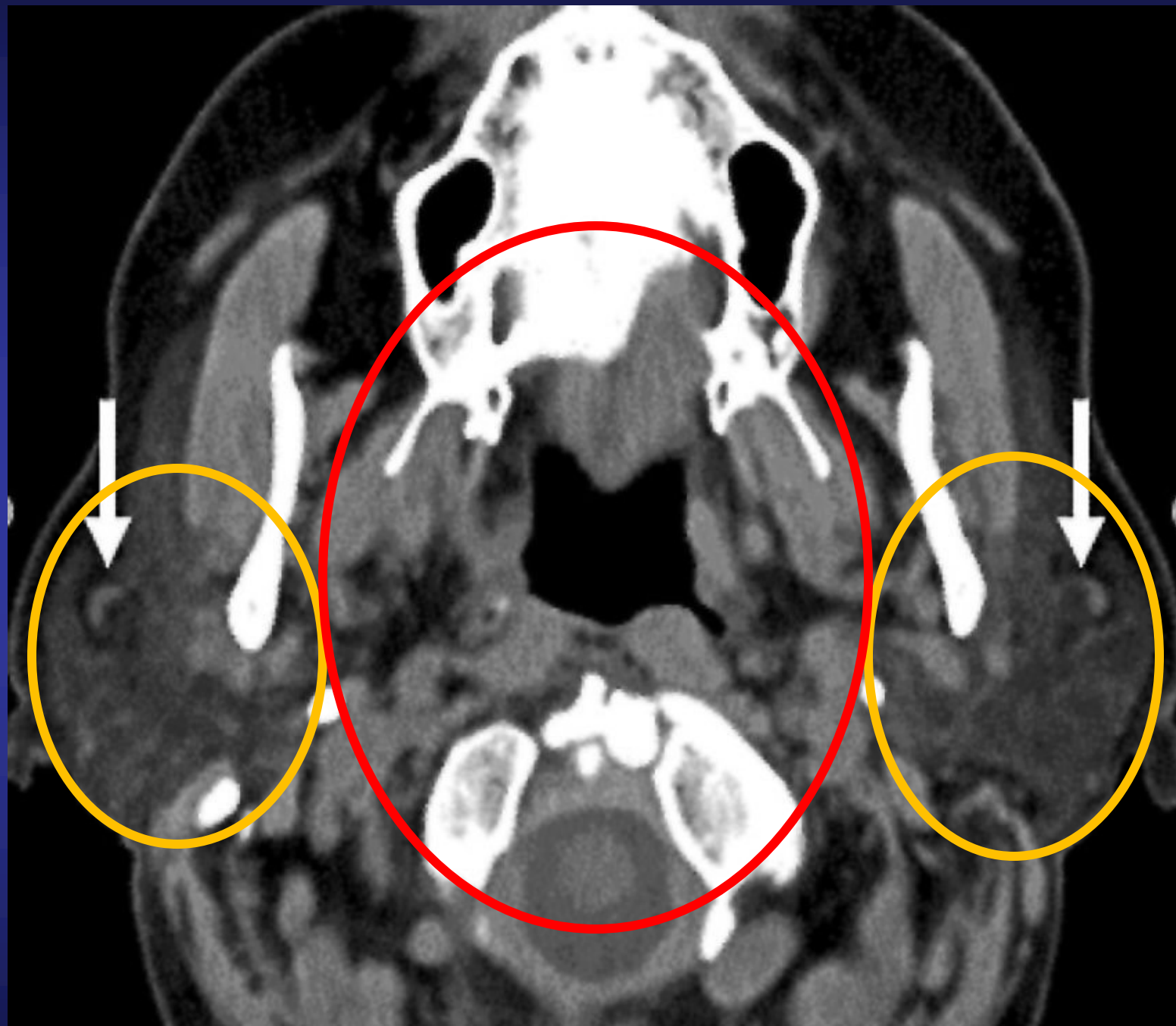
- Data revealed that the majority of ALS patients with sialorrhea responded well to irradiation.

Radiotherapy technique

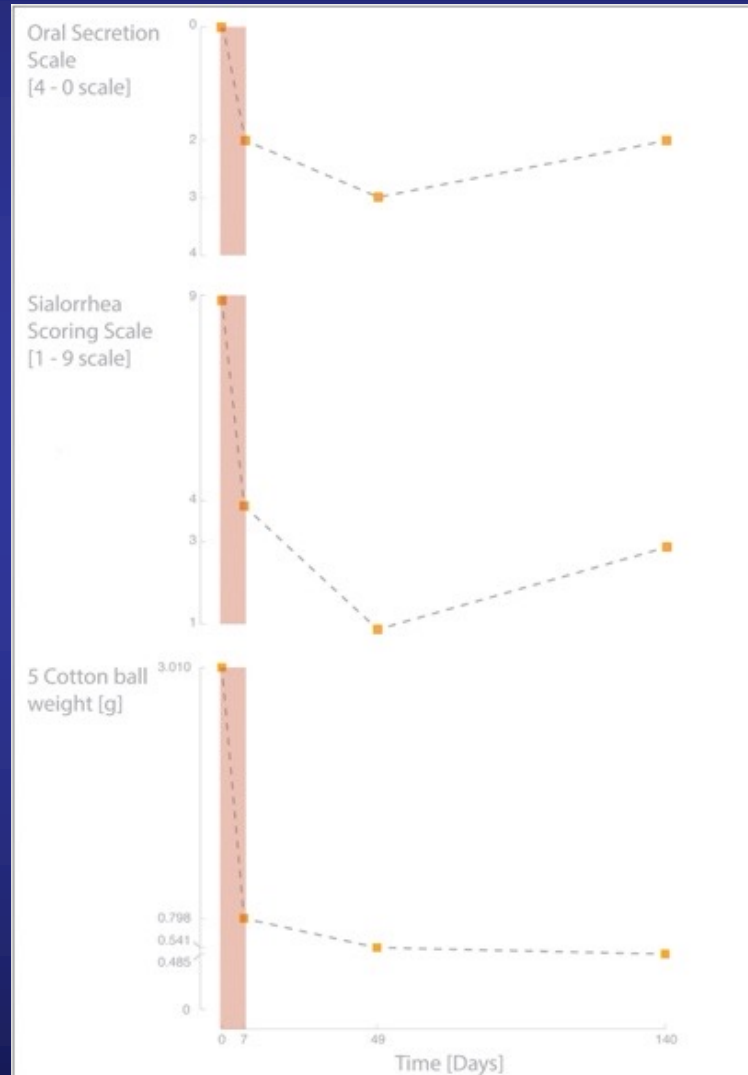
- Ati used modern “IMRT” radiotherapy to treatment sialorrhea.







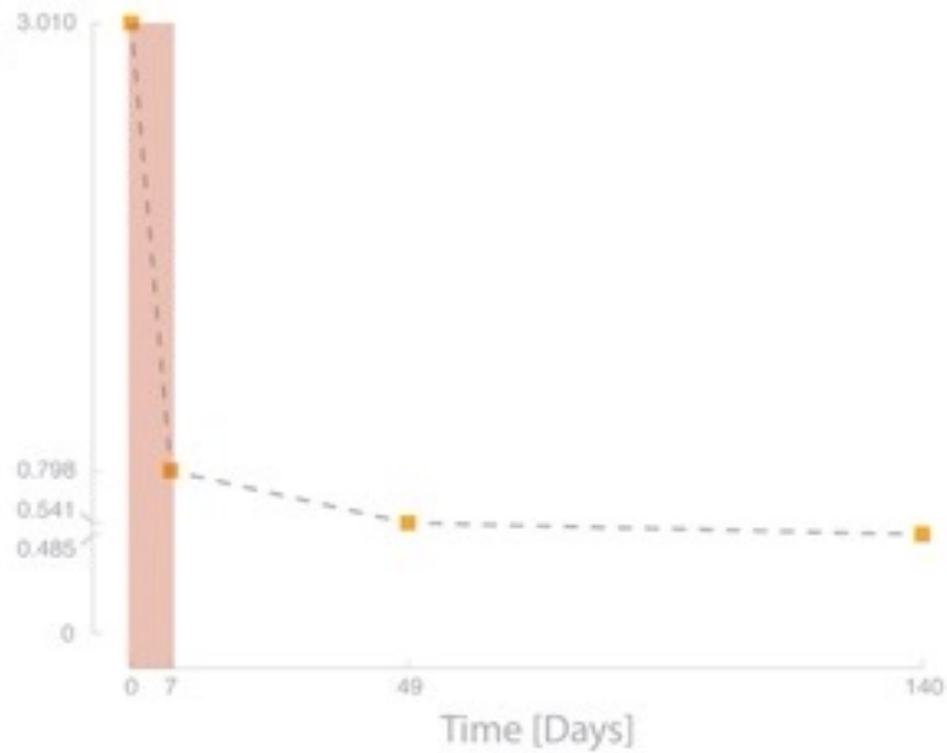
Objective measure



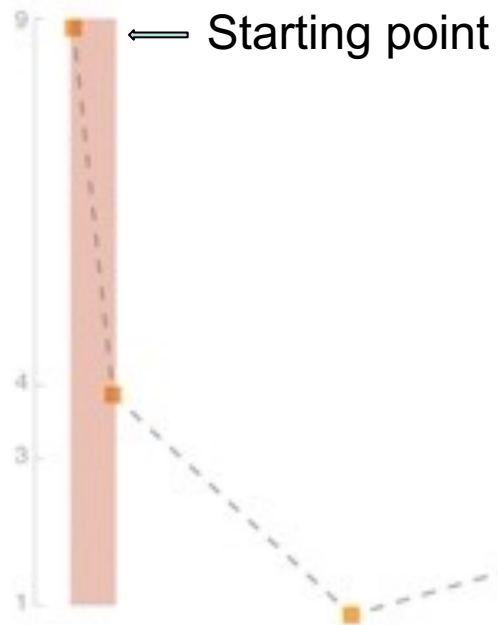
Sialorrhea
Scoring Scale
[1 - 9 scale]



5 Cotton ball
weight [g]



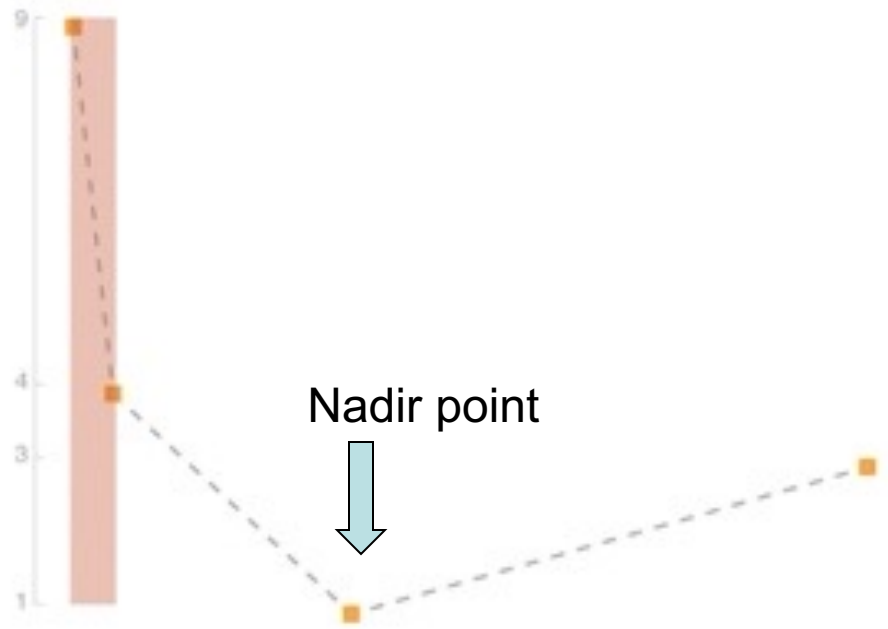
Sialorrhea
Scoring Scale
[1 - 9 scale]



5 Cotton ball
weight [g]



Sialorrhea
Scoring Scale
[1 - 9 scale]



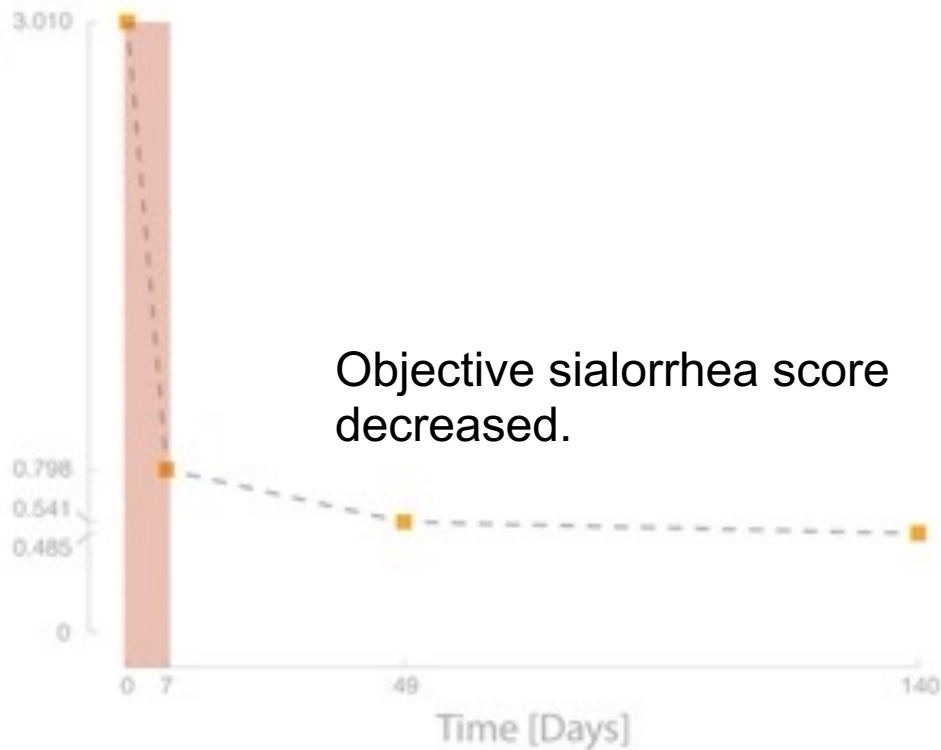
5 Cotton ball
weight [g]



Sialorrhea
Scoring Scale
[1 - 9 scale]

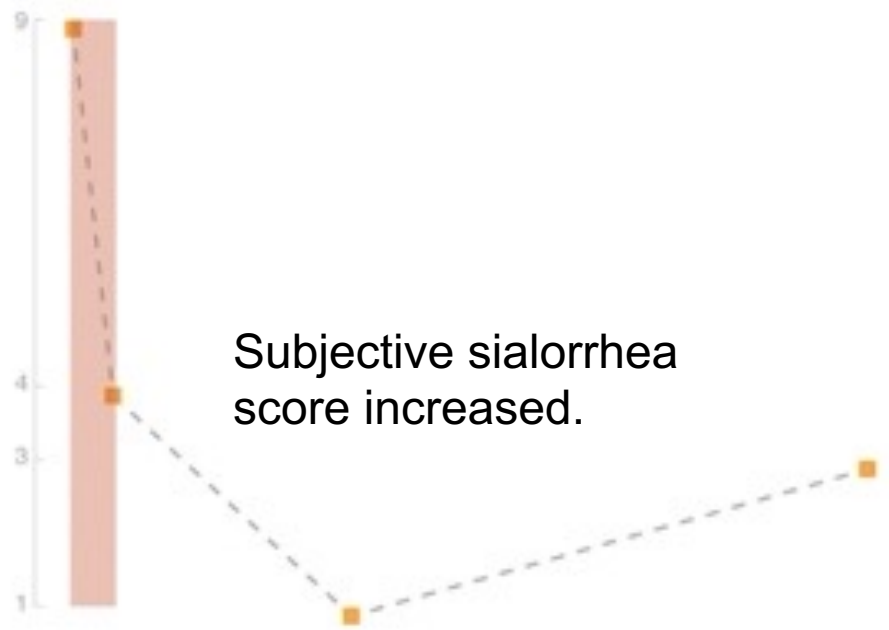


5 Cotton ball
weight [g]



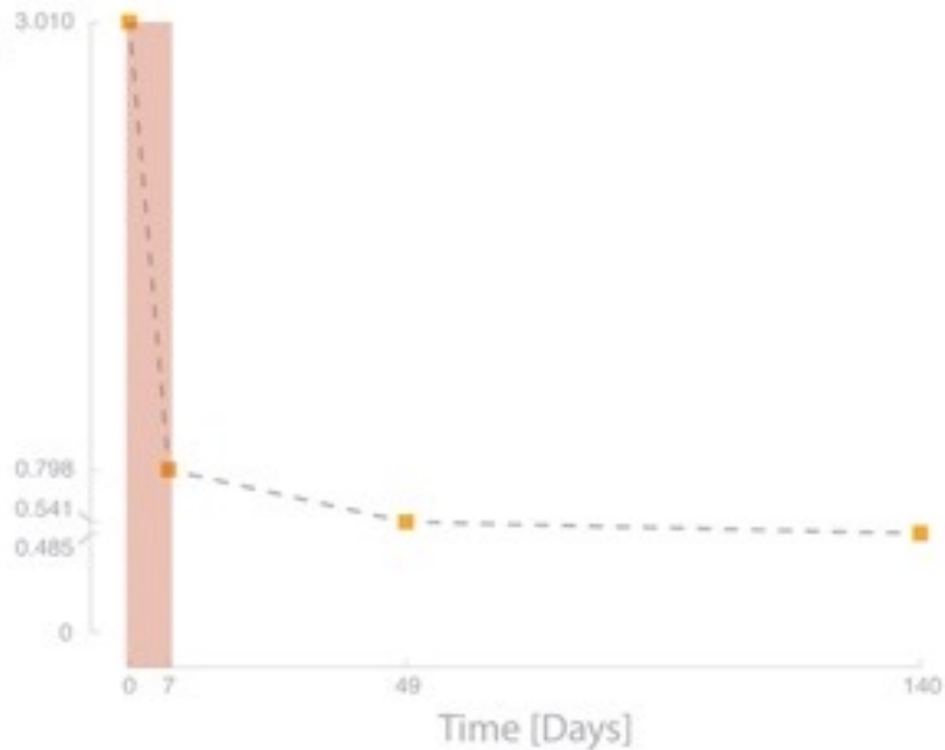
Objective sialorrhea score
decreased.

Sialorrhea
Scoring Scale
[1 - 9 scale]



Subjective sialorrhea
score increased.

5 Cotton ball
weight [g]



Radiotherapy

Re-irradiation can be safely repeated if radiation effects fade.

CONCLUSION

The majority of ALS patients with excessive salivation respond well to radiotherapy.

Neurologists should consider radiotherapy for their ALS with sialorrhea who fail traditional 1st and 2nd line treatments.



HOPE

The image features the word "HOPE" in a stylized, colorful font. The letter 'H' is blue with a red underline. The letter 'O' is yellow and shaped like a sun with rays. The letters 'P' and 'E' are blue. A red roof-like shape is positioned above the 'H' and 'O'. The entire graphic is set against a white background within a blue-bordered frame.

Compassion



Compassion

Love



Compassion

Love

Research



Compassion

Love

Research

Cure



*How does
radiotherapy
work ?*