# Using SGRT and Faceless Masks to Improve Patient Experience While Maintaining Accuracy

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**SGRT Annual European Meeting**

# Agenda

- Introduction
- Timeline
- Shoulderless
- Faceless LTT
- Faceless DSPS
- Prominent
- Monitoring with AlignRT
- Case Study
- Frontless
- Case Study

# Introduction

- Two Truebeam linear accelerators
- Siemens CT Scanner
- Raystation Planning
- Aria Patient Management moving to Raycare
- AlignRT Advance
- SimRT
- MapRT

NHS Highland na Gàidhealtachd

2017 AlignRT First used for setup purposes

2018 Breast DIBH Implementation

2019 Treated first tattooless patient

2021 SGRT for Thorax and pelvis

2022 Beam Monitoring for SABR

2023 SGRT for palliative patients

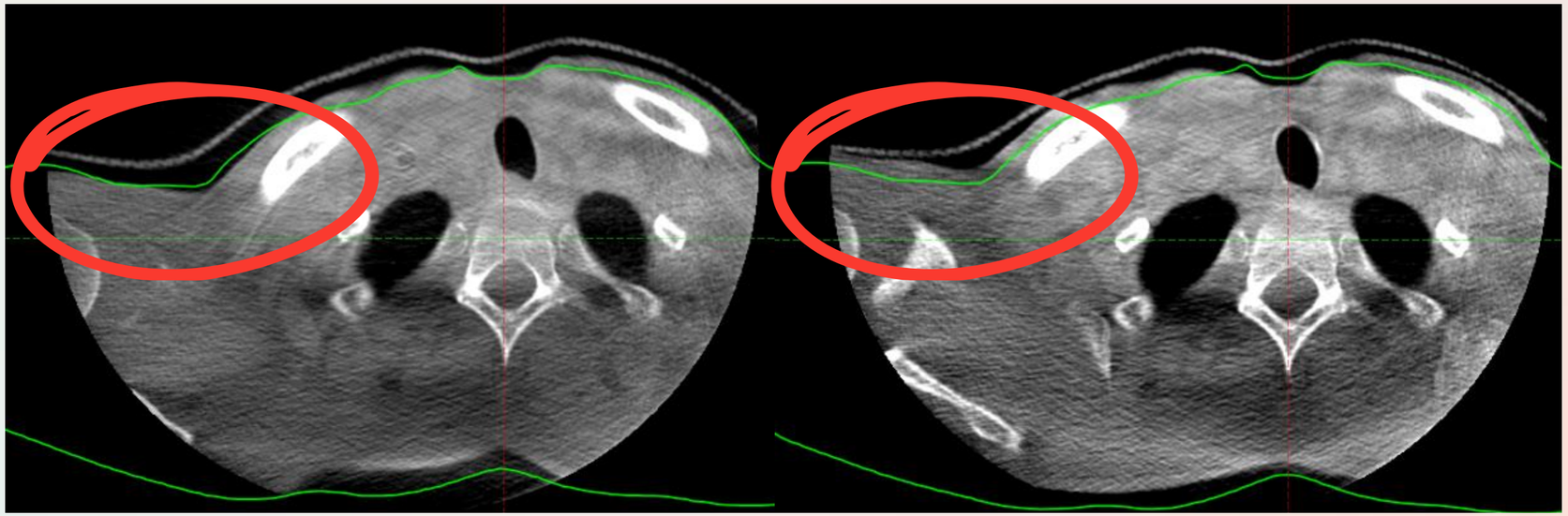
2023 Fully tattooless service

2023 SGRT for H&N

2025 SGRT open-faced BDS with SGRT

# H&N Shoulderless

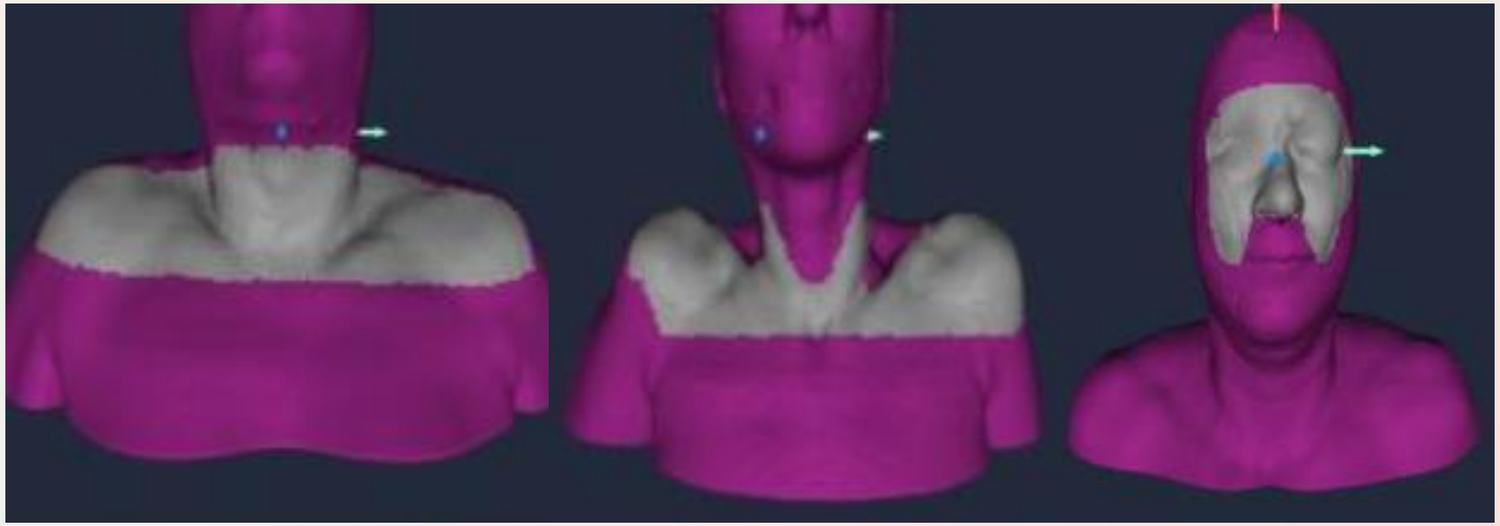
- Trialed in 2022
- Shoulder position variable in mask
- CBCT imaging highlighted setup issues
- Dose differences on EPIDs



# ROI Selection

2 ROIs

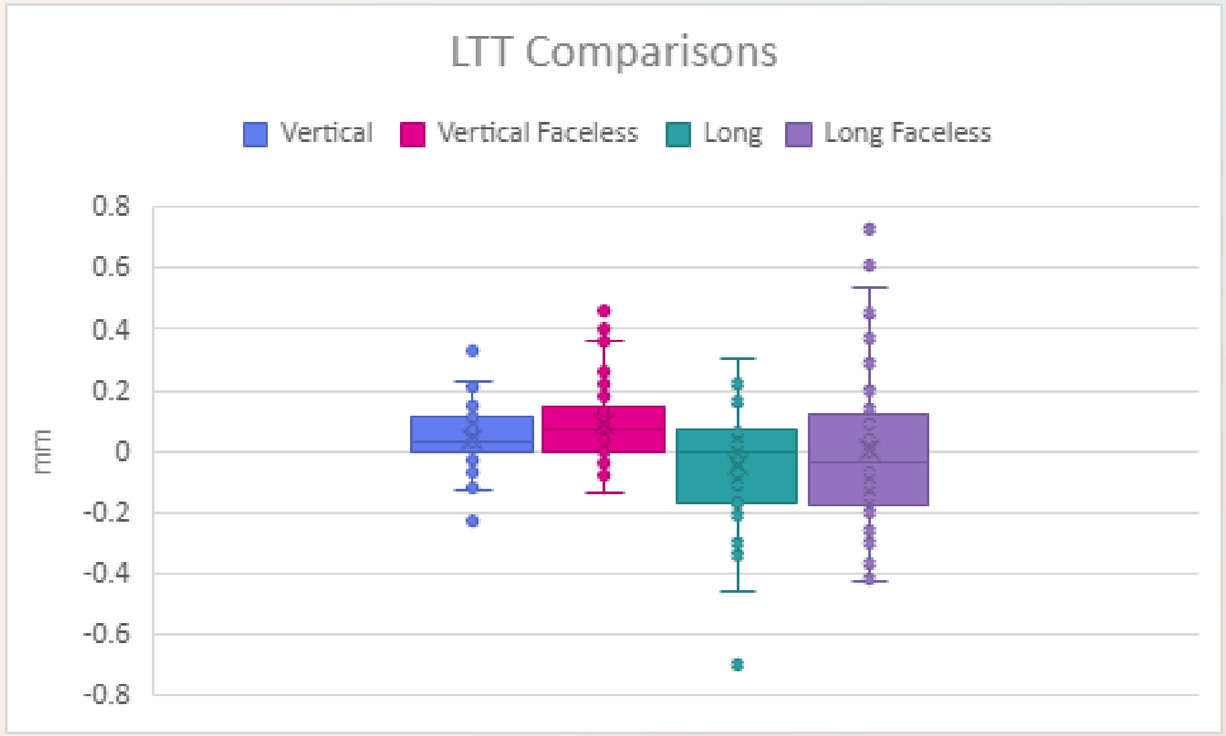
- Face only
- Face and Shoulders



# Faceless LTT

- Trialed with palliative patients (2022)
- Lat MV image or KV/KV
- Compare to full faced LTT
- 24 patients
- Lack of AP image

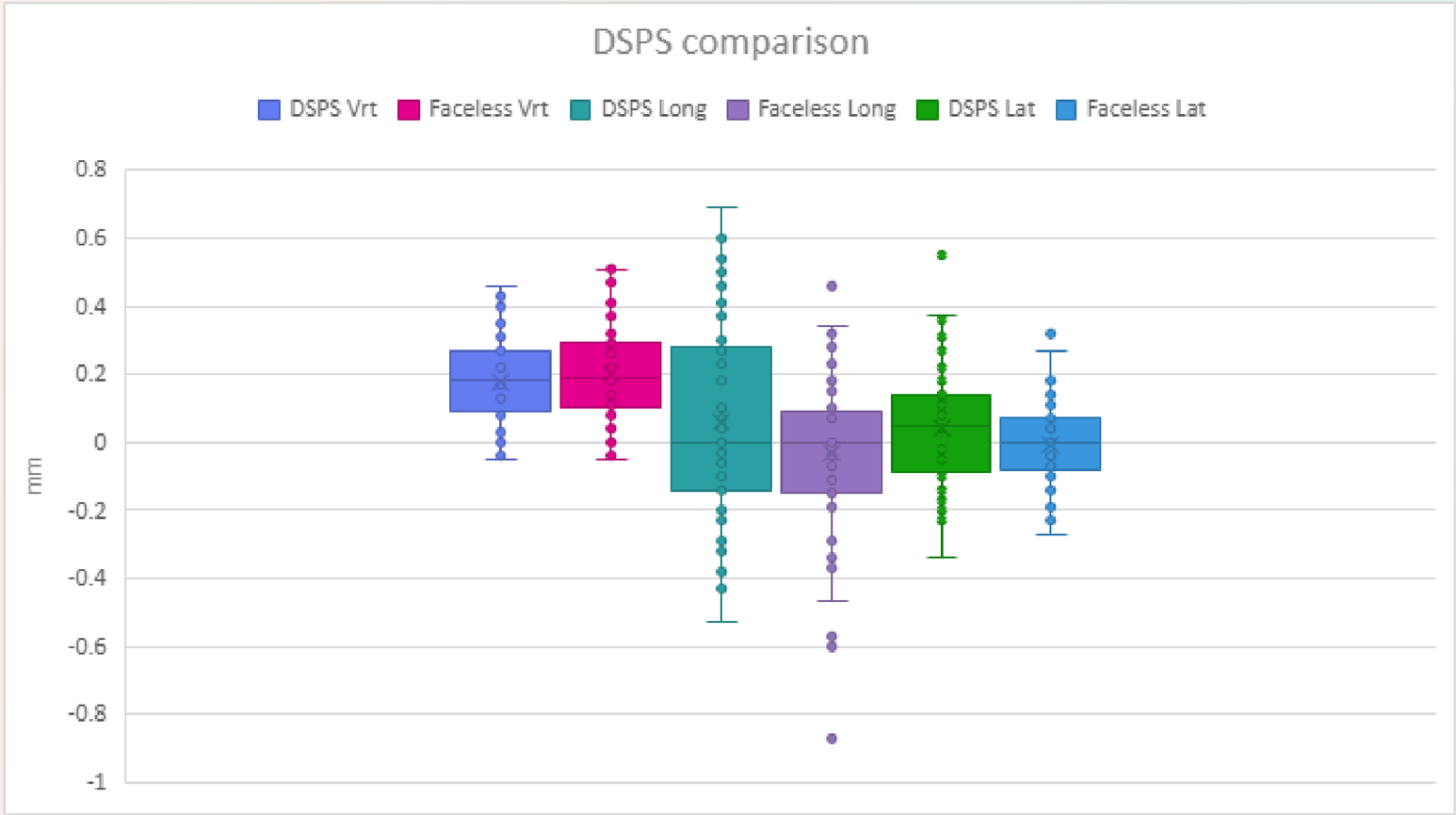
- Average vert shift
  - Full face 0.08cm
  - Faceless 0.11cm
    - p value .07
- Average long shift
  - Full face 0.16cm
  - Faceless 0.20cm
    - p value .70



# Faceless DSPS

- Full-faced DSPS being used for radical
- Trialed faceless with palliative patients (2024)
- KV/KV Imaging or CBCT
- 20 patients
- Compare full face DSPS and faceless DSPS
- Imaging shifts analyzed for 159#s in 3 DoF

- Average vertical shift
  - 0.21cm full face
  - 0.24cm faceless
    - p value .21
- Average long shift
  - 0.27cm full face
  - 0.22cm faceless
    - p value .23
- Average lat shift
  - 0.17cm full face
  - 0.11 faceless
    - p value .03

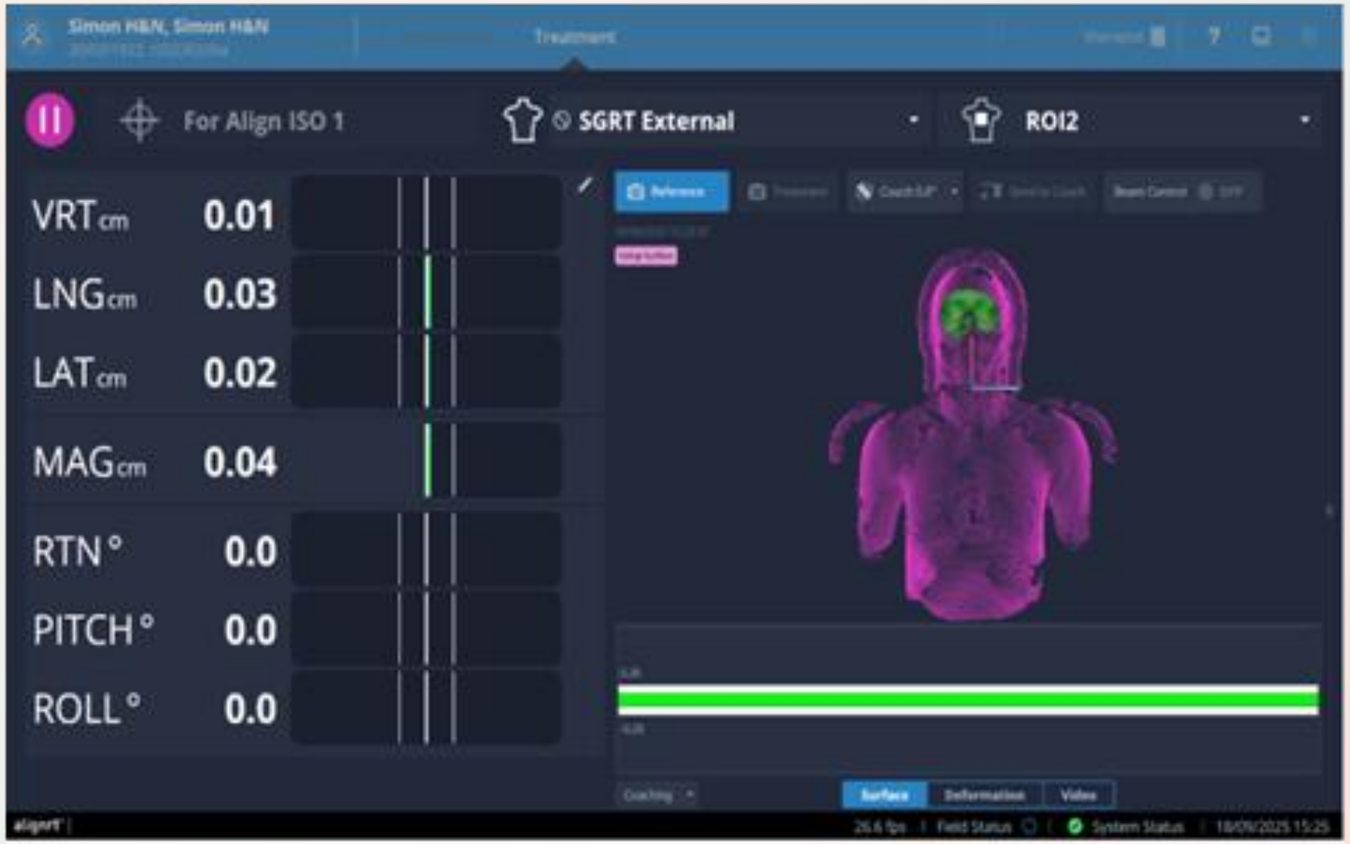


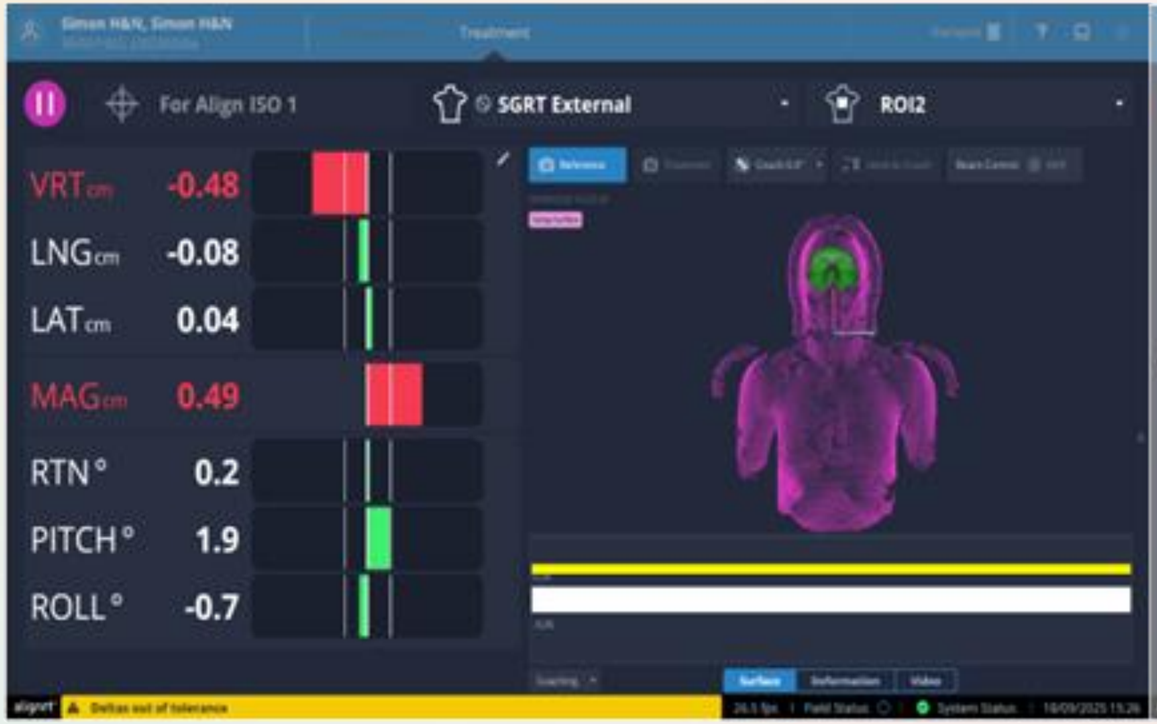
# DSPS Prominent

- Full faced mask for Radical patients since 2024
- Dorsal shell provides shoulder support
- Radical patients
- CBCT imaging
- Results still to be published
- Faceless mask now being trialed
- ? Future for all radical H&N

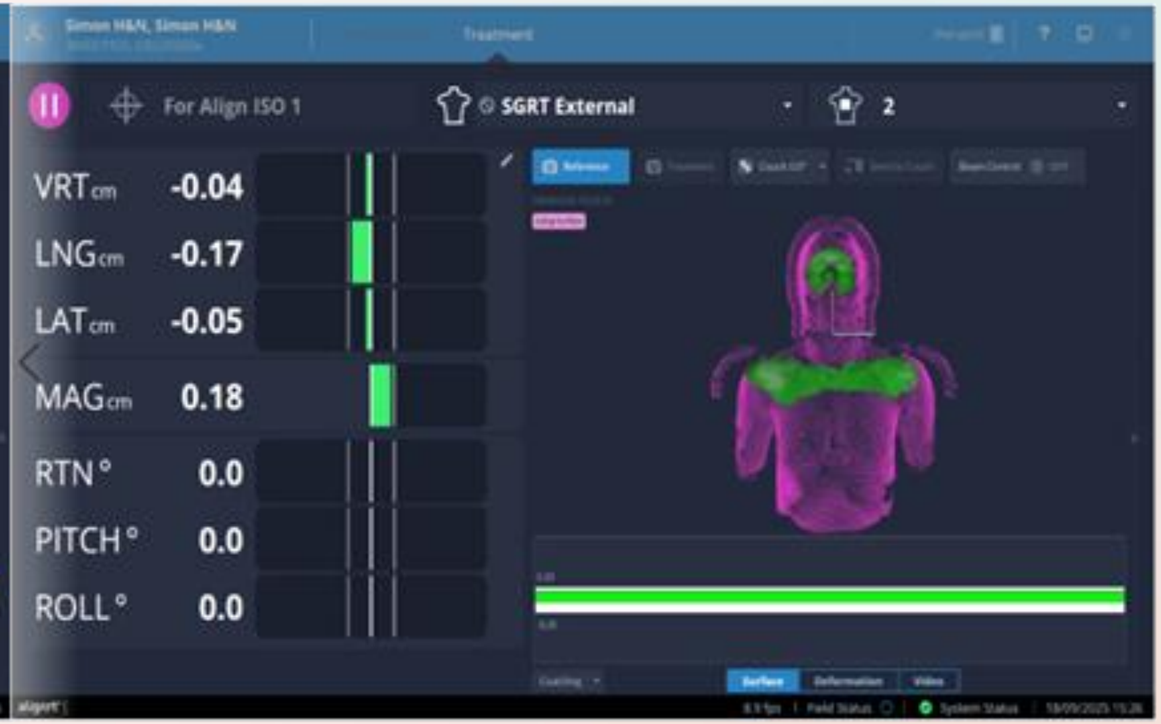
# Monitoring with Align

Importance of ROI Selection

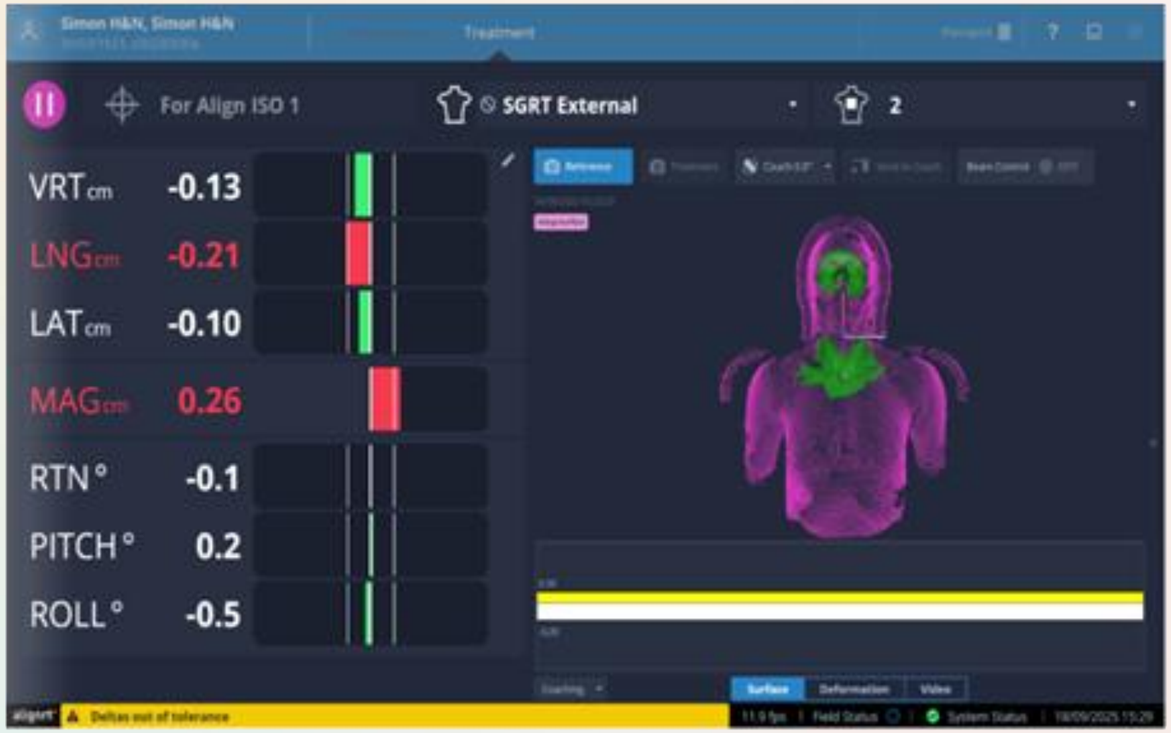




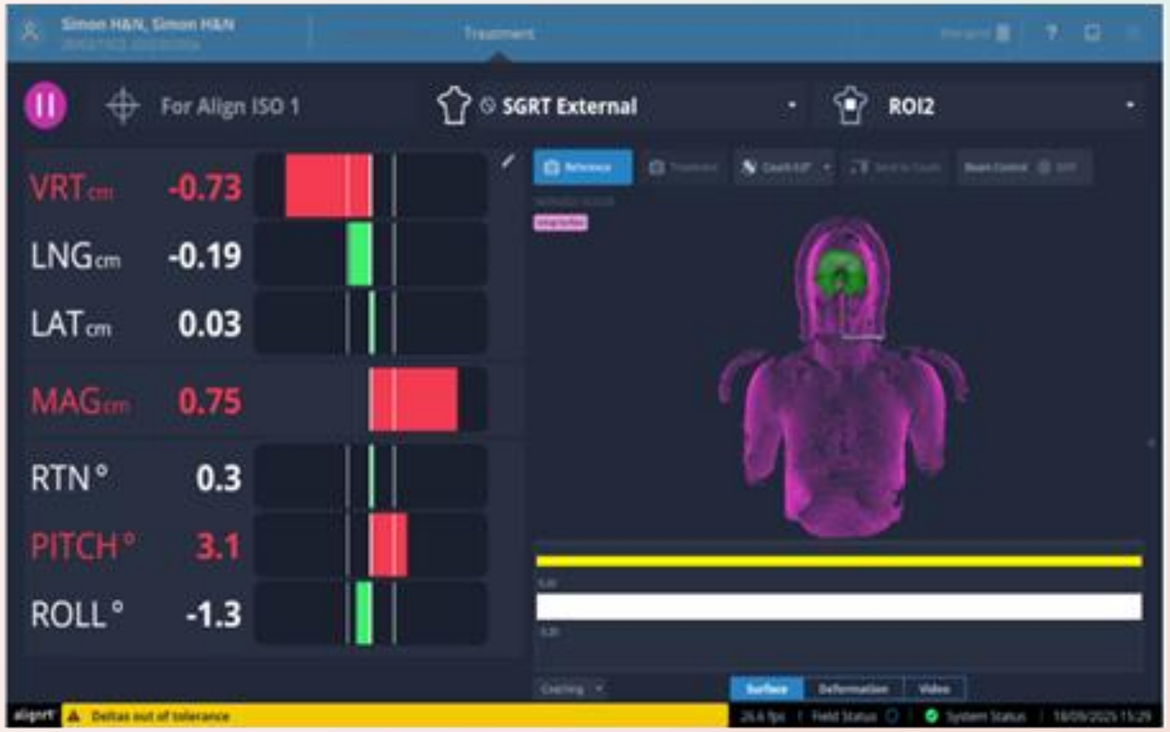

Face only
ROI



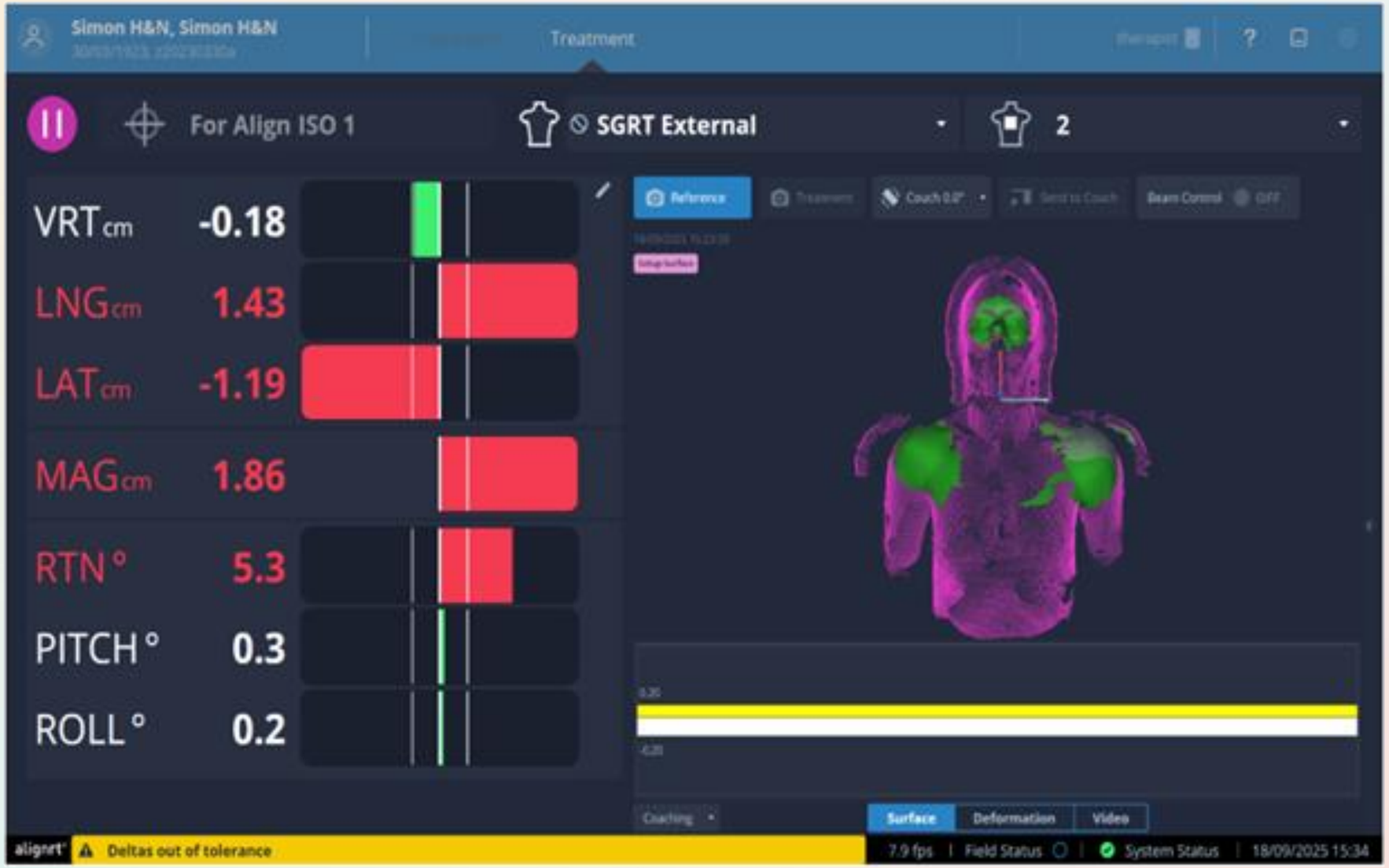

Face and shoulders
ROI




Face and neck
ROI



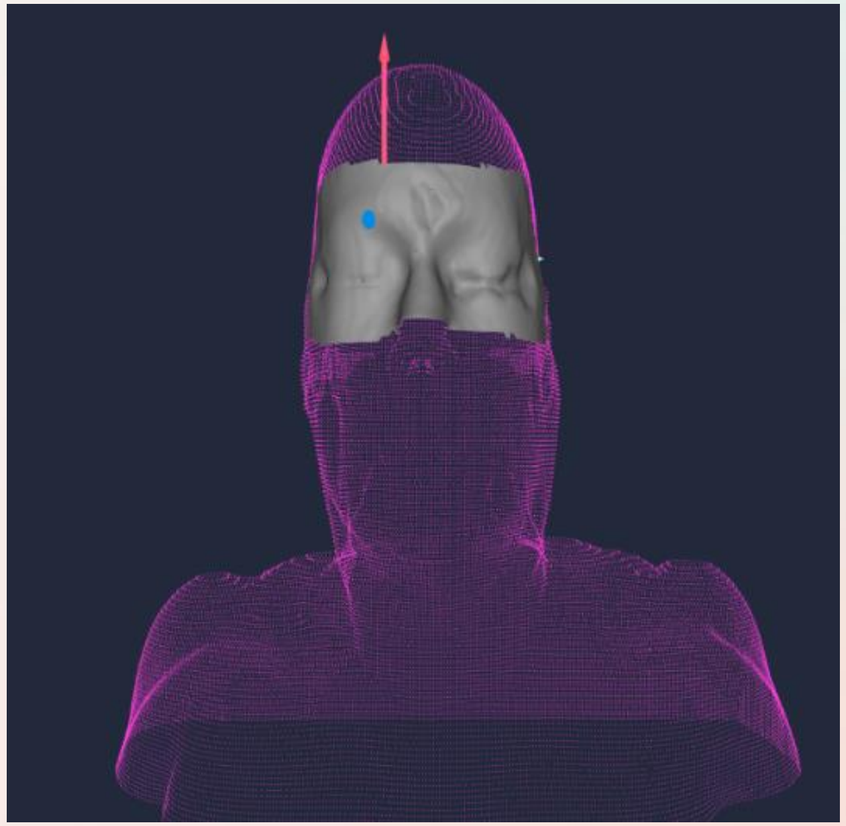

Face only
ROI

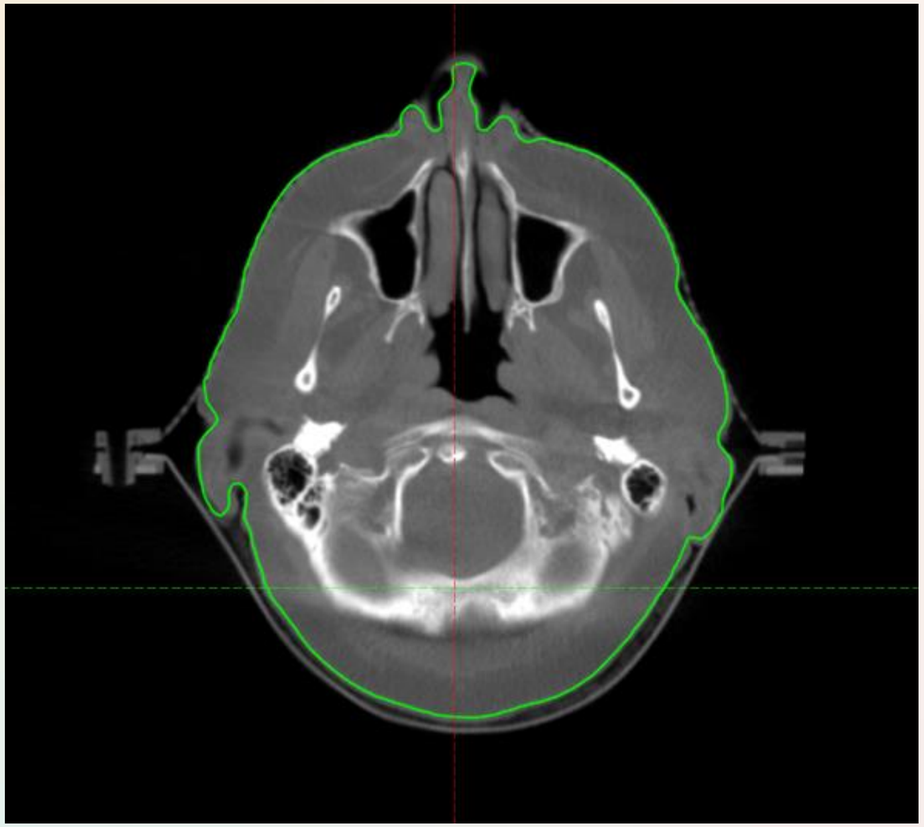


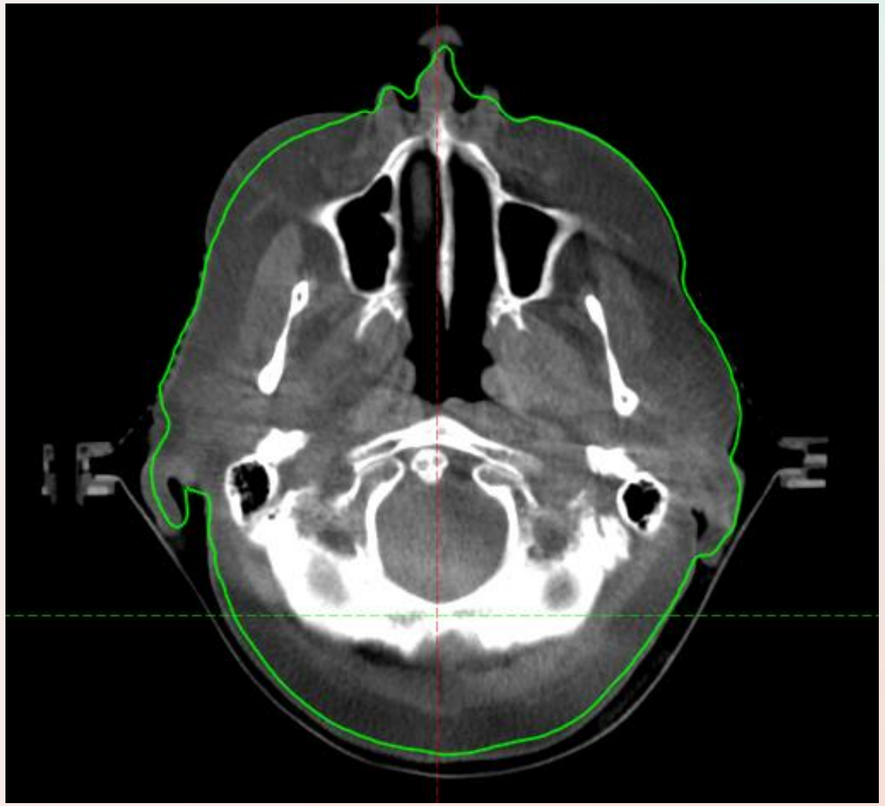

Large Shoulder movement

# Case study

- 74 year old female
- Brain patient
- Steroid induced swelling
- 5# delivered
- BDS became too tight
  - Shims added
  - Treatment not possible
- Face cut out
  - Treatment resumed
  - Beam control enabled







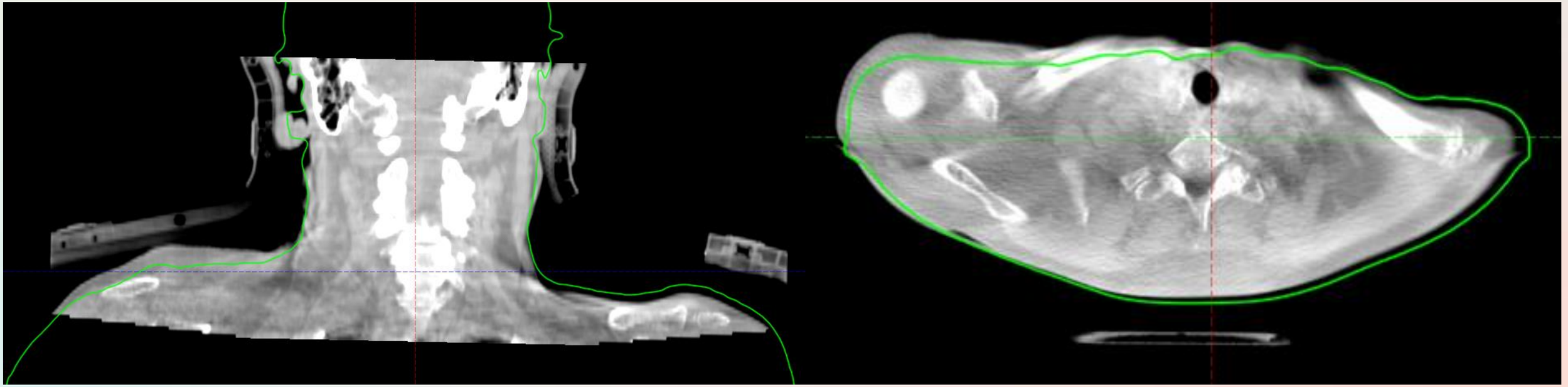
# Frontless

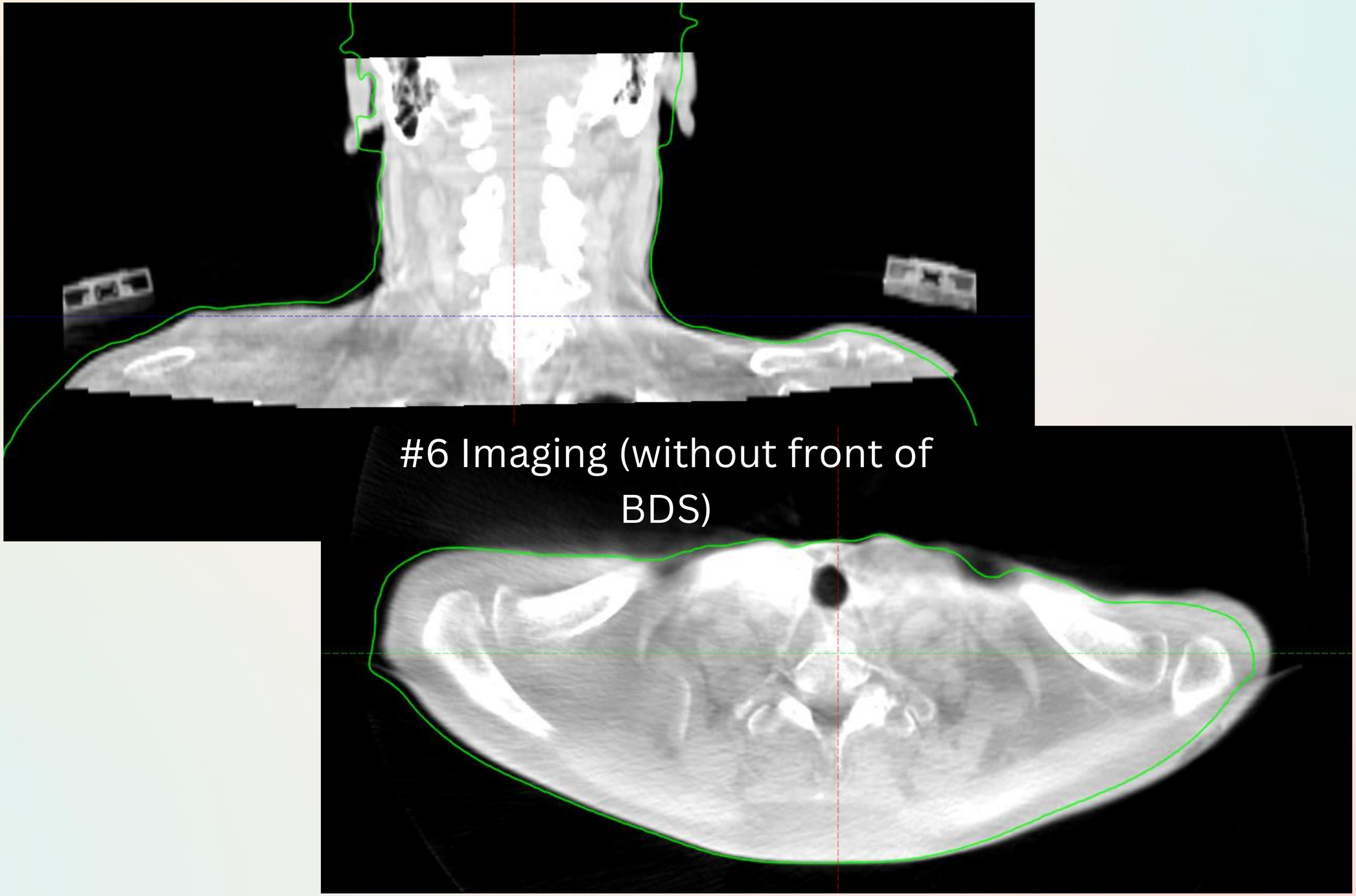
- Arms down lung SABR
- Extenuating Circumstances
  - Facial trauma
  - Extreme patient anxiety
- Patient Monitoring Paramount
- Beam Control
- Goodbye face masks! Accurate head and neck radiotherapy using individual dorsal shells and surface guidance - Essers et al (2025)

# Case Study

- 76 year old man
- Radical RT
- Oropharynx
- No history of claustrophobia or anxiety

#1 Imaging





#6 Imaging (without front of BDS)

# Patient Experience

“I hated it and the thought of putting that mask on. Just you wouldn't believe the anxiety that caused me.”

“We're going to try something different. We're going to try to do you without the mask” “I could have jumped up and kissed her. I'm no joking... the anxiety just went.”

“Sheer Relief”

“...without a mask, it's been a revelation. If you could get this for other people I think that would be brilliant.”

With thanks to all the team at Raigmore Hospital

Any further queries please email:
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