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## Introduction

Conventional full face (closed) masks are the current standard for delivering radiotherapy for head & neck patients, however they are known to have a negative impact on patient experience with both distress and anxiety<sup>1,2</sup> as well as covering the patient's contour meaning SGRT cannot be used to assist with positioning a patient and identifying problems when positioning is incorrect.

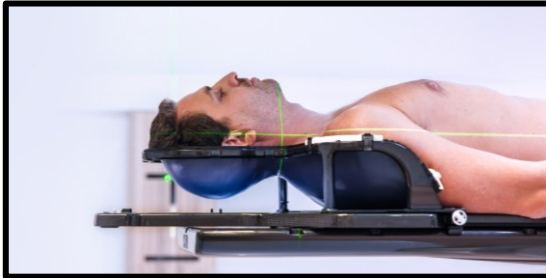


Figure 1. Occipital Mask Demonstration.

## Method

The immobilisation used was the occipital component of the DSPS-Prominent by MacroMedics (see Figure 1). Patients were assessed for suitability by the pre-treatment radiographers based on specific inclusion/exclusion criteria. The patient was then given the choice of either occipital or closed face mask. 25 patients had their radiotherapy CT scan in the occipital mask. 20 patients completed treatment, 3 patients were unable to maintain their position during treatment and 1 patient was unable to participate due to a change in planning technique, they were all rescanned in a closed mask. The remaining patient's treatment position was assessed and monitoring using visionrt's AlignRT system as well as daily CBCT and weekly post treatment CBCT to assess intrafraction movement. This was compared with the data from 25 closed mask patients CBCT and weekly post treatment CBCT to gather intrafraction shift data.

## Results

Figure 2 shows the occipital mask to have similar or smaller shifts for all directions except for Vrt which had an average shift of 0.09mm occipital and 0.02mm closed. All shifts were within clinically acceptable tolerances, the average shifts of <1.0mm and <1.0 degrees and maximum occipital and closed shifts of 0.28mm, 1.15 degrees and 0.30mm, 1.40 degrees respectively.

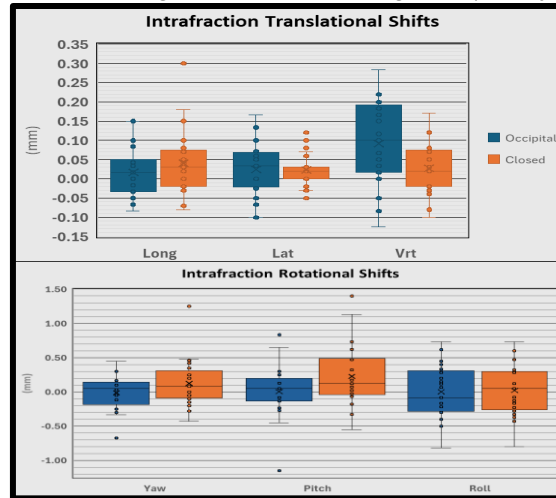


Figure 2. Intrafraction translation and rotation shift data for 21 occipital mask patients and 25 closed mask patients

## SGRT Results

Figure 3 shows our SGRT data showed that the patients were able to remain position within the set tolerance of 2mm and 2 degrees for the majority of treatments and when the patient has moved outside of these tolerances the SGRT was able to detect this and therefore would beam off.

SGRT data in Figure 3 shows the widest range in position to be laterally with outlying movements up to 0.66mm during treatment. The SGRT data also correlates well with the change in vertical position seen on the intrafraction data.

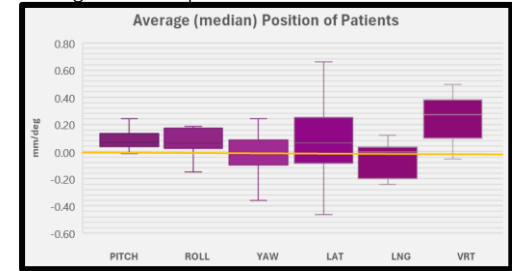


Figure 3. SGRT data of the average (median) position of 12 occipital mask patients

## Conclusion

Using Occipital mask and SGRT can be a safe and effective immobilisation method for treating head and neck patients. Change in vertical position was the most significant trend compared with closed masks. Further studies are required to evaluate its effectiveness across a wider patient cohort.

## Acknowledgments

MacroMedics, AlignRT, Toby Richardson, Josh Naylor & Poole Radiotherapy Team.

## References

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