



## Evaluation of a non-invasive immobilization system for fractionated stereotactic radiotherapy.

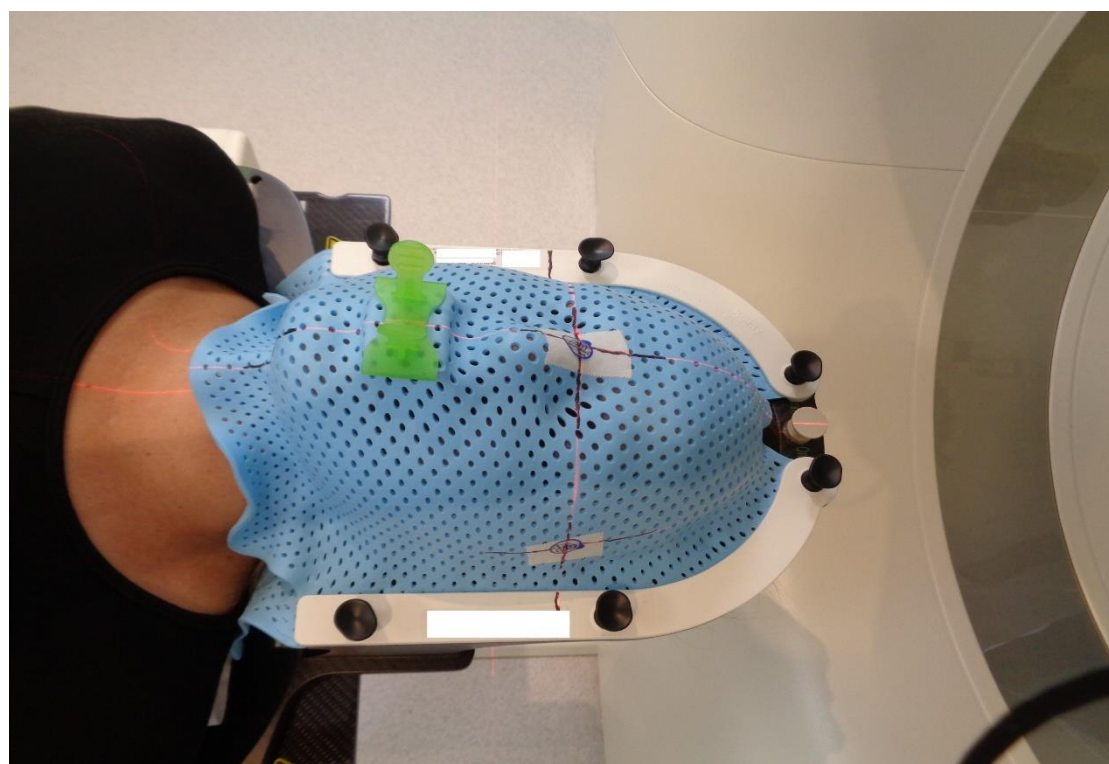
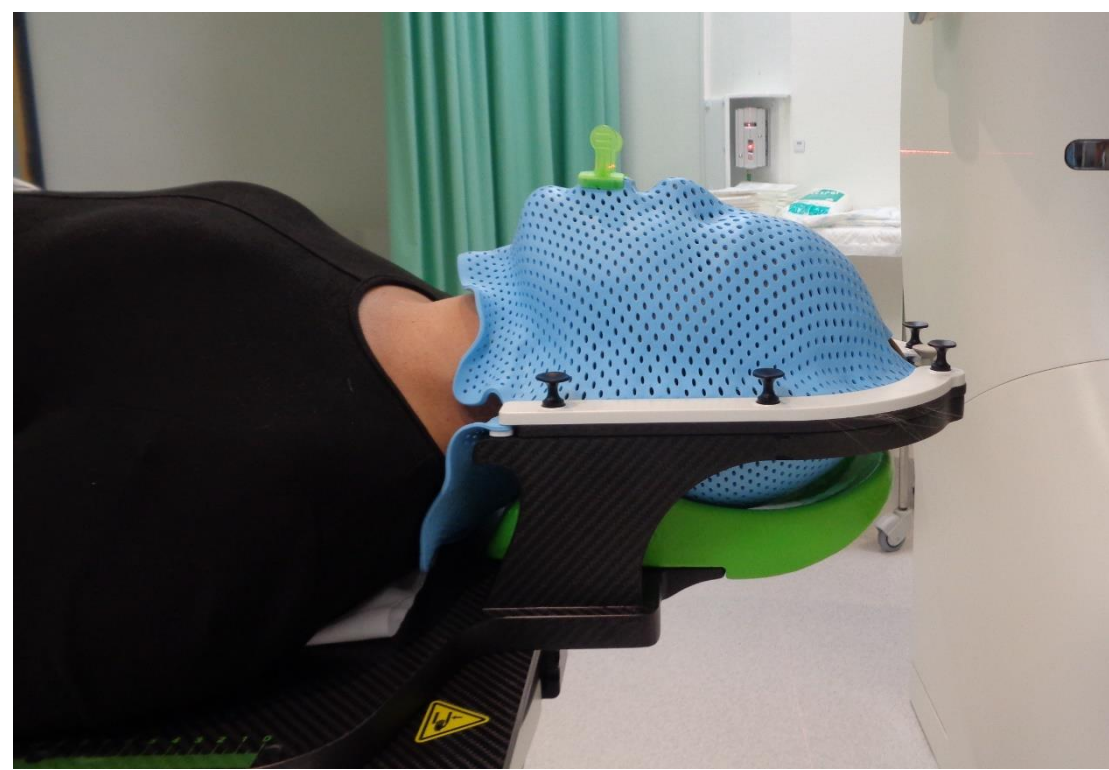
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**Objectives:** a non-invasive method of immobilization for the performance of radiosurgery (SRS) and fractionated stereotactic radiotherapy (fSRT) of the brain, consisting of the use of specific thermoplastic masks. Our service evaluated the precision and stability of the immobilization system “Klarity SRS system”<sup>®</sup> (Lorca Marín)©.

**Material and methods:** On June 2021, the radiosurgery technique and brain fSRT were launched. The “Klarity SRS system”<sup>®</sup> immobilization system consists of a specific “SRS Carbon Fiber Board”, together with the “Diamond SRS Klarity Blue Mask Kit”<sup>®</sup>. The "sandwich" mask allows a dental mold to be made that is fixed to the mask to reinforce the fixation of the patient.

The reproducibility of positioning has been evaluated on an anthropomorphic manikin (Rando phantom, RSD, Inc) and on a patient who was prescribed 30 Gy in 5 fractions. Before each treatment session, a cone-beam CT (CBCT) was performed to verify and correct the positioning.



**Results:** the displacements during the verification in the patient were evaluated (being the mean and standard deviation cm / °):

	Vertical	Longitudinal	Lateral	Pitching	Rolling	Rotating
Patient	0.02 +/- 0,04	0.03 +/- 0.11	0.00 +/- 0.05	0.80 +/- 0.07	0.50 +/- 0.20	-0.4 +/- 0.3
Manikin	0.25 +/- 0.08	0.20 +/- 0.04	0.10 +/- 0.03	1.1 +/- 0.4	0.2 +/- 0.1	0.2 +/- 0.2

**Conclusions:** the immobilization system used allows these treatments to be carried out with high precision and stability.