

## **Anesthesia for Craniotomy in the MRI Suite (Visualase laser ablation surgery)**

Written and compiled by Dr. David Drover

*Surgeons:* Henderson/Halpern

*Indication:* epilepsy

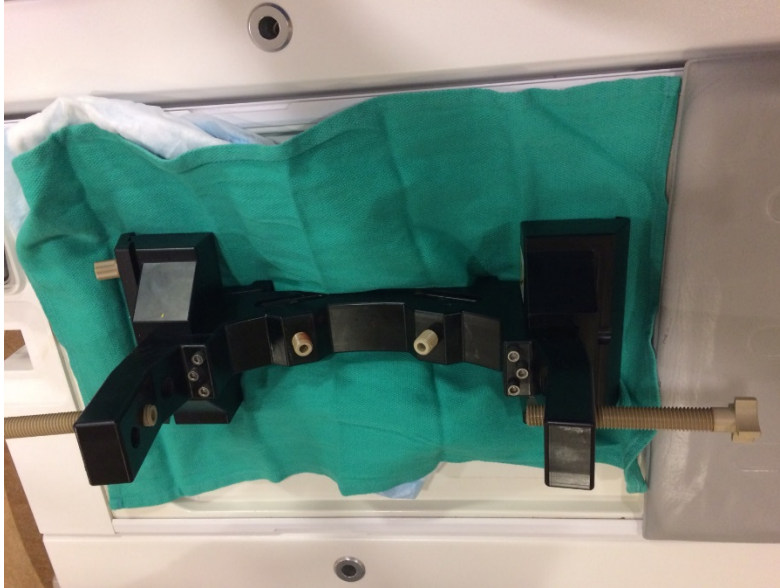
Much of the anesthetic plan for a Visualase case can be described as routine for the anesthesiologist who commonly does neuro-anesthesia. However, common challenges include prone positioning, very limited patient access, and required extensions of IV and airway tubing due to wide variance in tube length with repeated scans.

The preoperative history and physical should include use of recent anti-seizure medications and the patient should usually be guided to take these medications pre-operatively. Due to difficulty warming patients in the MRI suite, Bair Paws warming devices are initiated in the preop holding area.

Intravenous access should be obtained for induction of anesthesia with the usual monitors. Extra length is required on the IV tubing and this is easily accomplished with a K-52 tubing. A second IV post-induction is usually placed for general access and administration of contrast material. Post-induction an arterial line can be inserted if medically indicated by pre-existing medical illness but does not contribute to the care of the patient as there tends to be little hemodynamic variability and little chance for blood loss. After intubation of the trachea a bite block should be placed and the endotracheal tube should be secured with great care; once the patient is placed in the MRI scanner there is little chance to check the endotracheal tube until the end of the case. The breathing circuit length must be extended more than the length required for an average case where the table is turned 180 degrees.



In our current setup, the placement of the head in pins occurs after placement in the prone position. The pins are part of the MRI table and CANNOT be placed until flipping prone. To avoid injury from the pins, the patient is flipped prone below (caudal) the level of the pins and then the patient is lifted and placed in the pins. Placement in pins requires more care than usual as the eyes are not easily visible; the use of a prone view mirror below the face can help with accurate placement of the pins. Once patient is prone & pinning is completed, patient is rotated 180 degrees away from the anesthesia machine and placed in the MRI scanner. Prior to transitioning patient through the MRI, we recommend securing & bundling airway and IV tubing along the patient's back (otherwise tubing often catches along the corners and sides of the MRI tube particularly in obese patients).



The choice of medications for anesthesia can be at the discretion of the anesthesiologist. Cefazolin and dexamethasone are commonly used. With concern for PONV and its consequences in this patient population, a propofol TIVA can be considered; however, note that sedation brain function monitoring is not feasible and MRI specific infusion pumps must be used in addition to limited access to IV insertion sites. Due to the minimal surgery, minimal use of long acting opioids are required and IV acetaminophen commonly works adequately.



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