

NEUROLOGY PROTOCOLS

PAEDIATRIC BRAIN TUMOUR (Posterior Fossa/Pineal)

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| CLINICAL INDICATIONS | Diagnostic assessment or follow up of suspected medulloblastoma, ependymoma, astrocytoma, pineal region tumour. Likely biology is risk for dural spread or drop metastases. | |
| PATIENT PREPARATION | MRI safety checklist completed and checked. Changed into patient gown/pyjamas. NBM at least 2 hours unless requiring general anaesthetic. Contrast consent performed and IV line inserted if not done. Hearing protection with headphones and/or earplugs. Emergency buzzer is essential if non GA. | |
| PATIENT SET-UP | POSITION | Supine, head first. Immobilise using foam pads around the head and over ears. |
| | COIL/S | 12Ch Head Coil and 4 Ch Neck Coil with spinal mat |
| IMAGING PROTOCOL | SEQUENCES | RANGE AND ORIENTATION |
| | 3 Plane Localiser | Localiser through Head |
| | 3 Plane Localiser Whole Spine | Localiser through spine-step and go protocol as set out on scanner |
| | t1_mpr_sag_p2_iso_pre | Sagittal to the midline to cover the whole head |
| | t2_tse_tra_512_ | Inferior to superior, to cover whole head, parallel to ACPC line and perpendicular to midline/base of temp lobes on the coronal |
| | t2_tirm_tra_dark-fluid_fs | Inferior to superior, to cover whole head, parallel to ACPC line and perpendicular to midline/base of temp lobes on the coronal |
| | ep2d_diff_3scan_trace | As per the t2_tse_tra |
| | t2_tse_cor_512 | Angled perpendicular to the AC-PC on sagittal plane and perpendicular to midline on axial. |
| | t2_fl3d_tra_p2_swi_fast | Angle as per axial T2-ensure whole of head covered. |
| | t2_tse_sag_3mm | True sagittal to the midline, to cover right to left of the whole brain and upper C spine |
| | | <i>Contrast-please scan in this order</i> |
| | t1_tse_sag_Whole Spine+C | True sagittal to the spinal canal, to cover right to left, entire spine down to Sacrum |
| | t1_mpr_sag_p2_iso_+C | Sagittal to the midline to cover the whole head |

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| | t1_tse_vibe_upper spine +C | Axial to the spinal canal and vertebral bodies to cover from C1 to mid-spine. |
| | t1_tse_vibe_lower spine +C | Axial to the spinal canal and vertebral bodies to cover from mid spine to at least S2. Ensure at least 1 slice overlap with upper spine |

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| CONTRAST MEDIA | Type | Dotarem |
| | Volume | 0.2ml/kg on 3T |
| | Administration | IV slow hand injection or injector for perfusion |
| | Test Bolus | N/A |
| | Flow Rate | 3mls per second for perfusion |
| | Timing | As per perfusion protocol |
| | Delayed Imaging | N/A |

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| OPTIONAL SEQUENCES | <p>ep2d_perfusion-new tumours should have perfusion imaging performed. Check with radiologist. No pre-loading required. Perform before sagittal spine imaging.</p> <p>Single voxel spectroscopy Short TE may be required to help grade tumour</p> |
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| POST PROCESSING | <p>Reformat mprage sequence into 2 other planes at a slice thickness dependant on acquisition thickness.</p> <p>Reformat the post contrast mprage into a true axial as per Stealth protocol.</p> |
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| SPECIAL CONSIDERATIONS | <p>Slice thickness, FOV and slice number are dependent on the age of the child. Different protocols for different ages are set up on the scanner.</p> <p>Smaller children may benefit from having the brain scan in the 32Ch Head coil for signal. In these instances, please do the Axial T2/Cor T2 Post Contrast then the mprage, then move the patient to do the Post Gad Spine imaging.</p> <p>Younger children not being scanned under general anaesthetic may require a parent or guardian in the room. All accompanying people must complete a separate safety questionnaire and go through all safety checks as per the patient.</p> <p>Small children may require to be scanned under General Anaesthetic</p> |
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