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Dr Kirollos moved to Singapore in June 2018 after training and practicing in UK. He is a Clinical Associate Professor in Duke-NUS Medical school and a senior consultant neurosurgeon at the National Neuroscience Institute in Singapore. He is a Fellow of the Academy of Medicine of Singapore (FAMS) and council member of the Society of Neurovascular Intervention & Surgery of Singapore. Dr Kirollos graduated from the Medical School at the University of Alexandria in Egypt in 1984. In 1987, he moved to the United Kingdom and received the prestigious Royal College of Surgeons of England Hallett Prize given to the candidate with the highest score at the fellowship examination (FRCS Eng). Dr Kirollos trained in neurosurgery at the Atkinson Morley Hospital in London, the Frenchay Hospital in Bristol, the Leeds General Infirmary, and the Walton Centre for Neurology and Neurosurgery in Liverpool. He obtained the higher academic degree of Doctor of Medicine for his research into photodynamic therapy of pituitary adenomas. Dr Kirollos completed a skull base fellowship under Dr Gentili at the Toronto Western Hospital. In 2001, he was appointed Consultant Neurosurgeon at the Addenbrooke's Cambridge University Hospital and associate lecturer in Cambridge University clinical school until June 2018. His main clinical interests include skull base with extensive comprehensive experience in open and endoscopic skull base surgery, pituitary and pineal surgery, and surgical treatment of AVMs. He has performed over 750 aneurysm and 200 AVM operations. He was in the past the President of the British Neurovascular Group, President and co-founder of the British-Irish Meningioma Society, member of the postgraduate educational committee of the EANS, ex officio member of the SBNS council as representative for the SBNS to the EANS and WFNS and a member of the neuro-oncology committee of the WFNS. Dr Kirollos has over 115 publications, 110 presentations, 85 invited lectures and written few chapters and books and is the co-editor of the Oxford Textbook of Neurosurgery. Dr Kirollos co-founded and directed the Cambridge lectures in Neurosurgical Anatomy in 2005 and the British Neurosurgical Trainee Courses in 2010 and serves as a faculty on the Neuroanatomy of Operative Approaches since its conception in 2005 and numerous national and international courses. In 2006 Dr Kirollos was elected as a member of the Court of Examiners of the Royal College of Surgeons of England. For his commitment to surgical education he received the prestigious Silver Scalpel Award in 2010.

Topic: Surgical Nuances Dictated by Specific Pathology and Location of Foramen Magnum Lesions

Surgical approaches to lesions at the foramen magnum require 3D anatomical planning tailored to their anatomical configuration and pathological nature. The stepwise considerations for planning and selecting the optimum approach based on location depends upon (1) origin: intradural – extradural – combined, (2) craniocaudal extension, and (3) circumferential position. For intradural extra-axial lesions at the cranio-cervical junction, other considerations include the size, craniocaudal extension, consistency, neuro-vascular encasement and location at the perimeter of the foramen magnum region determines the extent of the exposure and the trajectory. Factors to be considered for selection of safe exposure and trajectories for clipping of PICA aneurysms include optimal exposure and visualisation of the neck, proximal and distal control, aneurysm size and its cranio-caudal location, vessel tortuosity and rigidity of its wall, and proximity of cranial nerves.

Foramen magnum tumours such as meningiomas are variable in extent and location. Consistency can sometimes be determined by the T2-weighted sequences of the MRI. Large anterolateral lesions providing a surgical approach to the lesion through a postero-lateral trajectory, do not require much drilling if at all of the condyle, while a smaller anteriorly located lesion require a trans-condylar approach. Extensive drilling of the condyle and dealing with the V3 segment of the vertebral artery may occasionally be needed for some extensive extra-dural tumours of this region.

PICA aneurysm surgery involves choosing a lateral vs. posterior midline approach. For PICA aneurysms at its origin off the vertebral artery (VA) when the junction is caudal at the foramen magnum i.e. a “proximal take-off”, a trajectory providing a direct viewing angle to the neck of the aneurysm is medial to lateral. This is readily provided through a midline suboccipital craniotomy widened ipsilaterally at the foramen magnum with the patient in the prone position. For a more distal PICA take off the trajectory with a direct viewing angle is lateral to antero-medial and as the take-off approaches the vertebrobasilar junction (VBJ) it becomes lateral to superior-antero-medial. Therefore, it is best to approach these through a far lateral craniotomy with the patient in the lateral position. Aneurysms located anterolateral to the medulla, i.e. on the medullary loop being especially arising at the anterior medullary and also the lateral medullary segments, a far lateral craniotomy with the patient in the lateral position is best. Those aneurysms located on the tonsillar loop and beyond are simply approached through a midline suboccipital craniotomy in the prone position.

The nuances of these approaches are presented with emphasis on tailoring the procedure for tumours and that in the vast majority of cases of PICA aneurysms there is no need to drill the occipital condyle.