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A Pre-Operative Stratigic Planning Of The Sellar & Para-Sellar Lesions By Neuro-Imaging Study

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Objective:Surgical indication, More-over approaches and specific strategic planning to that pre-plexing anatomical as well as pathological origin of the sellar and jaxta-sellar lesions cause a changeable task for even an experienced neuro-surgeon. So our objective of this paper is to provide a better three dimensional approach/classification system.

Method: We proposed a classification system which includes the pre-operative detailed Imaging "three dimensional studies by CT, MRI and dynamic contrast scanning". The combination of tumor invasion (grading) with anatomical tumor extension "staging" that delineated precisely the anatomical spread and the possible pathological nature.

Results: Eight different grades of spread in "height" of the lesion (cranio-caudal direction) could be delineated in the Sagittal imaging studies· The anterior to posterior extension of the same lesion and its angle at the "Tuberclem Sella" appearing also on the same Sagittal neuro-imaging studies. In Coronal neuro-imaging studies: A four different types of (Midline) lesions extension & expansion could be delineated. The height of the level of suprasellar pituitary tumor extension according to the mid sagittal cut on the MRI and high resolution CT & MRI scan with contrast. If the tumor is totally intra sellar with normal position and location of the diaphragma sella, A larger tumor elevating the diaphragma sella so (above the sella but infra-diaphragmatic). More Larger, the tumor spread above the diaphragm sella but below the level of the optic chiasma. (supra sellar and supra diaphragmatic but infra chiasmatic) means "extra-Sellar" The tumor spread above the chiasma but below the level of floor of the third ventricle, (super chiasmatic but infra ventricular) or in the level of optic chiasma cistern. The tumor invading the floor of the third ventricle (the hypothalamic level). The tumor extends to the cavity of the third ventricle (the tumor located intra ventricular). The tumor expands up to the level of the roof of the third ventricle. If the tumor reaching above the third ventricle up to "corpus callosm". The degree of expansion & extension of the pituitary tumor also on Sagittal cuts imaging " in Anterior to Posterior" direction could be centered on (A Line Horizontally With Sella Floor) here the location could be localizing by the same numerical clockwise direction, if the anterior part would be located in the left side of the plate imaging, (9 clock on the left side, 3 clock on the right side etc.). The degree of invasions of the pituitary tumor could be evaluated by coronal cuts of the " MRI with contrast and multislice CT angiography " α) if the pituitary tumor invading the sellar floor (reaching to the sphenoid air sinuses), β) if the pituitary tumor invading the full thickness of the lateral wall of the sella reaching to the cavernus sinuses cavity, γ) if the pituitary tumor invading more to the lateral direction up to the lateral wall of the cavernus sinuses reaching to the medial aspect of the temporal fossa region, δ) If the pituitary tumor reaching to the floor sphenoid air sinus. Coronal T1W with contrast showing focal lesion at the right side of the pituitary representing a micro-adenoma without extension into the cavernous sinus Coronal T1WI with contrast showing large macro adenoma with apoplexy (bright T1 areas). Coronal FLAIR showing a mass Lesion with left para-sellar extension implicating the left cavernous sinus.

Conclusions: The use of bony anatomical landmarks of the skull base in addition to the anatomical location of the third ventricle with cavernous sinus shapes also, the sizes and morphology of the carotid arteries could help us for pre-operative planning. Also, comparative studies of the operative results between different approaches, techniques and tumors sizes with different neuro-surgical centers worldwide "having" various post-operative outcome including varieties of follow up duration in different protocols of management could be verified and compared.

Biography

Mohamed A. Fahmy Zeid completed MBBCH very good with honors on Nov 1982 and completed Master of General Surgery in 1987. He is the House officer in Ministry of Health Hospitals and Alexandria university Hospitals for one year from 1983 to 1984.He worked as physician in the Ministry of Health Hospitals from 1984 to 1987. He is Assistant lecturer of Neurosurgical department of Alexandria University Hospitals from 1988 to 1994.He is chief consultant of Neurosurgery in Saqr Hospitals, UAE from 2000 to 2003. He is working as Professor of Neurosurgery department at Alexandria University from 2010 to till date.

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