



MRI EVALUATION OF ORBITAL NEOPLASMS

Dr. Neeraj Kumar* Junior Resident, Department of Radiodiagnosis, GMCH Aurangabad *Corresponding Author

Dr. Ajay Vare Associate Professor, Department of Radiodiagnosis, GMCH Aurangabad

ABSTRACT **Background:** Imaging plays an important role in the evaluation of orbital diseases especially neoplasms. USG and CT remained as primary imaging modalities for most of suspected orbital neoplasms. However, use of MRI is especially valuable for assessing its extent. Precise descriptions of lesion location, involved orbital compartments, spread to orbital apex, perineural and intracranial spread and also provide information beyond what can be seen by fundoscopy, thus facilitates appropriate treatment. **Materials and Methods:** The present study is a hospital based cross sectional study on 100 patients who were requested MRI for various signs and symptoms of orbital pathologies over 2 years' period. **Results:** Out of 100 patients, only 18 cases were neoplastic. Neoplastic conditions were maximum in patients 61-70 years. There was equal distribution of cases amongst both sexes (50%) each. Amongst orbital neoplasms, maximum 14(~78%) were malignant and rest 4(~22%) cases were benign. All the benign orbital neoplasms and maximum (87.5%) malignant neoplasms were primary. Only two (12.5%) orbital malignancies were secondary. On the basis of our observations, MRI is found to be 92.3% sensitive and 60% specific in diagnosing various orbital neoplasms with positive predictive value 85.7%, negative predictive value 75% and diagnostic accuracy of 83.33%. **Conclusion:** We hereby conclude that MRI is an excellent imaging modality for lesion characterization, delineation of the anatomical extent, presents additional advantages including comprehensive screening of the rest of the neuraxis and repeatability due to lack of ionizing radiation. This allows the clinician to make a better-informed decision regarding further management, prognosis & follow up.

KEYWORDS : orbital neoplasms, USG, CT, MRI.

INTRODUCTION

Imaging analysis of orbital diseases is facilitated by a compartmental approach that establishes differential diagnoses on basis of location of disease process within the orbit. Clinical spectrum can range from general visual disturbances & or ophthalmoplegia which may be found at any location along the visual pathway from globe to the occipital lobes. Cross-sectional imaging plays a vital role in the diagnosis and management of these lesions. Though CT & MRI are regarded to be complementary in some circumstances as CT is useful in evaluating bony structures, MR imaging excels in evaluating soft tissues. Because of absence of radiation & utility of fat suppressed contrast enhanced images, MR imaging has emerged to be the procedure of choice for orbital neoplasms.[1]

MATERIALS AND METHODS

The present study titled "MRI EVALUATION OF ORBITAL NEOPLASMS" is a cross sectional observational study has been carried out in department of Radiodiagnosis at tertiary care center Government Medical College and Hospital, Aurangabad over 100 patients in Wipro 3T Logica V2 GE machine and 1.5T Philips's machine. Gadolinium based intravenous contrast was administered, both pre and post contrast scans were performed after obtaining a written informed consent. Approval from institutional ethics committee was taken prior to the commencement of the study.

OBSERVATIONS AND RESULTS

Out of 100 patients, only 18 cases were neoplastic. Neoplastic conditions were maximum in patients 61-70 years. There was equal distribution of cases amongst both sexes (50%) each. Amongst orbital neoplasms, maximum 14(~78%) were malignant and rest 4(~22%) cases were benign. All the benign orbital neoplasms and maximum (87.5%) malignant neoplasms were primary. Only two (12.5%) orbital malignancies were secondary.

Table No 1: Showing Sensitivity and Specificity of MRI in Diagnosing Various Orbital Neoplasms.

MRI DIAGNOSIS	FINAL DIAGNOSIS (BY HISTOPATHOLOGICAL/OPHTHALMOLOGICAL EXAMINATION/ALTERNATE IMAGING/FOLLOW UP)		
	MALIGNANT	BENIGN	TOTAL
MALIGNANT	12	2	14
BENIGN	1	3	04
TOTAL	13	5	18

On the basis of our observations as shown in Table 1, at 95% confidence interval MRI is found to be 92.3% sensitive and 60%

specific in diagnosing various orbital neoplasms with positive predictive value 85.7%, negative predictive value 75% and diagnostic accuracy of 83.33%.

DISCUSSION

Out of 18 neoplastic cases, maximum 14(~78%) were malignant and rest 4(~22%) cases were benign. In a similar study by Nisha et al [2] most of the orbital neoplasms were malignant (80%) and 20% were benign. All of the benign orbital neoplasms were and maximum (87.5%) malignant neoplasms were primary. Only two (12.5%) orbital malignancies were secondary. In study by Usha Kim et al [3] showed that most of the orbital neoplasms (90%) were found to be primary and 10% were secondary.

On the basis of our observations, it was found that MRI is 92.3% sensitive and 60% specific in diagnosing various orbital neoplasms at 95% confidence interval with a diagnostic accuracy of 83.33%. In a study by Aarti Patel et al [4], MRI diagnosis correlated to histological diagnosis in 84.37% patients while in 15.63% cases the diagnosis was changed after MRI. They found MRI is 100% sensitive in diagnosing infections, Meningiomas and gliomas and 100% specific in infections, Cavemous hemangiomas and Meningiomas. In a similar study by Nisha et al [2] the clinico-radiological correlation was 88%.

CONCLUSIONS

MRI is an excellent imaging modality for lesion characterization, delineation of the anatomical extent, presents additional advantages including comprehensive screening of the rest of the neuraxis and repeatability due to lack of ionizing radiation. This allows the clinician to make a better-informed decision regarding further management, prognosis & follow up.

REFERENCES:

1. Bela S. Purohit¹ & Maria Isabel Vargas² Orbital tumours and tumour-like lesions: exploring the armamentarium of multiparametric imaging DOI 10.1007/s13244-015-0443-8.
2. Nisha,C (2020) A clinical study on Role of Radioimaging like CT/MRI in diagnosis and management of Orbital lesions. <http://repository-tnmgrmu.ac.in/id/eprint/14165>.
3. Kim, Usha R. M.D.*; Khazaei, Hadi M.D.*; Stewart, William B. M.D.†; Shah, Akash D. M.D.* Spectrum of Orbital Disease in South India: An Aravind Study of 6328 Consecutive Patients, Ophthalmic Plastic & Reconstructive Surgery: September 2010 - Volume 26 - Issue 5 - p 315-322, doi: 10.1097/IOP.0b013e3181c32f2f
4. Aarti Anand, Amit Daswal, Pragati Bathwal, Amol Bandgar & Darshan Patwa: Magnetic resonance Imaging in Evaluation of Orbital Pathologies. International Journal of current Medical and Applied sciences; 2017, 169(1), 46-50.