ISSN- O: 2458 - 868X, ISSN –P: 2458 - 8687

International Journal of Medical Science and Innovative Research (IJMSIR)

IJMSIR : A Medical Publication Hub

Available Online at: www.ijmsir.com

Volume – 2, Issue – 5, September - October - 2017, Page No. : 55 - 57

CT and MRI Evaluation of Brain Tumour & Tumour like Conditions at Medical College Hospital, Bikaner.

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Conflicts of Interest: Nil

Abstract

Background: Intra cranial tumors could originate from brain, pituitary gland, skull, embryonic tissues, spinal cord and meningeam also could be metastasis from other parts of body.

Method: This study includes 30 cases of brain tumour and tumour like conditions suspected clinically & evaluated on the basis of radiological imaging modalities, mainly CT scan & MR imaging, during the study period of Jan.2017 to July 2017 at PBM SP medical college, Bikaner.

Results: The most common CNS neoplasm is glioma (8 patients). Most common malignant neoplasm is metastasis (6 patients). Least common variants are lipoma, paraganglioma, medulloblastoma (reported only one case).Most common condition that mimic tumour is vascular malformation.

Conclusion: MRI has better diagnostic accuracy than CT scan.

Keywords: Brain Neoplasms, Computerized Tomography, Magnetic Resonance Imaging.

Introduction

Intra cranial tumors could originate from brain, pituitary gland, skull, embryonic tissues, spinal cord and meningeam also could be metastasis from other parts of body. The incidence rate is 9.5 in 100000 in United States, which more than 60% of primary tumors are glioma [1]. These tumors usually have non-specific symptoms like headache, nausea and vomiting. Specific symptoms depend on the location of the tumor, which are paralysis, aphasia, visual field disorders, seizure and so on [2]. A good evaluation of the patient with a suspected brain tumor needs a complete history, exact physical examinations especially neurologic ones, and suitable diagnostic neuroimaging studies. The differential diagnosis of patients with signs and symptoms suggesting a brain tumor includes both neoplastic and non-neoplastic conditions. Imaging is the best diagnostic modality in the evaluation of brain tumors. They are important for surgery planning, and usually estimating the etiology of tumor [3]. Computed tomography scan (CT) and magnetic resonance imaging (MRI) are important tolls for diagnosis of intra cranial tumors. CT scan remains a good choice in diagnosis of some conditions like bone or vascular involvement and metastases to the skull base [4,5]. MRI usually recommended diagnosing brain tumor [6]. MRI is a gold standard test for diagnosis of the glial tumors. When MRI is not available, CT scan with contrast can be used insteadly. However, it might miss posterior fossa tumors with false negative report [7].

For more accurate and earlier diagnosis and treatment, this study was designed to determine sensitivity and specificity of MRI and CT scan in compare with the results of tumor biopsy.

Materials & Method

This study includes 30 cases of brain tumour and tumour like conditions suspected clinically & evaluated on the basis of radiological imaging modalities, mainly CT scan & MR imaging, during the study period of Jan.2017 to July 2017 at PDU S P medical college, Bikaner. Patients were referred from various clinical departments of our institute. All the cases were first evaluated clinically and then referred to our radiology department for further diagnosis.

Results

Maximum 8 cases were encountered between age of 41 to 50 years. Most commonly affected age group in our study is 5 th decade (41-50).

Out of 30 patients 17 patients were male and 13 patients were female. Males are more frequently affected than females.

Table 1: Classification of lesions

Radiological diagnosis	**No. of cases (n=30)**
Metastasis	6
Meningioma	7
Glioma	8
Oligodendroglioma	1
Pituitary macroadenoma	1
lipoma	1
Paraganlioma	1
Medulloblastoma	1
Neoplastic – SOL (mixed features / without specific features of any)	3

According to our study, the most common CNS neoplasm is glioma (8 patients). Most common malignant neoplasm is metastasis (6 patients). Least common variants are lipoma, paraganglioma, medulloblastoma (reported only one case).Most common condition that mimic tumour is vascular malformation.

Table 2: According to complications

Complication	No. of cases (out of 30)
Mass effect	24
Edema	21
Midline shift	13
Hydrocephalus	6
Recurrent lesion	4

Complication of neoplastic brain lesions include Mass effect, edema, midline shift, hydrocephalus, hemorrhage, distant spread/metastasis, recurrent lesions, etc. mass effect is most frequently encountered complication (24 patients), followed by edeme (21 patients), midline shift (13 patients.

Table 3: According to diagnostic imaging

modality Imaging	No. of cases (out of 30)
CT scan	6
MRI	22
CT scan & MRI	1
Non-diagnostic on imaging (pathological diagnosis advised)	1

CT scan is used as initial screening investigation & MRI remains the mainstay of diagnosis.

Discussion

We studied 30 cases; out of which glioma was the most common tumour . Other brain tumours & tumour like condition were metastasis, oligodendroglioma, pituitary macroadenoma, schwannoma, DNET, lipoma, ependymoma, epidermoid, craniopharyngioma, paraganglioma, subependymoma, medulloblastoma, arterio-venous malformation & cavernoma formation. Most common malignant brain lesion was metastasis. In children most common neoplasm was glioma. Other lesions were ependymoma, craniopharyngioma, vascular malformations[8].

MRI has better diagnostic accuracy than CT scan. In our study 22 cases were diagnosed by MRI & 6 cases were diagnosed by CT. In one case both studies were done, so overall CT scan is good for initial screening & MRI is accurate diagnostic imaging modality and warkar A. and et.al also showed same results.

Conclusion

MRI has better diagnostic accuracy than CT scan.

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