Malignant features of Meningioma CT scan Study.

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Summary:

CT scan features of Malignant Meningioma

Objective: Meningioma which is a common benign Brain tumor can be malignant, but the final decision is by biopsy. However CT. Scan features can help to evaluate malignancy of a lesion. The aim of this retrospective study is to look for the malignant features of a malignant meningioma .

Patients and Methods: This is a retrospective study of 50 malignant meningiomas in the neuro-surgical unit in the specialized surgical hospital (previously AL-Shaheed Adnan hospital), for the period from March 1992 to March 2007. We search specially for Malignant features on the CT scan study of the patients.

Results: 94%of the patients had different features of malignant meningioma, only 6% CT scan did not show any malignant features, we also evaluated the results of surgery .

Conclusion: CT scan is one of the most important diagnostic procedures for diagnosis of brain tumor; however final diagnosis can only be emphasized by the histo-pathological studies.

Keywords: Meningioma , CT scan , Malignant features

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Introduction:

Meningiomas are common brain tumors, named by Harvey Cushing in 1922 (1). They usually arise from the meninges, and are usually benign although there are few malignant cases (2) .Tumors of the arachnoid cells of the meninges, are the most common intracraniod neoplasms. they are usually, well circumscribed extra axial lesions, that cause symptoms due to mass effect on underlying structures. They thus completely resesctable unless they invade the skull base or cavernous sinuses. They do not tend to invade the brain, but can infiltrate the skull. Parasagital tumour can invade the parasagital sinus (3). The malignant histological classification is hemingis-Percytic meningioma, malignant meningothlial meningioma, malignant fibro blastic meningioma and malignant Angio blastic Meningioma (4). Computed tomography: (CT scan) is one of the most important radiographic test in the diagnosis of Meningioma (5), it demonstrates brain anatomy,shift calcification & oedema , as well as bone changes. Classically the non –calcified areas of the lesion will appear slightly dense (40 to 80 Housfield unites , or HU). Prior to infusion and dura-based,extra axial with globular smooth margins&homogenous dense enhancement following contrast infusion(6). Meningioma , may exhibit calcification which can be psammomatous ,nodular , or rim like , bone changes can occur , more than half meningiomas can impart some vasogenic oedema to the brain. , a low density area is some times seen at the margin of the meningioma (7). The CT findings of malignant meningioma are: Finger like progection Extensive oedema, wide base, bone lysis, necrosis, absent calcifications (8). 50patients taken from the Neuro-surgical department in the specialized surgical hospital (formely known

Patient and Methods:

Al-Shaheed Adnan hospital) from March 1992 till March 2007 all the patients under went craniotomy for Brain Meningioma & Biopsy showed 1 type or another of Malignant Meningioma , all patients studied by Age , Sex ,clinical presentation , & detailed study of the malignant changes of the lesion by CT scan , & prognosis also mentioned in the study .

Table (1) the predominant age was 60& above.
Site of Meningioma:

Site	No.	%
Parasagital	5	10%
Falx	8	16%
Convexity	20	40%
Sphenoid wing Meningioma	12	24%
CPA Tumor Meningioma	2	4%
Cerebellar Meningioma	2	4%
Tentorial Meningioma	1	2%

Table (2) the lobe affected:

Rt. frontal	8
Lt. frontal	5
Rt. parietal	14
Lt. parietal	4
Rt. temporal	6
Lt. temporal	6
R. occipital	2
L. occipital	1
Cerebellar	5

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Table (3) Malignant features:

Malignant features	No.	%
Finger like projection	21	42%
Wide base	27	54%
Extensive oedema	19	38%
Absence of Calcification	13	26%
Necrosis	18	36%
Bone lysis	12	24%
None.	3	6%

Table (4) The CT may show more than one malignant feature.

Pathology:

Type	No.	%
Haemangio preicytic meningioma	12	24%
Malignant Meningothelial Meningio	28	56%
Malignant fibroblastic Meningioma	8	16%
Malignant angio blastic Meningioma	2	4%

Results:

The most common age to have malignant meningioma is 60& above 60 followed by the age from 40– 49&50-59; no case was reported below the age of 20 & ♀ predomenance of 74%. Headache & papaellodema were the most common presenting features of 92%, 60% respectively followed by hemi paresis, 24%, time of symptoms & sign was variable but the most of the patients were in the Caticory of 1-5 years. Malignant Meningioma can affect any lobe of the brain, although it is more common in sphenoid wing meningioma. Wide base of Meningioma were seen in 54%, finger like project in42%& extensive oedema in38%, necrosis in 36%, & absence of calcification 26%. , &bone lysis 24%. The patients may have more than 1 feature, only 6% did not have any malignant features & diagnosed by biopsy. The prognosis (although malignant meningioma the prognosis) was good in 88%, only 6 died mostly due to big Tumor or evolvement of vital area, of the brain, prolonged surgery but not due to tumor malignancy.

Discussion:

The age it goes with most studies in this field by the high predomenance after third decade (9).There is a ♀ predomenance which goes with most studies in this field (3, 7, 9).The site of meningiomas . 20 patients (40%) were in cerebral convexity while in (sutton reffrouces) it is 32% in sphenoidal wing :12 patients (24%) , while in (sutton reffrouces) , 12% (10) .In parasagital meningioma , 5 patients in our series 10% while in (sutton reffrouces) it was 26% (10).In CP angle, 2 patients in our series (4%) while in (sutton reffrouces) , it was 8 % in cerebellar convexity , 2 patients 4% while in (sutton reffrouces).It was 3 % in tentorion meningiomas one patient ,2% while in (sutton reffrouces (10)) it was 2% none of our patients has intraventricule .Extensive oedema seen in (19) patients 38% , while extensive odema might be seen in 10% of cases of more malignant meningioma (sutton reffrouces (10)),non malignant meningioma shows minimal odema , minimal mass effect .Finger like projections seen in (21) of our series. (42%) comparing to 10% of cases of meningiomas (sutton reffrouces) , suggesting the value of this sign in suggesting malignancy . Absence of calcifications noticed in (13) patients (26%) is a sign confirming malignancy , while present if calcification is usually , noticed in 20% of meningiomas which is a sign of benignity (sutton reffrouces) cystic changes and necresis are seen in 18% of our series (36%) while they are uncommon in non malignant meningioma (sutton reffrouces).Wide base noticed in (27) patients 54 bone lysis which is close to sutton reffrouces .In 24% so close to sutton & only 6% show no changes .The results of surgery show that 88% had good prognosis which is acceptable compared with other studies (11,12,13) .

Conclusion:

Ct Scan can be very helpful in the diagnosis of Malignant Meningioma however the final diagnosis is by histo pathological exam .

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