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Computed Tomography Features Of Sella And Parasellar Tumours

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Abstract:

Introduction: The sellar region is a complex area bounded by sphenoid sinus anteroinferorly, the dorsum sella and brainstem posteriorly, the paired cavernous sinuses laterally, the suprasellar cistern and its contents, diaphragma sellae and hypothalamus superiorly. Imaging forms an important diagnostic investigation and is crucial because clinical evaluation frequently cannot localize the lesions that occur in this location

Methodology: 26 patients were subjected to CT using Siemens ARC CT system

Results: During the study period 26 cases were diagnosed to have sellar and parasellar tumours on CT scan. Age of these patients ranged from 4 to 67 years. Nine cases (34.6%) were seen in first two decades of life, all of which were seen in children (<18 years) and these cases are analysed

Conclusion: This article highlights the role of CT scan in evaluating Sella And Parasellar Tumours

KEYWORDS:CT, Parasellar, Pituitary, Sella

Introduction:

The sellar region is a complex area bounded by sphenoid sinus anteroinferorly, the dorsum sella and brainstem posteriorly, the paired cavernous sinuses laterally, the suprasellar cistern and its contents, diaphragma sellae and hypothalamus superiorly[1].

The sellar and parasellar region have a rich combination of endocrine, neural, vascular and skeletal structures with varied pathology relating to these structures and present with many clinical syndromes.

Imaging forms an important diagnostic investigation and is crucial because clinical evaluation frequently cannot localize the lesions that occur in this location. The revolutionary advance that have occurred in imaging modalities of the brain provide an extensive detail anatomic relationships and have led to an increased detection rate of sella and parasellar tumours. In centres where Magnetic resonance imaging (MRI) is not available, computed tomography (CT) scan is still useful.

Sella and parasellar tumours account for 15 to 20% of all intracranial and extraaxial tumours of which pituitary adenoma constitutes 7 to 9% of all primary intracranial extra-axial neoplasms. These tumours are slow growing neoplasms and occur both in adults and children and may manifest insidiously[2]. Hence it is important to detect these tumours as early as possible so that surgical resection can be done to reduce the morbidity.

Methodology:

This is a cross sectional observation study conducted in the Department of Radiology over a period of two years. Children referred for imaging studies from various departments viz neurology, neurosurgery, paediatrics with a clinical suspicion of intracranial pathology and in whom CT scan revealed sellar and parasellar tumours were included for the study.

CT scan was performed using Siemens ARC Computed Tomography system with IV contrast. Parents consent was taken. Relevant clinical details were noted from the case records. Plan X-ray of the skull was also done prior to CT scan.

Results:

During the study period 26 cases were diagnosed to have sellar and parasellar tumours on CT scan. Age of these patients ranged from 4 to 67 years. Nine cases (34.6%) were seen in first two decades of life, all of which were seen in children (<18 years) and these cases are analysed.

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Table no-1: Sellar and parasellar tumours in adults and children (n=26).

Age	Number	Percentage
Children	9	34.6
Adults	17	65.4

Table no-2: Type of tumour in children (n=09).

Type of tumour	Number	percentage
Craniopharyngioma	06	66.66
Glioma of optic chiasm	02	22.22
Pituitary macroadenoma	01	11.11

Clinical manifestations:

These children presented with various clinical manifestations viz headache, nausea, vomiting, visual disturbances and convulsions. All cases of Craniopharyngioma (n=06) and one case of optic Glioma were associated with obstructive hydrocephalus.

Pituitary macroadenoma was observed in an elderly child who was a female 15 years old, which accounted for 3.84% of all sella and parasellar tumours (n=26) in adults and children.

Density of the tumour:

Density of the tumour varied. Both cases of Optic Glioma showed heterogenous density. Pituitary macroadenoma was isodense and most of the Craniopharyngioma showed heterogenous density. Calcifications were observed in all 6 cases of Craniopharyngioma.

Table-3: Density of tumour.

Tumour type	Isodense	Hypodense	Hyperdense	Heterogenous
Craniopharyngioma				n= 06
Glioma of optic chiasm				n= 02
Pituitary macroadenoma	n= 01			

Contrast enhancement:

Most of the tumours showed heterogenous pattern of enhancement. Of the two optic gliomas one (50%) showed moderate and intense enhancement. Microadenoma showed no enhancement, Craniopharyngiomas showed heterogenous enhancement.

Table-4: pattern of contrast enhancement (n=09)

Tumour type	Nonenhancing	homogenous	Heterogenous
Craniopharyngioma			n= 06
Glioma of optic chiasm			n= 02
Pituitary macroadenoma		n= 01	

Sella turcica changes:

Both cases of optic Glioma showed widening of sella and one showed erosion of the floor and undercutting of anterior clinoids. Pituitary macroadenoma showed destruction of the sella (widening of the sella, erosion of floor, anterior and posterior clinoids). Widening of the sella and erosion of posterior clinoids were the features of Craniopharyngioma.

Discussion:

Pituitary macroadenoma:

Naidich et al., in their study of 26 cases of pituitary macroadenomas observed, parasellar and infrasellar extension in 14 cases and suprasellar extension in 12 cases..[3]

Gardeur et al., 1981 analysed CT images of 85 purely intrasellar pituitary adenomas and documented a highly versatile pattern of response to contrast enhancement, 25 of 85 adenomas exhibited homogenous increase density, 20 exhibited heterogenous enhancement and 8 cases with no enhancement.[4]

The present study revealed only a single case of pituitary macro adenoma exhibiting features similar to other studies.[3-5]

Craniopharyngioma:(fig-1)

There are various studies documenting the occurrence of Craniopharyngiomas as more common in children and calcification being one of the characteristic feature in most of the childhood Craniopharyngiomas as observed in the present study[6,7]

The commonest presenting symptoms reported are headache, progressive loss of vision, and vomiting and CT findings similar to the cases in present study. suprasellar calcification are characteristic of craniopharyngioma. 80% of Craniopharyngiomas in younger patients and 20% in older patients exhibit calcification. The Factor that influences the incidence of calcification is age of patient. The older the patient, the less frequent are the deposits of calcium[7] In a study conducted by Naidich TP et al 85% of children with craniopharyngioma showed calcifications[3]

Glioma of optic chiasm:(fig-2)

In present study there were, 2 cases of glioma of optic chiasm. Both were seen in males and in 1st decade,age of the children being 4yrs and 5 years . optic nerves were thickened in one case measuring 9 and 8mm with widening of optic canals. Findings in these tumours correlated with other studies.[8,9]

The commonest present symptoms in both

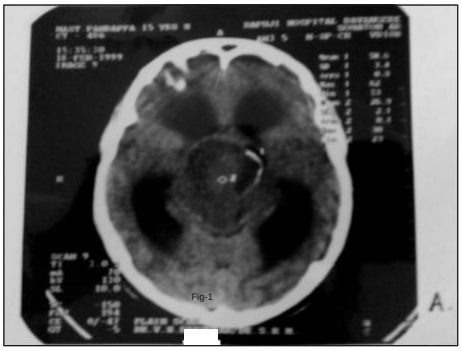
cases were headache, vomiting and progressive loss of vision. Savoiardo M et al., 1981, in their study of 22 cases on NECT scans reported iso-hypodense in 17 cases and moderate to intense enhancement after contrast administration, 3 patients presented with calcifications.[8]

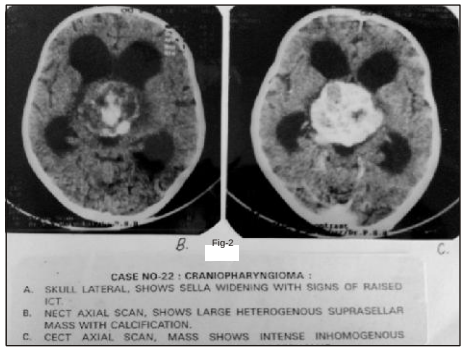
Conclusion:

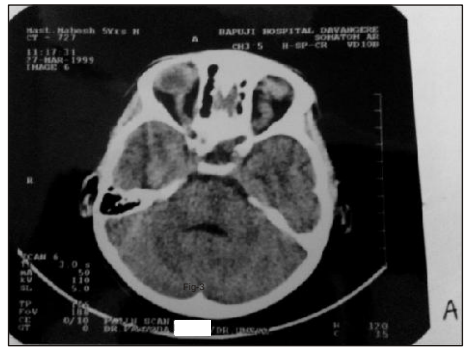
This article highlights the role of CT scan in evaluating Sella And Parasellar Tumours. With the advent of imaging techniques, Radiological evaluation of Sella And Parasellar Tumours has progressed rapidly in recent years. MRI with its improved resolution and ability to characterize the tumour vasculature makes it a more elegant imaging modality for these tumours. MRI has the advantage of multiple imaging planes and ability to demonstrate the relationship of the tumours to the optic chaism and cavernous sinus.

References

1. Elster AD. Imaging of the sella: Anatomy and pathology. Semin Ultrasound CT MR.1993;14:18294.
2. Schubiger O. Intrasellar tumors: Neuroradiological diagnosis. Riv Neuroradiol.1991;4:4755.
3. Naidich TP., Pinto RS., et al: "Evaluation of sellar and parasellar masses by computed tomography". Radiology,1976: 120; 91-99.
4. Gardeur D., Naidich TP., et al: "CT analysis of intrasellar pituitary adenomas with emphasis on patterns of contrast enhancement". Neuroradiology. 1981: 20; 241-47.
5. Guy RL., Benn JJ., Ayers AB., et al: "Comparison of CT and MRI in the assessment of pituitary and parasellar region". Clin Radiol.1991:43;156-61.
6. Miller JH., Pena AM: "Radiological investigation of sellar region masses in children". Radiology, 134; 81-87: 1980.
7. Elster, AD. Imaging of the sella: Anatomy and pathology. Semin US CT MRI. 1993;14:182194.
8. Savoiarda M., et al: "Gliomas of the intracranial anterior optic nerve pathways in children". Radioogy,1981: 138; 601-10.
9. Byrd SE, Harwood-Nash DC, Fitz CR , Barry JF, Rogovitz OM .Computed tomography of intraorbital optic nerve gliomas in children. Radiology 1978;129:73-8.







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