Letter to Editor

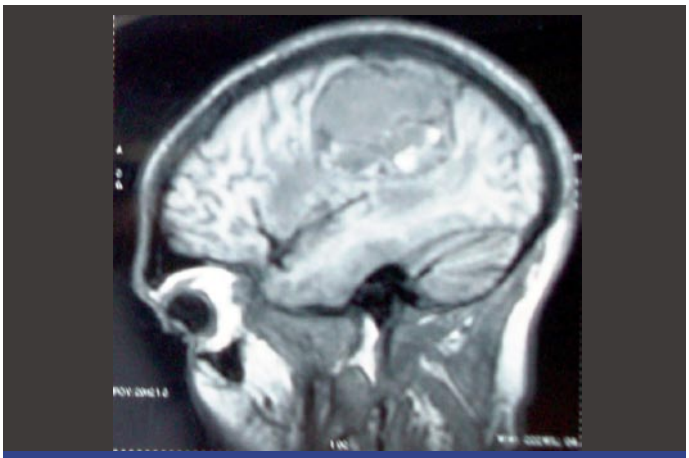
Intraparenchymal Choroid Plexus Papilloma : Can Trauma be an etiological factor?

RUMPA DAS, USHA DUBEY, ASHA AGARWAL, CHAYANIKA PANTOLA

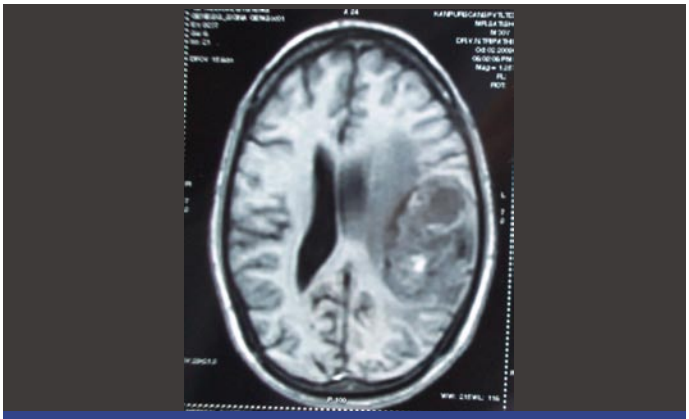
Sir

Choroid plexus papilloma (CPP) is a rare, benign, intracranial tumour of neuroectodermal origin, arising from the epithelium of the choroid plexus and it accounts for 0.4 to 0.6% of all the brain tumours [1]. Most of the tumours appear in early childhood, with a lateral, ventriclular predilection. Adult cases are common in the fourth ventricle. 50% of the tumour cases involve the lateral ventricle, 5% cases involve the third ventricle and 40% cases involve the fourth ventricle [2]. The rest of the 5% cases involve two or three ventricles as a multifocal involvement. Intraparenchymal presentation is extremely rare and it is thought to be due to the presence of ectopic choroid plexus tissue.

We present a case of 30 year old man with complaints of worsening headache and hemiparesis for 3 months and a previous history of head injury by a sharp penetrating object, 6 months back. CT scan showed a left temporo-parietal, mixed, attenuating, space occupying lesion (SOL) which was diagnosed as glioma. MRI showed a left temporo-parietal SOL with multiple cystic components. The lesion was hypointense on T1 and hyperintense on T2 weighted images and it was diagnosed as an astrocytoma [Table/Fig 1 and Table/Fig 2].



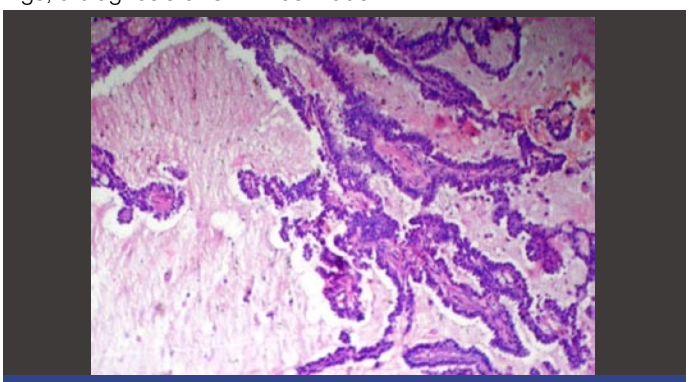
[Table/Fig 1]: MRI image T1(sagital view) showing intraparenchymal SOL.



[Table/Fig 2]: MRI image T1(axial view) showing intraparenchymal SOL.

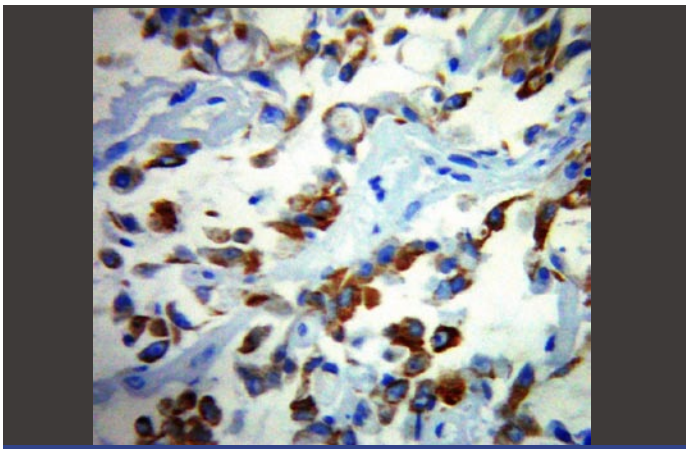
Grossly, the tissue measured 1.5x1.5 cm and it was composed of multiple, grayish-brown tissue fragments. The tissue was processed completely and its paraffin sections were stained with Hematoxylin and Eosin.

The microscopic examination of the tissue showed delicate, branching, papillomatous,fibrovascular fronds which were lined by single, layered, uniform, columnar epithelial cells. The stroma was mucinous and nonfibrillary and it was infiltrated by foamy macrophages [Table/Fig 3]. Depending on the above histological findings, a diagnosis of CPP was made.



[Table/Fig 3]: Photomicrograph showing papillary fronds(H&E, x100).

The immunohistochemical examination of the tissue showed a positivity for CK 7(Fig-4), thus confirming the diagnosis of CPP.



[Table/Fig 4]: Photomicrograph showing CK 7 positivity(CK7 immunostain, x400).

CPP is a rare, slow growing, benign (WHO grade 1) neoplasm. Intraparenchymal CPPs are extremely rare and these are thought to arise from the ectopic choroid plexus in the brain parenchyma. CPPs usually present with the features of raised intracranial pressure, like headache, vomiting and visual disturbances. The symptoms which are associated with intraparenchymal tumours are dependent on the site of the tumour.

The preferred imaging studies of CPPs include CT scan, MRI and angiography. On CT scan, CPPs appear as lobulated, isodense or hyperdense lesions. Areas of calcification can also be seen [3]. CPPs appear hypointense or isointense on T1 and hyperintense on T2 weighted MR images.

Grossly, CPPs are pink to reddish brown, globular, soft masses [3]. Histologically, the tumour is composed of complex papillae which are lined by uniform columnar epithelium, with basally located round to oval vesicular nuclei. The stroma is nonfibrillary and can be mucinous and infiltrated by foamy macrophages. Immunohistochemically, CPPs are reactive for CAM 5.2, CK 7 [4] and transthyretin. Some CPPs express GFAP (focally) and synaptophysin.

The differential diagnosis includes:

1. **The papillary variant of an ependymoma-** this has a multilayered cellular arrangement, nuclear moulding and fibrillary stroma. Immunohistochemically, it is positive for S-100, Vimentin and GFAP and negative for CK 7, CAM 5.2 and transthyretin.
2. **Choroid plexus carcinoma-** this occurs in infants, but has other features of malignancy.
3. **Papillary meningioma -** this is solid and it lacks mucin production with whorls.
4. **Villous hypertrophy of the choroid plexus-** this has a normal histological appearance.
5. **Metastatic tumours -** papillary variants of thyroid carcinoma and renal cell carcinoma.

Our patient presented with a history of head injury due to a sharp penetrating object. The tumour may have arisen from the choroid plexus of lateral ventricle, entrapped into the brain parenchyma due to penetrating injury. We did not found any report in the literature which mentioned trauma as an aetiological factor for intraparenchymal choroid plexus papilloma.

Though the radiological features of the tumour overlap, certain distinctive histologicalfeatures and immunohistochemistry can help to arrive at a diagnosis.

REFERENCES:

[1] Omar Islam,Tariq A Butt. Choroid plexus papilloma. eMedicine updated 2008 sep 23;779.
[2] Pant I, Chaturvedi S, Suri V, Dua R. Choroid plexus papilloma with cytological differential diagnosis- A case report. Journal of cytology 2007 ;24(2):89-91.
[3] Jaiswal AK, Jaiswal S, Sahu RN, Das KB, Jain VK, Behari S. Choroid plexus papilloma in children: Diagnostic and surgical considerations. J Pediatr Neurosci 2009 ;4:10-6.
[4] Kymberly AG, Alan LM. Cytokeratin 7 and 20 Expression in Choroid Plexus Tumors: Utility in Differentiating These Neoplasms from Metastatic Carcinomas.Mod Pathol 2000 ;13(6):638–6.

AUTHORS:

1. Dr. Rumpa Das
2. Dr. Usha Dubey
3. Dr. Asha Agarwal
4. Dr. Chayanika Pantola

NAME OF DEPARTMENT(S) / INSTITUTION(S) TO WHICH THE WORK IS ATTRIBUTED:

Dept of pathology, G S V M Medical college, Kanpur.

NAME, ADDRESS, PHONE, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Rumpa Das, Dept of pathology, GSVM Medical college, Kanpur.
Email: rumpadas@ymail.com, Phone: 08756860132

DECLARATION ON COMPETING INTERESTS: No competing Interests

Date of Submission: **Jan 29, 2011**
Peer Review Completion: **Mar 23, 2011**
Date of Acceptance: **Mar 23, 2011**
Date of Publication: **Apr 11, 2011**