

Intraventricular Tuberculoma

Intraventricular [tuberculoma](#) is a nosological entity rarely described in the literature.

Certainly exceptional, ventricular involvement in the tuberculous process (future tuberculoma) come probably from hematogenous spread that occurs as [choroid plexus](#) inflammation characterized by a covering of gelatinous exudates, ependymitis and asymmetric hydrocephalus secondary to intraventricular adhesions or septae formation ^{1) 2) 3) 4)}.

Tubercles have been found within the choroid plexus, but well-developed intraventricular tuberculoma are extremely rare, probably due to the special immunity of the ventricles to infections ⁵⁾.

Differential diagnosis

[Intracranial tuberculoma](#) limited to the [ventricular system](#) are uncommon. It is difficult to make a differential diagnosis from other lesions if no systemic tuberculosis is present.

Case series

2016

Nineteen patients with ventricular system tuberculosis.

There were 13 males and 6 females, aged from 15-81 years(mean 37 ± 16). Eight patients had intraventricular tuberculosis, with 5 long striped or irregular shaped intraventricular tuberculosis and 3 with ventricular tuberculoma. Six patients had tubercular ependymitis and 5 had intraventricular tuberculosis along with tubercular ependymitis. The lesions of 14 patients were in the lateral ventricle; 13 in occipital or temporal horn of lateral ventricle, 9 complicated by tubercular meningitis, and 10 complicated by brain tuberculoma. The lesion of 5 patients were in the fourth ventricle, 5 in the postmedian of the fourth ventricle, 5 complicated by tubercular meningitis and 4 complicated by hydrocephalus. There were 4 cases with ring-enhancement and 15 with heterogeneous enhancement. Ten cases were complicated by peripheral edema.

The diagnosis of ventricle system tuberculosis is difficult due to its low incidence. The site, cranial MRI characteristics, the patterns of enhancement and complications have certain specificity and are useful in the diagnosis of ventricular system tuberculosis ⁶⁾.

Ten patients (6 men, 4 women; average age, 39 years) were diagnosed with ventricular tuberculosis during a period of 3 years. Four patients had the history of pulmonary/pleural tuberculosis. The clinical and MRI features of these patients were reviewed retrospectively.

On a brain MRI, three patients showed ependymitis associated with contrast enhancement of the ependymal lining of the ventricular walls. One patient had choroid plexitis associated with prominent swollen and marked enhancement of the choroid plexus. One patient had intraventricular tuberculoma associated with an intraventricular nodule. Two patients had both ependymitis and

choroid plexitis. Three patients had both intraventricular tuberculoma and choroid plexitis. Four patients had hydrocephalus. All patients underwent intrathecal injection of isoniazid and dexamethasone combined with multidrug anti-tuberculosis treatment. All patients had a good clinical recovery, except for one who developed hemi-paralysis due to cerebral infarction. On the repeated MRI of eight patients after therapy, all lesions disappeared or decreased in size, apart from in one patient who showed ventricular separation.

MRI characteristics of ventricular tuberculosis included ependymal enhancement, swelling, and enhancement of the choroid plexus and intraventricular tuberculomas. Intrathecal injection of isoniazid and dexamethasone along with multidrug chemotherapy showed good efficacy in ventricular tuberculosis ⁷⁾.

2014

Five patients (four males and one female) of tubercular ventriculitis were retrospectively identified from December 2007 to August 2013. Their clinical features, cranial MRI characteristics, treatment offered, and outcome were reviewed.

The median age of 5 patients was 29 years (range 15 to 64 years). Two patients had preceding pulmonary/pleural tuberculosis and one had Pott's spine. One patient had multi-drug resistant tuberculosis. All five patients had papilledema, four had seizures, two had hemiparesis, and two had vision loss. On cranial MRI all patients showed contrast enhancement of ependymal wall of lateral/fourth ventricle with restricted diffusion and hydrocephalus; three showed intra-ventricular septations with sequestered ventricles, and two had ventricular sludge. Magnetization transfer (MT) images were available in only two patients. Both showed hyperintense ependymal wall on MT images. Four patients required ventriculo-peritoneal shunt and two underwent temporal lobectomy. Two patients with sequestered temporal lobe had acute deterioration in consciousness with signs of impending herniation and required urgent surgical intervention. Four patients recovered on anti-tubercular treatment over 18 months; one receiving secondary line ATT for residual brain abscess.

Tubercular ventriculitis is a rare complication of tubercular meningitis. MRI feature of sequestered ventricles/intraventricular septations and hyperintense ependymal wall on MT images could suggest tubercular etiology. Symptomatic hydrocephalus may require CSF diversion in most patients ⁸⁾.

Case reports

2016

Sachdeva et al., report a case of tuberculoma at the foramen of Monro in a 7-year-old child and review the literature in terms of diagnostic dilemma ⁹⁾.

2014

A 13-year-old immuno-competent boy who presented with features of raised intracranial pressure with altered sensorium. Computed Tomography showed a ring enhancing intraventricular lesion with obstructive hydrocephalus. Gross total resection of the lesion was achieved and diagnosis was confirmed histologically. The patient had medical complications in the postoperative period and

succumbs five days after the surgery. This report presents the unusual location of a common disease with a review of its clinical, radiological and histopathological features as well as the treatment modalities available ¹⁰⁾.

A 27-year-old nursing professional who was undergoing treatment for miliary tuberculosis presented with right hemiparesis, deteriorating vision, and progressive decline in consciousness. In addition to antituberculous therapy (ATT), she underwent multiple CSF diversion procedures for the obstructive hydrocephalus secondary to a recalcitrant third ventricular tuberculoma. Finally, she underwent endoscopic decompression of the lesion with a very good clinical response at 1-year follow-up. Discussion. We discuss a patient with recalcitrant intraventricular tuberculoma managed using neuroendoscopy along with the standard antituberculous therapy. We also discuss in detail the technique we utilized for endoscopic management of this lesion. Conclusion. Being a rare entity, a consensus for management of these lesions is not possible, but we have demonstrated that neuroendoscopic management of these rare entities is an option giving the advantage of definitive diagnosis when required, hastening the resolution, and clearing the CSF pathway ¹¹⁾.

2013

N'da et al., report a case of third ventricle solitary Tuberculoma which has occurred in a 10 year old patient and revealed by a syndrome of intracranial hypertension without tuberculosis stigma. This lesion appears clinically and radiologically as a primary brain tumor. A total removal using a subchoroidal approach to the third ventricle has been performed. Histological examination showed a tuberculous like granuloma. An adjuvant antituberculous chemotherapy practiced for 6 months brought the complete cure. The authors insist on the diagnostic and therapeutic difficulties in front of a third ventricle solitary tuberculoma ¹²⁾.

2011

A 43-year-old male presented with 3-month history of low-grade fever and headache. Radiological investigations revealed unilateral hydrocephalus. Unilateral obstruction of the foramen of Monro due to chronic tubercular ependymal inflammation was suspected and endoscopic septostomy was planned. Though ventriculo-peritoneal shunt is a simple method to treat hydrocephalus, complications related to this procedure are numerous. Neuroendoscopy is a safe method to treat hydrocephalus in selected cases, and also provides access to biopsy the lesion in question. An isolated tuberculoma obstructing the foramen of Monro was seen during endoscopy. Presentation and management of this unusual tuberculoma is reported along with a review of the pertinent literature ¹³⁾.

2004

A 19-year-old female patient with an initial clinical symptom of progressive headache. Cranial computed tomography revealed a strongly enhanced lesion in the lateral ventricle. Histopathology of the tumor demonstrated chronic inflammation, caseous necrosis, epithelioid cells and Langhans' giant cell. The culture study grew M. Tuberculosis. Solitary intraventricular tuberculoma in adults is extremely rare. Medical treatment is the preferred management method of this disease, and surgical intervention should be considered in certain situations ¹⁴⁾.

2002

A 38-year-old female presented with headaches, fever, and malaise. Computed tomography showed an intraventricular peripheral ring-enhanced lesion with central necrosis. The lesion was totally excised. Histological examination revealed a tuberculoma. The patient was treated with antituberculous chemotherapy. The patient was asymptomatic at 9 months. Ventricular involvement in neurotuberculosis is rare, but should be considered in the presence of other indicators of tuberculous infection ¹⁵⁾.

1)

Bhargava, S., Gupta, A.K. and Tandon, P.N. (1982) Tuberculous meningitis: A CT study. *British Journal of Radiology*, 55, 189-196.

2)

Berthier, M., Sierra, J. and Leiguarda, R. (1987) Intraventriculartuberculoma : Report of four cases in children. *Neuroradiology*, 29, 163-167. doi:10.1007/BF00327542

3)

Desgeorges, M., Tranier, J., Mercier, P., Masselot, A. and Gendron, Y. (1977) Intraventricular cerebral tuberculoma: A propos of a case. *Annals of Internal Medicine (Paris)*, 128, 541-544.

4)

Vajramani, G., Devi, B.I., Hegde, T., Santosh, V., Khanna, N. and Vasudev, M.K. (1999) Intraventricular tuberculous abscess: A case report. *Neurology India*, 47, 327-329.

5) ¹⁵⁾

Desai K, Nadkarni T, Bhatjiwale M, Goel A. Intraventricular tuberculoma. *Neurol Med Chir (Tokyo)*. 2002 Nov;42(11):501-3. PubMed PMID: 12472215.

6)

Mao HX, Zhu HY, Wang YL, Yang Y, You XF, Sun XW. [MRI features of ventricular system tuberculosis]. *Zhonghua Jie He He Hu Xi Za Zhi*. 2016 Sep;39(9):719-22. doi: 10.3760/cma.j.issn.1001-0939.2016.09.012. Chinese. PubMed PMID: 27600423.

7)

Li D, Lv P, Lv Y, Ma D, Yang J. Magnetic resonance imaging characteristics and treatment aspects of ventricular tuberculosis in adult patients. *Acta Radiol*. 2016 Mar 2. pii: 0284185116633913. [Epub ahead of print] PubMed PMID: 26936900.

8)

Singh P, Paliwal VK, Neyaz Z, Srivastava AK, Verma R, Mohan S. Clinical and magnetic resonance imaging characteristics of tubercular ventriculitis: an under-recognized complication of tubercular meningitis. *J Neurol Sci*. 2014 Jul 15;342(1-2):137-40. doi: 10.1016/j.jns.2014.05.007. PubMed PMID: 24863006.

9)

Sachdeva D, Bishnoi I, Jagetia A, Rathore L, Agarwal A, Batra V, Kaur A. Intraventricular Tuberculoma in a Child: A Rare Location. *Pediatr Neurosurg*. 2016 Dec 3. [Epub ahead of print] PubMed PMID: 27915334.

10)

Sharma M, Velho V, Kharosekar H. A rare case of an isolated intraventricular tuberculoma with a dismal outcome: an unusual location of a common pathology and lessons learnt. *Indian J Tuberc*. 2014 Apr;61(2):166-70. PubMed PMID: 25509942.

11)

Udayakumaran S, Nair P, Kumar A, Panikar D. Role of endoscopy in recalcitrant intraventricular tuberculoma-innovative novel treatment adjunct. *Br J Neurosurg*. 2014 Sep 15:1-5. [Epub ahead of print] PubMed PMID: 25222506.

12)

N'da HA, Haidara A, Drogba L, Derou LK, Yao SK, Ba Zézé V. A rare third ventricle solitary tuberculoma. *Pan Afr Med J*. 2013 Sep 4;16:5. doi: 10.11604/pamj.2013.16.5.2815. PubMed PMID: 24570776; PubMed Central PMCID: PMC3926763.

¹³⁾

Singh DK, Rastogi M, Sharma A, Husain M. Unilateral hydrocephalus: atypical presentation of intracranial tuberculoma. Turk Neurosurg. 2011;21(2):242-5. doi: 10.5137/1019-5149.JTN.2766-09.1. PubMed PMID: 21534211.

¹⁴⁾

Hsu PW, Lin TK, Chang CN. Solitary intraventricular tuberculoma in adults. Acta Neurochir (Wien). 2004 Oct;146(10):1151-3; discussion 1153-4. PubMed PMID: 15744852.

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