

Ruptured Intracranial Lipoma—A Fatty Outburst in the Brain

Vinod Chaubey, MD; Ganesh Kulkarni, MD; Lovely Chhabra, MD

Perm J 2015 Spring;19(2):e103-e104

<http://dx.doi.org/10.7812/TPP/14-130>

ABSTRACT

Intracranial lipomas are rare congenital lesions that occur because of abnormal differentiation of embryogenic meninges. These lipomas are usually seen incidentally on brain imaging performed for another reason, and they are usually asymptomatic and do not require treatment. We present a case of ruptured intracranial lipoma, discovered in an elderly patient presenting with dizziness and after falling.

CASE STUDY

A 94-year-old man presented after 2 falls during a 1-week period. Each fall was preceded by dizziness. The patient denied any loss of consciousness, abnormal body movements, headache, tinnitus, diplopia, palpitations, or chest pain. His medical history was significant for hypertension and chronic kidney disease. On examination, his vitals were within normal limits, including orthostatic blood pressure response. The oral mucosa was dry. Chest, cardiovascular, and abdominal examinations were unremarkable. Neurologic examination showed lethargy and absence of focal weakness/numbness or nystagmus. Laboratory testing, including hemogram and basic metabolic panel, was unremarkable except for evidence of acute kidney injury (creatinine, 2.2 mg/dL; baseline, 1.5 mg/dL). A computed tomography (CT) scan of the brain without contrast revealed numerous foci of likely fat deposits, estimated by densitometry (-13 Hounsfield units), within the suprasellar cistern, ambient cisterns, left cerebellar subarachnoid space, and left temporal horns. This finding was confirmed by noncontrast magnetic resonance imaging of the brain, which showed bright spots on T1-weighted imaging and low signal intensity on fat saturation imaging in similar locations as previously noted on the CT scan (Figure 1). A review of a brain CT scan performed 2 years earlier was suggestive of a lipoma in the suprasellar region (Figure 2). Intravenous hydration with normal saline was given for mild dehydration, and this also resolved the acute kidney injury. Physical therapy was initiated. The patient's dizziness improved significantly in 48 hours, and he was discharged with close neurology follow-up. To our knowledge, this is the first reported case of ruptured intracranial lipoma.

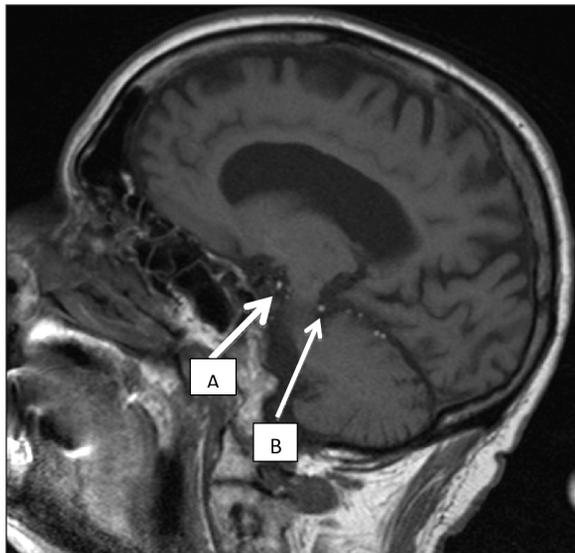


Figure 1. Magnetic resonance imaging of the brain showing bright spots on T1-weighted images in the suprasellar cistern (A), ambient cisterns (B), left cerebellar subarachnoid space, and left temporal horns.



Figure 2. Computed tomography scan of the brain suggestive of lipoma in the suprasellar cistern. The dashed arrow indicates an intracranial lesion (determined by negative Hounsfield units).

Vinod Chaubey, MD, is an Internal Medicine Resident at Saint Vincent Hospital in Worcester, MA. E-mail: azygus@gmail.com. Ganesh Kulkarni, MD, is an Internal Medicine Resident at Saint Vincent Hospital in Worcester, MA. E-mail: drgakulkarni@gmail.com. Lovely Chhabra, MD, is a Cardiovascular Medicine Fellow at Hartford Hospital in Hartford, CT. E-mail: lovids@hotmail.com.

DISCUSSION

Intracranial lipomas are usually discovered in asymptomatic patients as an incidental finding on neuroimaging or during postmortem examination. They are considered rare tumors with incidence estimated at 0.06%-0.46% of all intracranial tumors.¹ Intracranial lipomas are congenital malformations resulting from abnormal persistence and maldifferentiation of the meninx primitiva during the development of the subarachnoid cisterns.² Approximately 45% of intracranial lipomas occur in the pericallosal region, making it the most common location, followed by the quadrigeminal cistern (25% of occurrences) and suprasellar cistern areas (15% of occurrences).^{3,4} The clinical manifestations of lipomas are nonspecific and depend on lipoma location. Epilepsy is the most common symptom in supratentorial lipomas and occurs in about 50% of cases of callosal lipomas.⁵ Intracranial lipomas located near the brainstem may cause ataxia, hydrocephalus, gaze palsies, and trochlear nerve paralysis. In the pediatric population, they are associated with nonspecific neurologic complaints: headache, dizziness, seizures, or global psychomotor delay, which affects language and gross psychomotor skills.⁶ Intracranial lipomas have a characteristic appearance on unenhanced CT scans, with low attenuation. Calcifications are often present in interhemispheric lipomas, most commonly within a fibrous capsule surrounding the lipoma. On magnetic resonance imaging, intracranial lipomas present with a high signal on T1-weighted images and intermediate/low signal on T2-weighted spin-echo sequences.^{6,7} Intracranial lipomas

are managed conservatively, as with our patient.⁸ Attempts at resection are associated with high mortality.⁹

Our patient presented with nonspecific dizziness and associated falls. It is unclear what caused these symptoms, as well as whether the dizziness and falls were the cause or the result of the ruptured intracranial lipoma. Lipomatous density/signal spots were seen in the suprasellar region and superior cerebellar surface. We theorize that these spots resulted from the rupture of the lipoma seeding the subarachnoid space. It is prudent to be cognizant of the fact that ruptured lipomas can be seen on imaging for fall and dizziness evaluation. The diagnosis of intracranial lipoma can be made confidently with magnetic resonance imaging, with 100% specificity.¹⁰ ❖

Disclosure Statement

The author(s) have no conflicts of interest to disclose.

References

1. Truwit CL, Barkovich AJ. Pathogenesis of intracranial lipoma: an MR study in 42 patients. *AJNR Am J Neuroradiol* 1990 Jul-Aug;11(4):665-74.
2. Wallace D. Lipoma of the corpus callosum. *J Neurol Neurosurg Psychiatry* 1976 Dec;39(12):1179-85. DOI: <http://dx.doi.org/10.1136/jnnp.39.12.1179>.
3. Gómez-Gosálvez FA, Menor-Serrano F, Téllez de Meneses-Lorenzo M, et al. [Intracranial lipomas in paediatrics: a retrospective study of 20 patients]. [Article in Spanish]. *Rev Neurol* 2003 Sep 16-30;37(6):515-21.
4. Fandiño J, Bermúdez J, Arán E. [Quadrigeminal cistern and calcarine fissure lipoma: case report and review of the literature]. [Article in Spanish]. *Neurocirugía (Astur)* 2005 Apr;16(2):173-6. DOI: [http://dx.doi.org/10.1016/S1130-1473\(05\)70424-3](http://dx.doi.org/10.1016/S1130-1473(05)70424-3).
5. Gastaut H, Regis H, Gastaut JL, Yermenos E, Low MD. Lipomas of the corpus callosum and epilepsy. *Neurology* 1980 Feb;30(2):132-8. DOI: <http://dx.doi.org/10.1212/WNL.30.2.132>.
6. Loddenkemper T, Morris HH 3rd, Diehl B, Lachhwani DK. Intracranial lipomas and epilepsy. *J Neurol* 2006 May;253(5):590-3. DOI: <http://dx.doi.org/10.1007/s00415-006-0065-7>.
7. Ichikawa T, Kumazaki T, Mizumura S, Kijima T, Motohashi S, Gocho G. Intracranial lipomas: demonstration by computed tomography and magnetic resonance imaging. *J Nippon Med Sch* 2000 Oct;67(5):388-91. DOI: <http://dx.doi.org/10.1272/jnms.67.388>.
8. Eghwudjakpor PO, Kurisaka M, Fukuoka M, Mori K. Intracranial lipomas: current perspectives in their diagnosis and treatment. *Br J Neurosurg* 1992;6(2):139-44. DOI: <http://dx.doi.org/10.3109/02688699209002916>.
9. Maiuri F, Cirillo S, Simonetti L, De Simone MR, Gangemi M. Intracranial lipomas. Diagnostic and therapeutic considerations. *J Neurosurg Sci* 1988 Oct-Dec;32(4):161-7.
10. Gaskin CM, Helms CA. Lipomas, lipoma variants, and well-differentiated liposarcomas (atypical lipomas): results of MRI evaluations of 126 consecutive fatty masses. *AJR Am J Roentgenol* 2004 Mar;182(3):733-9. DOI: <http://dx.doi.org/10.2214/ajr.182.3.1820733>.

Key Points

1. Intracranial lipomas are mostly congenital and form because of an abnormal differentiation of the meninx primitiva.
2. The clinical manifestations of lipomas are nonspecific and depend on their location. Epilepsy is the most common symptom of supratentorial lipomas and occurs in about 50% of cases of callosal lipomas.
3. Intracranial lipomas are often managed conservatively, and attempts at resection are associated with high mortality.