

# Ruptured sylvian fissure dermoid presenting with MCA infarction : a rare case report

S Sethi, S Aneja, R Sangal

## Citation

S Sethi, S Aneja, R Sangal. *Ruptured sylvian fissure dermoid presenting with MCA infarction : a rare case report*. The Internet Journal of Radiology. 2009 Volume 12 Number 1.

## Abstract

Intracranial dermoids are rare tumours of congenital origin accounting for less than 1% of all intracranial tumours. Rarely these tumours may rupture. We report the case of a 23yr old male presenting with headache and right sided weakness, revealing a sylvian fissure dermoid cyst with left MCA infarct. To our knowledge, this is the second case of ruptured dermoid cyst in sylvian fissure with the first case reported by Shinoyama M et al.

## INTRODUCTION

Dermoid cysts are ectodermal inclusion cysts. Intracranial dermoid cysts are rare, accounting for 0.04% to 0.06% of all intracranial tumours<sup>1</sup>. They typically occur in or near midline. Following rupture, dermoid contents disseminate widely throughout subarachnoid space and ventricles. Cyst rupture can result in chemical meningitis, seizure, vasospasm with infarction and even death.

## CASE HISTORY

A 23 yr old man was admitted to our department after developing a headache and right sided weakness. There was no history of vision loss, aphasia, fever, nausea, vomiting and seizures. Computed tomography (CT) scan demonstrated a well delineated, uniformly hypodense mass of fat density with capsular calcification (Figure 1). Multiple low density masses are also seen in subarachnoid space and cerebral sulci (Figure 2).

### Figure 1

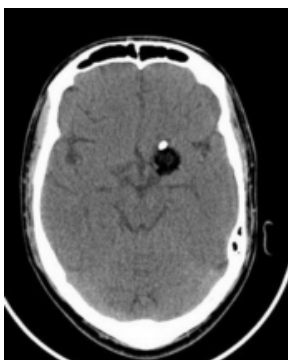
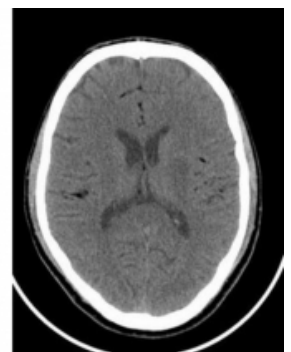
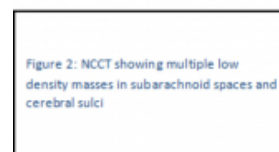


Figure 1: Non-contrast CT scan showing well defined hypodense mass of fat density with capsular calcification

### Figure 2



T1 weighted magnetic resonance imaging (MRI) revealed a mixed intensity non-homogenous mass in left sylvian fissure. The mass showed hypointense component along with lipid hyperintense component (Figure 3). There were multiple small T1 hyperintense lesions in subarachnoid space and cerebral sulci suggesting fat deposits (Figure 4). On diffusion weighted MR image left MCA territory infarction was noted (Figure 5).

**Figure 3**

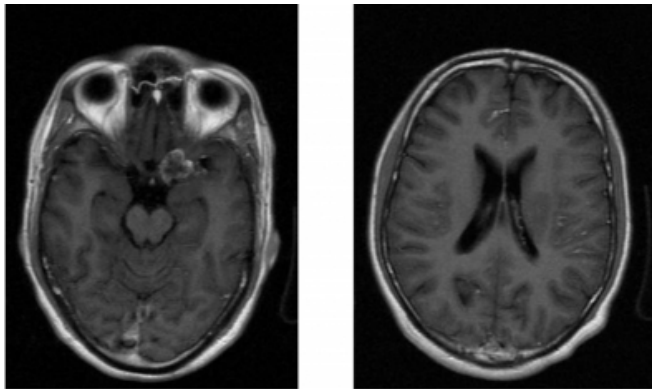


Figure 3 & 4: T1 weighted MR images showing mixed intensity, well-defined non-homogenous mass in left sylvian fissure with multiple small T1 hyperintense lesions in subarachnoid spaces and cerebral sulci.

On the basis of clinical presentation and the radiological images, a diagnosis of ruptured sylvian fissure dermoid cyst with left MCA territory infarct was made.

**Figure 4**

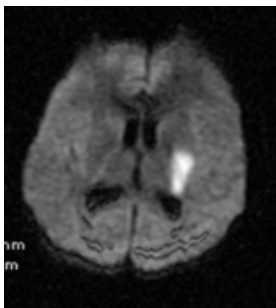


Figure 5: Diffusion-weighted MR showing left MCA territory infarct

## DISCUSSION

Intracranial dermoids are uncommon and originate from ectodermal inclusions<sup>1</sup>. They are usually found in midline in contrast to epidermoids. Common intracranial locations are parasellar, frontobasal region and the posterior fossa. Patients with dermoid cyst are mostly asymptomatic or present with headache, seizures or signs of compression of neighbouring tissues<sup>7</sup>. Rupture of these cysts can disperse the fatty contents into the subarachnoid space and find itself in any of the cisterns and ventricles. Most often the rupture is spontaneous though in certain instances, trauma<sup>2</sup> such as closed head injury<sup>7</sup> has been implicated. Clinical manifestations in ruptured dermoid are very diverse. These include seizures<sup>8</sup>, aseptic meningitis<sup>4</sup>, transient cerebral ischemia as a result of vasospasm<sup>9</sup> and even olfactory delusion. Rarely intraventricular fat leads to rapidly developing hydrocephalus due to granuloma in the aqueduct<sup>11</sup>. CT findings are represented by the fat droplets in

the subarachnoid spaces or a fat-fluid level within the ventricles. This is usually associated with an extra-axial or combined extra and intra-axial soft tissue mass representing the dermoid. On MRI, the fat can be seen dispersed as strongly hyperintense signals of T1 weighted image while the other tumour contents appear hypointense. On T2 weighted, the fat component turns slightly hypointense similar to subcutaneous fat<sup>4</sup>. Characteristically, the tumor is often non-homogenous due to its mixed composition. While both CT and MRI are sensitive, MR has some distinct advantages. In addition to allowing multiplanar imaging, the exact extent of the mass and its relation to the skull base can be more easily evaluated because of the lack of bone artefacts. Lastly, the capability of MRI to evaluate the associated vessel displacement and mass effect on adjacent structures makes it the preferred technique.

In conclusion, ruptured intracranial dermoid cyst is a relatively uncommon cause of infarction and is fully diagnosable by radiology imaging. Prognosis of patients diagnosed with intracranial dermoids depends on the spread of the contents and time-period after rupture. Mortality as well as morbidity from complications such as chemical arachnoiditis and infarction can be dealt with and reduced significantly if imaging is done early in these patients.

## References

1. Osborn A: Diagnostic Neuroradiology, Mosby, 1994.
2. Phillips WE, Martinez CR, Cahill DW. Ruptured intracranial dermoid tumour secondary to closed head trauma. Computed tomography and magnetic resonance imaging. *J Neuroimaging* 1994; 4:160-170.
3. Grijseels S, Stadnik T, Bauwens L. CT and MR findings in ruptured dermoid cyst in the right parasellar cistern: report of a case. *J Belge Radiol* 1992; 75:41-3.
4. Wilms G, Casselman J, Demarel P. CT and MRI of ruptured intracranial dermoids. *Neuroradiology* 1991; 33:149-151.
5. Smith AS, Benson JE, Blaser SI. Diagnosis of ruptured intracranial dermoid cyst. value MR over CT. *Am J Neuroradiol* 1991; 12:175-180.
6. Martin J, Davis L. Intracranial dermoid and epidermoid tumours. *Arch Neurol Psychol* 1943; 49:56-70.
7. Miller NR, Epstein MH. Giant intracranial dermoid cysts: case report and review of literature on intracranial dermoids and epidermoids. *Can J Neurol Sci* 1975; 2:127-135.
8. Van der Graff M, Davies G. Status epilepticus due to a ruptured dermoid cyst. *J Neurol Neurosurg Psychiatry* 1997; 62:222.
9. Ford K, Drayer B, Osborne D. Case report. Transient cerebral ischemia as a manifestation of ruptured intracranial dermoid cyst. *J Comput Assist Tomogr* 1981; 5:895-897.
10. Takeuchi H, Kuboto T, Kabuto M. Ruptured suprasellar dermoid cyst presenting of factory delusion (Eigengeruchs erlebnis). *Neurosurgery* 1993; 33:97-99.
11. Martin R, Krone A, Schuknecht B. rapid development of occlusion hydrocephalus by intraventricular fat possible derived from a ruptured dermoid cyst. *J Neurol Neurosurg*

Psychiatry 1989; 52:134-135.

12. Shinoyama M; Kajiwara K; Harada K; Ideguchi M;

Akimura T; Nishizaki T; Suzuki M. A case of a ruptured dermoid cyst in the sylvian fissure. Neurological surgery 2002; 30(11):1197-1201.

**Author Information**

**Sumer Sethi, MD**

Sr Consultant Radiologist, VIMHANS. Director & Founder, Prime Telerad Providers Pvt Ltd

**Sangeeta Aneja, MD**

Associate Professor & Head, Department of Radiodiagnosis, L.L.R.M. Medical College, Meerut

**Rishu Sangal**

Junior Resident, Department of Radiodiagnosis