Ruptured Intraventricular Dermoid Cyst
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Patient: 30 years, male

Clinical History:
A 30 year old man presented with a history of worsening headache and vertigo since 3-days. He had 3 episodes of projectile vomiting in last 24 hours. Clinical examination revealed papilledema. No cranial nerve deficit was detected. Routine blood investigations were within normal limits.

Imaging Findings:
MRI showed a large well-circumscribed intraventricular mass, centred in the anterior third ventricle. The lesion was hyperintense on T1-weighted and T2-weighted FLAIR MR-images. Upstream ventriculomegaly was seen suggesting obstructive hydrocephalus. Presence of intraventricular fat/CSF level was observed in the left frontal horn, with the upper level being hyperintense on T1-weighted images. This upper level showed complete suppression on the fat saturated T1-weighted MR images together with complete suppression of the third ventricular lesion. These MR findings were consistent with a ruptured intra-ventricular dermoid cyst. A colloid cyst, which is the most frequent cyst lesion in this location, may also be hyperintense on T1-weighted images. However they exhibit no signal suppression on the fat saturated images. The patient underwent near total excision of the intraventricular lesion and histopathology was consistent with an intracranial dermoid cyst.

Discussion:
Intracranial dermoid tumours are not true neoplasms but slow-growing, benign inclusion cysts composed of ectodermal elements. They are uncommon lesions accounting for approximately 0.3% of all brain tumors and occur less frequently than epidermoid tumors. Both dermoid and epidermoid cysts result from ectodermal inclusions, however cyst lining in dermoids unlike epidermoids further differentiates to include dermal appendages such as hair follicles, sebaceous glands, and sweat glands. Dermoid cysts have liquid cholesterol whereas epidermoids contain solid crystalline cholesterol and classically dermoid tumours are thought to be midline cysts, while, epidermoid are considered to be “off-midline” tumours. Dermoid cysts are frequently infratentorial, usually seen in the midline. Supratentorial dermoid cysts are distinctly uncommon, often seen near the skull base. Rarely, they originate from suprasellar and parasellar regions, sylvian fissure, cavernous sinus and pineal gland. Intra-ventricular dermoid cysts are highly uncommon and occur most frequently in the fourth ventricle. The occurrence of dermoid in the third ventricle is extremely rare with very few reports available in the medical literature. A colloid cyst, which is the most frequent cyst lesion in this location, may be mistaken for a dermoid cyst. However it exhibits no signal suppression on the fat saturated images.

Unruptured dermoid cyst owing to their slow growth and their tendency to expand the subarachnoid spaces often
remain asymptomatic. Rupture of a dermoid cyst with spillage of its contents into a subarachnoid space or ventricles is relatively rare. It is a potentially serious complication that can lead to meningitis, seizures, cerebral vasospasm and hydrocephalus. Rupture frequently occurs spontaneously, but it may follow head trauma. The typical clinical picture is one of severe aseptic or chemical meningitis but asymptomatic rupture has also been described. Headache is often the presenting feature of ruptured intracranial dermoid. Magnetic resonance imaging is the preferred imaging procedure because of its high spatial resolution and multiplanar imaging capabilities. The fat component, which is characteristic of dermoid cysts, is well demonstrated with MRI. Dissemination of fat droplets into the subarachnoid space and ventricles suggest rupture of the dermoid cyst. Because the fat has a lower specific gravity, it floats on top of the CSF within the ventricle. Similar findings can also be well visualized on CT scan. Calcifications, which are frequent in dermoid cysts, are better seen with CT. Although, gross total surgical excision may be achievable; residual tumor capsules adherent to neurovascular structures are sometimes left behind to minimize complications.

**Differential Diagnosis List:** Ruptured Intraventricular Dermoid Cyst, Intracranial lipoma, Epidermoid cyst, Colloid cyst

**Final Diagnosis:** Ruptured Intraventricular Dermoid Cyst

**References:**

Figure 1

Description: Well defined T1-hyperintense mass lesion can be seen in the third ventricle causing upstream ventriculomegaly. Intraventricular fat fluid level can be seen in the left frontal horn. Origin:
Figure 2

Description: A well circumscribed intraventricular T1-hyperintense mass lesion is present in the anterior third ventricle. Origin:
**Figure 3 a**

**Description:** The mass is hyperintense on the corresponding T2-weighted FLAIR images. **Origin:**
Figure 4

Description: Signal suppression on the fat saturated MR images confirms the diagnosis of ruptured intra-ventricular dermoid cyst. Origin:
Description: The third ventricular mass is causing marked upstream dilatation of the lateral ventricles. Cerebral sulci are effaced. Origin: