

## Case Report on Thalamic hemorrhage with Intraventricular Extension

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### ABSTRACT:

**Background:** Intraventricular bleeding (IVH) is a type of brain bleeding that occurs in the ventricular system. Also known as Intraventricular bleeding. The subarachnoid region is where cerebrospinal fluid is produced and transmitted. A physical injury or a hemorrhagic stroke could be the cause. Intraventricular bleeding (IVH) caused by thalamic bleeding has a significant mortality and morbidity rate. The goal of this research was to evaluate the treatment's effectiveness and outcomes. Endoscopic surgery vs. external ventricular drainage (EVD) surgery for the evacuation of IVH induced by thalamic bleeding.

**Case presentation:** A 70-year-old female patient admitted in Tertiary care hospital Wardha, at medical intensive care unit after RAT negative test. With the complaints of decreased level of consciousness, difficulty in speaking, fainting, and headache since 1 month. No history of hematemesis, abdominal pain, nausea, vomiting. There was no any history of cold, cough, and trauma. There was significant history of loss of consciousness. Previous treatment taken in Private hospital. There was associated illness were present like Diabetes mellitus and hypertension since 15 year.

**Clinical findings:** Diagnostic research had been conducted on the patient through physical examination, laboratory test, CT scan, and Rapid Antigen Test Management: She was given treatment conservatively with mannitol, vitamin K, antihypertensive drugs, and neuro-protective agents.

**Nursing management:** Maintain inflow and output records, monitor all health status 1 hourly, and administer fluid replacement (DNS and RL).

**Conservative management:** All the routine investigation done. Hemoglobin 7.5gm% was on lower side. ECG and X-ray was done which was normal. Blood tests, CT scan, chest X-rays, radiographic tests done. Ultrasonography was done. The patient was conscious but disoriented, with a blood pressure of 160/100 mmHg and a pulse of 116 beats per minute.

**Conclusion:** due to conservative management and quality nursing care patient condition was stable and had no active complaints at present hence patient is being discharged.

**Keywords:** -Intraventricular extension, Thalamic hemorrhage

### INTRODUCTION:

Intraventricular haemorrhage (IVH), often titled intraventricular bleeding, is a bleed in the ventricular system of the brain that generates and circulates cerebrospinal fluid towards the subarachnoid space.<sup>1</sup> A physical injury or a hemorrhagic stroke could be the cause.

The deadliest type of stroke, brain haemorrhage, also has the highest morbidity of any stroke subtype<sup>2</sup>

Intraventricular bleeding is a condition of ventricular haemorrhage produced by Intraventricular trauma, aneurysms, vascular anomalies, or tumours, especially choroid plexus tumors. In contrast, 70% of IVs are secondary, stemming from the spread of an existing intraparenchymal or subarachnoid hemorrhage. Intraventricular In 35 percent of

moderately to major traumatic brain injuries, bleeding has been discovered. AS a result, haemorrhages rarely occur without considerable collateral damage, and the results are rarely favourable.

Although the thalamus is made up of physically and functionally distinct subregions getting blood from multiple arteries, thalamic bleeding is normally treated as a single entity.<sup>3</sup>

An Intraventricular origin or a lesion near the ventricles causes primary IVH, affecting only the ventricles. The choroid plexus is affected by a variety of disorders, including Intraventricular trauma, aneurysms, vascular anomalies, and malignancies. Supplementary IVHs, which form when intraparenchymal bleeding or SAH extends into the ventricular system, account for around 70% of IVHs.<sup>4</sup>IVH is connected to advanced age, a higher baseline ICH volume, mean arterial pressure values more than 120 mm Hg, and the predominant ICH site. The putamen (35 percent–50 percent), lobes (30 percent), thalamus (10 percent–15 percent), pons (5 percent–12 percent), caudate (7 percent), and cerebellum (5 percent) are among the deep, subcortical structures most at risk for IVH. While some authors have focused on the original ICH volume as a predictor of bad outcomes, others have used advanced volumetrics to discover a threshold IVH (20 mL) volume as particularly concerning. A correlation was found by Hallevi et al. between a larger ICH volume and IVH, as well as its proximity to the ventricular system, which could contribute to an early Intraventricular rupture.

Any stroke subtype with the highest morbidity and mortality is brain hemorrhage.<sup>5</sup>Intracerebral bleeding and subarachnoid bleeding profile for 15% and 5% of the 750,000 movements that occur each year in the United States, respectively, killing over 45,000 people.<sup>6</sup>The ventricles are involved in about 45 per cent of random ICHs and 25 percent of aneurysmal SAH. Patients with both ICH and Intraventricular bleeding (IVH) have a 50 percent to 80 per cent chance of dying. IVH patients had a threefold greater risk of death and a twofold increased chance of poor outcomes (MRS score of 4–6 at hospital discharge).

A thalamic stroke is a form of lacunar stroke that occurs in the innermost section of the brain.<sup>6</sup> Thalamic strokes affect the thalamus, a small but vital portion of the brain. It affects many parts of your daily life, including speech, memory, balance, motivation, physical touch, and pain sensations. An interruption of blood flow to the brain causes strokes. The brain tissue begins to die quickly without blood and nourishment, which can have long-term consequences.<sup>7</sup>

The symptoms of thalamic stroke differ depending on which section of the thalamus is affected. Depending on the cause, strokes are classified as either ischemic or hemorrhagic. Ischemic strokes account for about 85% of all strokes. This suggests they're caused by a blood clot in your brain blocking an artery. Haemorrhagic strokes, on the other hand, are caused by a blood vessel rupture or leakage into the brain. Ischemic or haemorrhagic thalamic strokes are both possible.

In adults, intraventricular haemorrhage (IVH) commonly develops as a result of aneurysmal subarachnoid haemorrhage or intracerebral haemorrhage caused by hypertension. Thus, history and radiography data reveal the underlying cause of IVH. If the underlying cause of IVH cannot be determined, further tests such as cerebral angiography, magnetic resonance imaging, and toxicological screening should be undertaken to uncover etiologic agents that could change IVH management. Multiple pharmacologic, surgical, and critical care therapies geared toward the diagnosis and treatment of the underlying aetiology of IVH must be balanced against IVH management. The development of acute obstructive hydrocephalus is the most immediate danger posed by IVH.<sup>8</sup>

### **Case History:**

A medical case was taken by Tertiary Care Hospital Wardha, Maharashtra, India. This complicated case was taken care of nicely by the hospital because of expert medical team management and excellent nursing care.

### **Patient information:**

A 70-year-old female patient admitted in Tertiary care hospital Wardha, at medical intensive care unit after RAT negative test. With the complaints of decreased level of consciousness, difficulty in speaking, fainting, and headaches since 1 month. No history of hematemesis, abdominal pain, nausea, vomiting. There was no any history of cold, cough, and trauma. There was significant history of loss of consciousness. Previous treatment taken in Private hospital. There was associated illness were present like Diabetes mellitus and hypertension since 15 year. Physical examination was done: Blood pressure: 160/100 mm of Hg, temperature: 99.6 F, general examination was normal.

**Medical, family, and Psycho-social history:** -There were no history of comorbidities in patient's family. Patient belongs to middle class family. She is living with his husband, son and Daughter in law. Patient maintain good interpersonal relation with family members, relatives and neighbours. Patient have bad habit like smoking, no any history of tobacco chewing and alcoholism.

**Important clinical findings and significant physical examination: -**

Tertiary care hospital welcomed a 70-year-old female with a critical condition admitted on December 22<sup>nd</sup> with the chief complaint of loss of consciousness at 5:00 am. Before losing consciousness, she complained of a strong headache and projectile vomiting. That time patient Blood pressure was recorded 160/100 mmHg, and their pulse rate is 78beats/minute.

**Timeline: -**

The present case has a history of HTN with IHD that time she has taken treatment in Private Hospital. There were associated illnesses present like Diabetes mellitus and hypertension since 15 years. When patient suddenly decreased level of consciousness referred to tertiary care hospital. All investigations like blood tests, sonography, radiographic test, CT scan can be done and client shifted to emergency care unit Wardha.

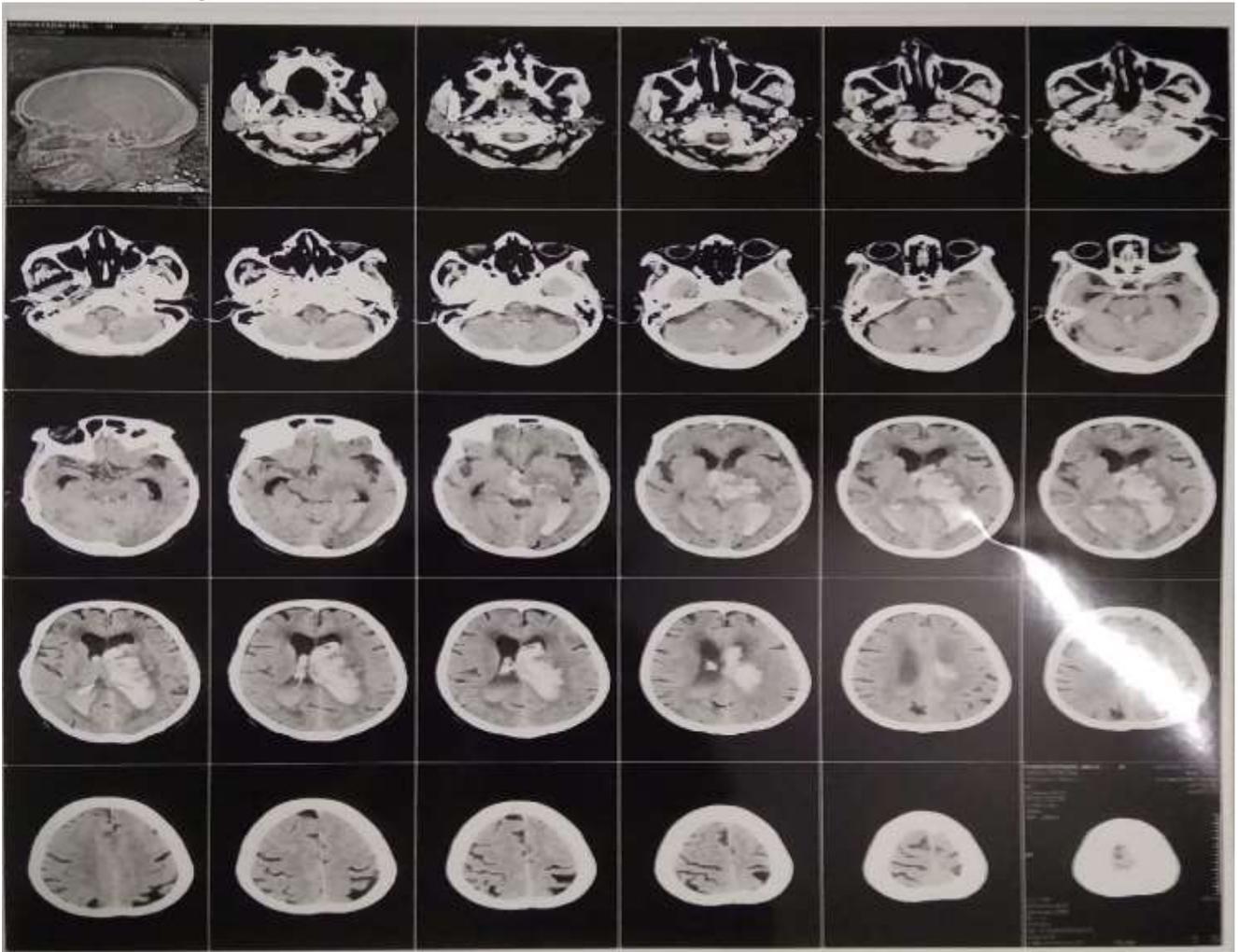
**Relevant past intervention with outcomes:** -For above mentioned complaints patient was taken treatment in private hospital. She was not get relief from that hospital. That's why patient referred to tertiary care hospital Wardha.

**Diagnostic Assessment:** All the routine investigations were done: Hemoglobin: 7.4gm % was on lower side. Red blood cells: 3.74, White blood cells: 8700, MCHC: 32.4, MCV: 71.4, Total platelet count: 1.83, HCT: 17.6. Coagulation profile done-APTT- control-29.5, APTT patient -30.4, Prothrombin Time-control 11.9. Prothrombin Time-Patient: 13.0, INR: 1.09. Stool for occult blood was negative.

**CT Scan**

A serial axial scan was performed from the foramen Magnum upward, employing a 1.5mm section. There was an e/o well-defined interaxial blood density collection in left gangliocapsular regions in the thalamus measuring approximately 3.3x2.9cm with Intraventricular extension into bilateral lateral, third & Fourth ventricle, causing a mass effect in the form of midline shift of 4.5mm to the right side. There was a prominence of sulcal gyral spaces, cerebellar folia, and dilation of ventricular system/cisternal space s/o age-related atrophic changes. Cerebellum, brainstem, cisternal space, and posterior structure appeared normal.

**Conservative Management:**



Injection Mannitol 100ml, Injection pantoprazole 40 mg, Injection midazolam BD, Tablet Amlodipine 10 mg, Tablet MINIPRESS 5mg

**Prognosis:** Was not good. Findings show the Intraparenchymal hemorrhage in the left ganglio capsular region and thalamus with Intraventricular extension. Therapeutic intervention: Medical management was used in this situation.

**Nursing perspectives:** Fluid and electrolyte homeostasis were restored using IV fluid.

**Outcomes clinical and patient-reported:** Despite the most significant efforts of the Patient, their vibrant health will improve, and her health status will improve even more. Follow-up in case of following signs and symptoms patient are requested to attend the emergency department. Diagnostic and other test findings are critical.

**Discussion:**

A 70-year-old female patient admitted in Tertiary care hospital Wardha, at medical intensive care unit after RAT negative test. With the complaints of decreased level of consciousness, difficulty in speaking, fainting, and headache since 1 month. No history of hematemesis, abdominal pain, nausea, vomiting. There was no any history of cold, cough, and trauma. There was significant history of loss of consciousness. Previous treatment taken in Private hospital. There was associated illness were present like Diabetes mellitus and hypertension since 15 year.

Physical examination was done: Blood pressure: 160/100 mm of Hg, temperature: 99.6 F, general examination was normal.

It was managed by the general examination and some routine investigations. CT scan was done which was suggestive of thalamic hemorrhage. Patient was managed with conservative treatment including Injection Mannitol 100ml, Injection pantoprazole 40 mg, Injection midazolam BD, Tablet Amlodipine 10 mg, Tablet MINIPRESS 5mg. In this case author mentioned to determine different clinical aspects of thalamic hemorrhage in terms of topographic characteristics and effect of hemorrhage on outcome. Almost all patients had stroke during daily activities, and this reflects the previously reported circadian characteristic of hemorrhage frequency. Headache frequency in our study corresponds to the low frequency of initial headache in three other series. In fact, at admission all subjects had motor disability. In different studies, rates of motor disturbances were reported between 93% and 100%. In these patients both direct and indirect involvement of the adjacent internal capsule were frequent. Sensory deficit was almost complete in all patients. Similarly, other studies reported the most striking initial characteristics of thalamic hemorrhage to be hemiplegia/hemiparesis and contralateral sensory deficits, vomiting, headache, oculomotor disturbances, and neurobehavioral disturbances. We did not observe pure sensory stroke due to thalamic hemorrhage, although it has been reported. The clinical differentiation between thalamic and pseudo thalamic parietal sensory stroke cannot be made on the basis of sensory deficits alone.<sup>9-13</sup>

The present case has a history of HTN with IHD that time she has taken treatment in Private Hospital. There was associated illness were present like Diabetes mellitus and hypertension since 15 year. When patient suddenly decreased level of consciousness referred in tertiary care hospital. All investigation like blood tests, sonography, radiographic test, CT scan can be done and client shifted to emergency care unit Wardha.<sup>14-16</sup>

In this case author mentioned that, another aspect of thalamic hemorrhage is neurobehavioral disturbances consisting of language deficits, disorientation, and memory disturbance associated with dominant lesions, and impaired visuoperceptual ability associated with nondominant lesions. Within these syndromes, many cases range in severity from "a few paraphasic errors to a complete receptive and expressive disorder." In an analysis of aphasic symptoms and topography of the affected thalamic nuclei, the pulvinar and the ventral-posterolateral nuclei were most frequently involved. The mechanism of different types of aphasia was explained as a disruption of any circuit (arranged as frontal rostrocaudal/ thalamic mediolaterally) leading to dysfunction.<sup>17-22</sup>

**Conclusion:**

Thalamic hemorrhage with Intraventricular in a 70-year-old female admitted in tertiary rural hospital at medical intensive care unit after RAT negative test. With the complaints of decreased level of consciousness, difficulty in speaking, fainting, and headache since 1 month. Intraventricular haemorrhage is a rare neurological disorder, and awareness needs to be raised about this disease. Cessation of bleeding and control of intracranial pressure should be done immediately to prevent its complication and for better outcomes.

**Ethical approval:** Not applicable

**Patient Informed consent:** While preparing a case report and for publication patient's informed consent has been taken.

**Conflict of Interest:** The Author declares that there are no conflicts of interest.

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