



A CASE REPORT ON FTP CRANIOTOMY – PSEUDOMENINGIOCELE OBSTRUCTIVE HYDROCEPHALUS

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Article Received on 29/06/2023

Article Revised on 19/07/2023

Article Accepted on 09/08/2023

ABSTRACT

Craniotomy is one of the neurosurgical techniques performed to cure Traumatic brain injury (TBI) & stroke. A 42yr old male patient underwent FTP craniotomy after slip & fall and 1.5 months later he developed with the complications such as haemorrhagic bleeding, cerebral oedema, hydrocephalus, 1 episode of seizure . He was on antihypertensive medication from past 10 years– tab cilnidipine 20mg. During the time of admission, the patient was drowsy so was Intubated And Kept on Ventilator. Ct Scan Revealed Dilated Bilateral Ventricle, Diffuse Cerebral Oedema, Intraparenchymal Haemorrhage – Post Decompression Craniotomy. the Final Diagnosis Was Pseudomeningocele Obstructive Hydrocephalus.

KEYWORDS: Hydrocephalus, Ftp Craniotomy, Tbi, Stroke, Pseudomeningocele.

INTRODUCTION

Traumatic brain injury and stroke possess catastrophic consequences and induces trauma related disabilities in adults. In contrast to medical therapy the decompressive craniotomy (DCO) & decompressive craniectomy (DC) have played a vital role in treating TBI & stroke along with increasing survival rate of patients.^[1]

Craniotomy is a neurosurgical procedure which implicates removal of portion of a skull bone to treat ICP. Craniotomy involving 3 contiguous region of skull bone is indicated as fronto temporo parietal craniotomy.^[2]

Subtypes of craniotomy includes stereotactic, endoscopic, awake, supra orbital, orbito zygomatic, bifrontal. Indication for craniotomy comprises of TBI, brain cancer, evacuation of haematoma, arteriovenous malformation (AVM) resection.^[3]

Complications after surgery rely upon the time of incident i.e., early or late complications.

Haemorrhage, seizures, subdural haematoma, CSF leak are early complications whereas hydrocephalus, subdural hygroma are the late complications.^[4]

Pseudo meningocele refers to the abnormal accumulation of CSF which occurs after posting cranial surgery. Pressure dressings & fluid puncture are the effective methods to cure pseudo meningocele.^[5]

Hydrocephalus is a condition characterized by excess CSF fluid build up within the ventricles of brain. Subtypes of hydrocephalus includes acquired, congenital, communicating, obstructive & normal pressure hydrocephalus.^[6] Treatment is through cranioplasty & ventriculostomy followed by placement of ventriculoperitoneal shunt.^[7]

Post operative craniotomy strategies inserts early mobilization, chest physiotherapy, nutritional support, adequate analgesics, neurological assessment & monitoring, post operative imaging, haemodynamic stability.^[8]

Prolonged Cerebral oedema & ICP are the major factors which decrease the outcome following TBI. In the early 20th century this DC was used to treat raised ICP in brain cancer patients. However patient selection criteria for undergoing DC are not yet established.^[9]

Patients with higher risk factors develop poor outcomes. Therefore, the predictors of 30-day mortality rate such as age, subdural haemorrhage, intraoperative hypotension, APTT, bilateral unreactive pupils should be used in patients undergoing DC.^[10]

CASE PRESENTATION

A 42yr old male patient had slip & fall on September 17th. The patient underwent decompressive craniotomy & tracheostomy along with evacuation of haematoma under general anaesthesia on September 19th. Patient went on DAMA 0n September 24th. There was no evidence of

DVT during DAMA. The patient was readmitted on November 11th with the complaints of loss of consciousness, right capsulo ganglionic bleed, swelling at operative site [CSF LEAK]. Patient had an history of hypertension from past 10yrs & was on tab cilnidipine 20mg. patient had no history of chest pain, loose motion,

vomiting. Patient was alcoholic and by occupation he was a farmer. The patient was hospitalized for 15 days.

During the time of admission, the patient had an elevated blood pressure [150 / 70 mm hg] and tachycardia [170 bpm].

INVESTIGATIONS

Investigations	Observed value	Normal values
Haemoglobin	9.1	14 – 18 g/dl
PCV	29.4	40-54%
WBC	10,850	4000-11000 cells /L
RBC	3.16	3.8-5.8 x 10 ¹² /L
Platelets	226 x 10 ⁹	150-450 x 10 ⁹ cells /L
serum urea	73	13-55 mg/dL
Serum creatinine	4.04	0-1.2 mg/dL
Sodium	145	135-145 mmol/L
Potassium	4.04	3.5-5.0 mmol/L
Chloride	104	95-107 mmol/L
ESR	65	1-15 mm/hr
T. bilirubin	1.04	3.42-20.52 mmol/L
D. bilirubin	0.18	1.71-6.84 mmol/L
SGPT	30	0-35 units
SGOT	24	0-35 units
ALP	60	30-120 units
T. proteins	7.8	
Albumin	4.2	3.3-4.8 g/dL
Globulin	3.6	2.3-3.5 g/dL
a/g ratio	1.1	1.7-2.2
APTT	23.6	20.6-29.2
PT WITH INR	10.6	9.8-13.2
HIV	NON-REACTIVE	
HBSAG	NEGATIVE	
ANTI HCV	NON-REACTIVE	
2D ECHO		

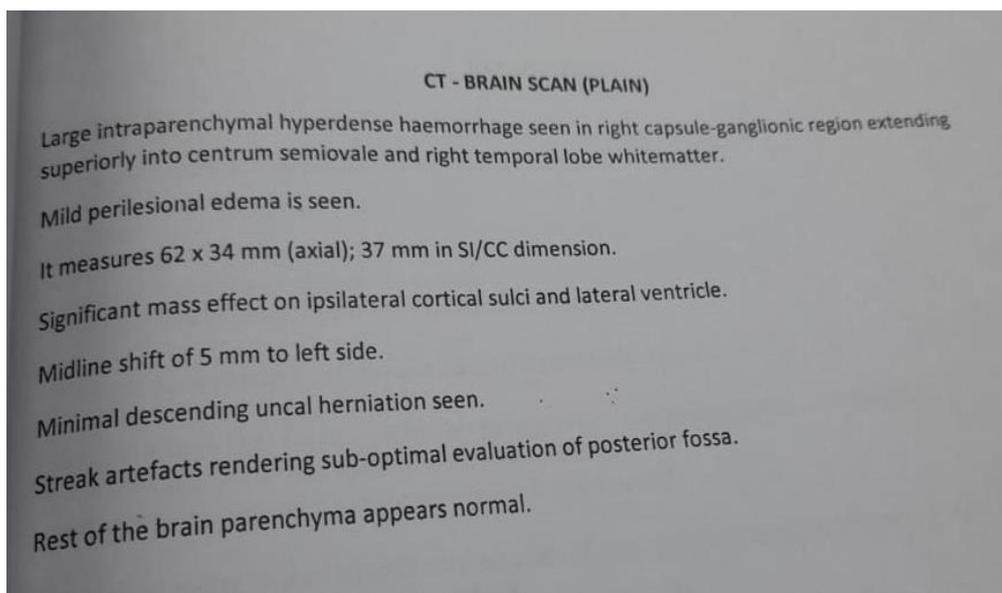


Figure 1: CT SCAN (DATE :18-09-2022).

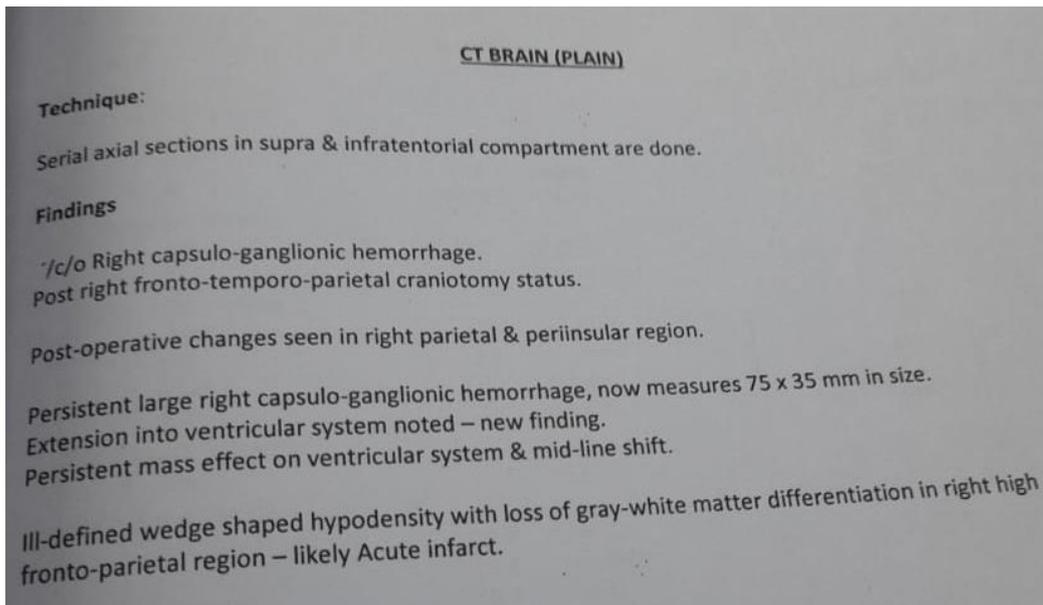


Figure 2: CT SCAN (Date: 19-09-2022).

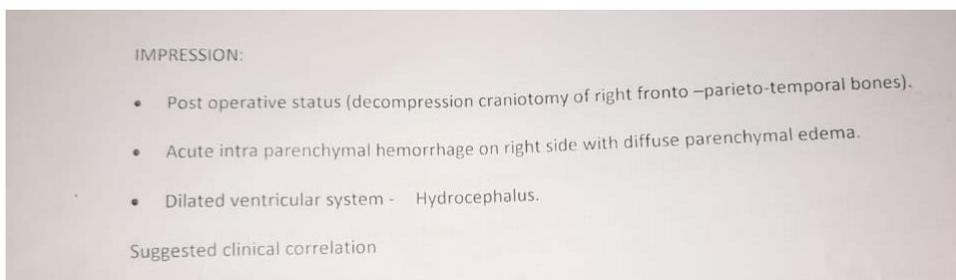


Figure 3: CT SCAN (DATE: 11-11-2022).

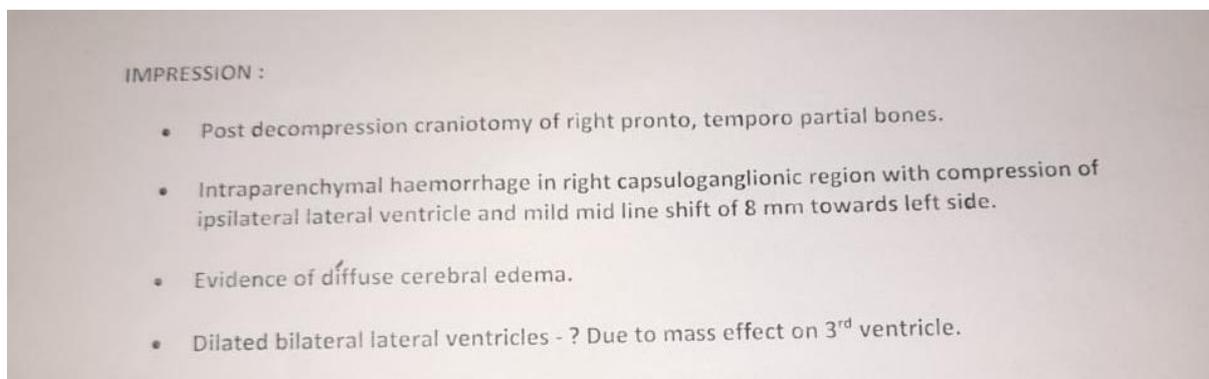


Figure 4: CT SCAN (DATE: 17-11-2022)

The patient was diagnosed with pseudo meningocele obstructive hydrocephalus S/P FTP CRANIOTOMY, acute haemorrhagic stroke left hemiplegia as per CT scan report, AKI on CKD as per renal function tests.

VITALS DURING THE HOSPITAL STAY

On examination the patient was drowsy & had swelling at the operative site [day1 – day 4]. In view of drowsiness patient was intubated & kept on ventilator. On day 5 in view of lumbar drain, SAP L3 L4 space palpated with local infiltration of skin. 16G needle inserted into the subarachnoid space confirmed with the free flow of CSF, catheter inserted & fixed at 13cm then

catheter secured with dressing & connected to a drain bag. Patient had an episode of seizure for 2min. GCS: E₄ V_TM₁. On day 6-day 14 lumbar drain was done 30min 6th hourly. Patient had worsening sensorium, no eye contact. Patient was responding to painful stimuli. GCS: E₃ V_TM₁. ON DAY 15TH Patient had no left arm & leg movements, respiratory distress, fever spikes. GCS: E₁ V_TM₁. 1 episode of asystole at 3.30pm. Immediate CPR as per ASCLS protocol 3 cycles were given. Patient had 1 episode of bradycardia [30 bpm] followed by 1 episode of asystole at 4.15 pm. 2 cycles of CPR was given. Patient was asystole at 5.40 pm. 5 cycles of CPR was

given. Bp not recordable, pulses not felt. Patient couldn't receive CPR. Patient died at 5.50 pm.

CAUSE OF DEATH

Declared as Septic Shock & Meningo Encephalitis.

TREATMENT

During the hospital stay the patient was treated with diuretics – INJ MONOCEF 2G BD, TAB DIAMOX 250MG TID [RYLES TUBE], T. STAMLO 5MG OD [RT], Antiemetics, antacids, anti-epileptic INJ LEVIPIL 500mg BD, antibiotics- INJ MONOCEF 2G BD, INJ MERROPENEM 2G TID, antiviral – INJ ACYCLOVIR 750MG TID, Vitamin supplements and adequate physiotherapy was provided.

DISCUSSION

Although decompressive craniotomy is the life saving technique for managing ICP after TBI, it results in many complications such as haemorrhagic bleeding, cerebral oedema, hydrocephalus, CSF leak, seizures. Cerebral oedema results in increased ICP and decreased cerebral blood flow [cerebral ischemia] followed by hypoxia resulting in brain cell death. These complications should be detected and managed early.

Treatment given in case of this patient includes diuretics to treat cerebral oedema and decrease ICP, antibiotics to treat bacterial infections, antiviral to treat viral infections, anti epileptic to treat seizures and prevent its reoccurrence.

CONCLUSION

DC is one of the most radical interventions to reduce cranial hypertension quickly & to protect the viable brain cells. Early rehabilitation techniques, maintaining hygiene of all the shunts, catheters, chest physiotherapy, maintaining oxygen levels, proper mobilization, nutritional assessment improves the survival rate, quality of life [QOL] thereby reducing the post operative complications & decreasing the mortality, morbidity associated with DC.

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