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POST V-P SHUNT SURGICAL SITE EDH AN UNCOMMON COMPLICATION: CASE REPORT

Neurosurgery

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ABSTRACT

Ventriculo-peritoneal shunt is well established modality of treatment for hydrocephalous. Complication of v-p shunt are also mentioned in literature like shunt infection, shunt migration etc [8]. Here we are describing a rare complication of vp shunt which is barely mentioned in literature. A 22 yr male admitted with complain of headache & vomiting patient was diagnosed to have hydrocephalous. Patient planned for ventriculo-peritoneal shunt surgery and vp shunt was done. On 2nd post-surgery day patient develop weakness in Left side of body. Urgent ncct head done which showed EDH at surgical site. Immediate craniotomy and evacuation of hematoma was done following which patient improved and discharged. Thus we are discussing the importance of meticulous surgery for v-p shunt, post op ct scan and treatment.

KEYWORDS

v-p shunt, v-p shunt complication, extradural hematoma

INTRODUCTION

Ventriculo-peritoneal (VP) shunting is a very common procedure done for the treatment of hydrocephalus. This condition occurs when excess cerebrospinal fluid (CSF) collects in the brain's ventricles and is associated with fewer complications as compared to other methods of ventricular decompression and include shunt obstruction, infection, development of craniosynostosis, microcephaly, and excessive drainage of cerebrospinal fluid (CSF) leading to intracranial hematomas (subdural, epidural, and intraventricular) [8, 4]. Among the intracranial hematomas, subdural hematomas (SDHs) are more common than extradural hematomas (EDHs) [7]. We are reporting a case of postoperative EDH following VP shunt placement in an adult patient with a hydrocephalous.

Case Report

17 year male Sartaj admitted with c/o headache and vomiting for 8 months. Patient was investigated and CT head and MRI Brain(Fig.1 and Fig.2) was done which showed gross dilatation of all ventricles. Patient planned for right v-p shunt (GSL DOME VALVE SHUNT MEDIUM PRESSURE). Under general anesthesia patient was positioned in supine head was tilted left side after painting and draping U shaped incision given at frazier's point (6 cm above and 4 cm lateral to inion). Burr hole made dura coagulated cruciate incision given and shunt ventricular end inserted in first attempt. CSF pressure was highly raised and CSF was grossly cleared CSF sent for culture sensitivity cytology, biochemical study. Post operatively patient symptoms got relieved. On 2nd post-operative day patient became disoriented and developed weakness left side of body. Urgent Ncct head done(Fig.3) which showed right parieto-occipito-temporal EDH with mass effect and midline shift. Immediately patient underwent right parieto-occipito-temporal craniotomy and evacuation of extradural hematoma. Post operatively patient improved neurologically and discharged with no neurological deficit. He has been under regular follow up and has no neurological deficit.

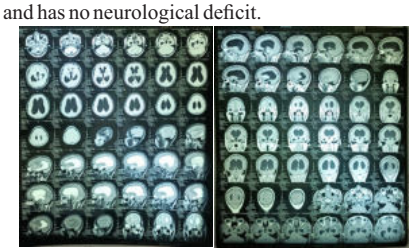

Fig.1 **Fig.2**

Pre-operative MRI of Patient showing gross dilatation of all ventricles

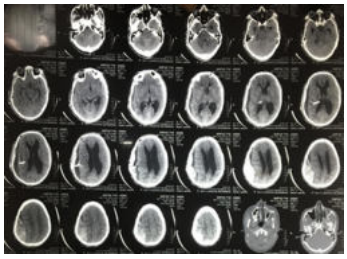

Fig.3

NCCT Head Of Patient Following Post Op day-2 showing right parieto-occipito-temporal EDH

Fig.4

Extra-dural Hematoma at VP-Shunt site (Intra-Op Finding)

DISCUSSION

Extra dural hematoma, as a complication of ventriculo-peritoneal shunt surgery for the management of hydrocephalus, is a rare condition. It often occurs in young patients, and there are some anatomical regions(parietal and frontal) where the pathology is more frequently found. The theory behind the occurrence of this not clear and many hypothesis given to justify the occurrence of EDH post v-p shunt. Many author thought that pressure exerted on dura while inserting the ventricular end lead to the separation of dura from inner surface of skull lead to damage of in between vessel which lead to the EDH formation. Sudden decrease in intracranial pressure post shunt can lead to expansion of EDH [7]. Multiple attempt for insertion of ventricular end can lead to parenchymal injury which also lead to EDH formation.

Extradural hematoma always develops in a matter of days, weeks or months after surgical procedure [1, 6]. The manifestation of the EDH can be by seizures, a decrease of consciousness, headache or in some

rare cases, the patient may be asymptomatic it can be explained by the frontal localization which is less dangerous than parietal or temporal and also the bleeding may be so slow [10] some authors recommend precautions during shunt insertion [9] and early detection by a close observation after surgery can prevent mortality and severe morbidity in these cases. Contrary in our case patient presented acutely. Patients with very high intracranial pressure , in long standing hydrocephalus, are most at risk. Perhaps the skull-to-duramater adhesion become altered. The mortality of patients with EDH is higher than for those with subdural bleeding. [2] Coagulation profile disarrangement also an important factor for EDH at operative site [3]. Post-operative trauma also a responsible factor. In our case report since patients coagulation profile was normal and there is no history of any trauma in postoperative phase. Since we prefer to gave small cruciate incision over dura before insertion of ventricular end chance of overstretching of dura ruled out. Ventricular end was inserted in first attempt so trauma to parenchyma which lead to EDH has also ruled out so in our case sudden decompression of the ventricles and lowering of ICT seem to be the cause of EDH formation at the operative site.

CONCLUSION

Extradural hematoma though is very rare after shunt surgery but it must be consider as the differential diagnosis of post v-p shunt deterioration of patient. Since it can be easily diagnosed and treated NCCT should be done to rule it out. We also conclude that meticulous surgery for v-p shunt and routine use of the high pressure systems (90 mm to 120 mm water) to minimize sudden changes[5] and using newer ways to slower the decompression like anti-gravity can prevent such a deadly complication.

Abbreviations

FIG	Figure
VP	Ventriculoperitoneal
CSF	Cerebrospinal fluid
EDH	Extradural hematoma
ICT	Intracranial tension

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