



TRAUMATIC POSTERIOR FOSSA EXTRADURAL HEMATOMA: AN INSTITUTIONAL EXPERIENCE

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ABSTRACT

Traumatic posterior fossa extradural hematoma (TPEDH) is an uncommon complication of head injury. It accounts for approximately 0.3% of all craniocerebral injuries. Reliance on clinical findings alone is not recommended, as these are nonspecific; it is advisable to conduct a computerized tomography (CT scan) of brain. Management of TPEDH is still controversial. Asymptomatic patients with small hematoma can be managed conservatively by close observation and serial CT scans while large hematoma requires emergency evacuation of hematoma.

KEYWORDS : traumatic posterior fossa extradural hematoma

INTRODUCTION

Posterior fossa extradural hematoma is an uncommon complication of head injury. It accounts for approximately 0.3% of all craniocerebral injuries. It constitutes 2.7-11% of all intracranial epidural hematomas. TPEDH can cause severe clinical pictures by quickly increasing in size and brain stem compression. Therefore, early diagnosis of posterior fossa hematoma is very important prognostically. Cranial CT is standard investigation to diagnose such lethal and uncommon condition. Despite researchers' best efforts, the true incident of posterior fossa acute EDH remains uncertain in Gwalior region. The present study was designed to investigate the incident of TPEDH and their age and gender- wise distribution and review of literature.

MATERIAL AND METHOD:

The present study was prospective study conducted at department of neurosurgery, GR Medical College and group of hospitals (GRMC) over a period of 3 year from December 2014 to April 2016. GRMC is a tertiary care super specialty treatment Centre. Being the largest medical institute in the region of Gwalior, it caters the health needs of entire region as well as neighboring states. All patients with traumatic posterior fossa acute EDH on non-contrast CT was included in this study. Patients with severe co-morbid illness associated fatal injuries like chest and abdominal injury were excluded from study. In addition to NCCT head finding, patient age, sex and Glasgow coma scale were also recorded at the time of admission. Initial NCCT HEAD were looked for -1) location and size of TPEDH 2) overlying bone fracture 3. Number of posterior fossa EDH 4. Presence of hydrocephalus. Initial neurological assessment was done with *Glasgow coma scale range from 3-15*. All admitted patients were managed conservatively or surgically, depending on neurological status, size of TPEDH. Outcome of patients were recorded on Glasgow outcome scale.

RESULT

Study includes 1830 patients attending trauma center and department of Neurosurgery in above-mentioned period. 19 patients were had posterior fossa acute EDH. Incident in our study was 1%, Male:female ratio was 1.5:1 (Table 1).

Table 1: Gender wise distribution of TPEDH patients

Gender	Number	%
Male	11	57.8%
Female	8	42.10%
Total	19	100

Most common age group affected was between 16-45 years (Table2).

Table 2: Age wise distribution of TPEDH patients

Age group	Number	%
0-15	5	26.3%
16-30	7	36.84%
31-45	5	26.3%
46-60	1	5.2%
>60	1	5.2%

Most common mode of injury was road traffic accidents 63.15% followed by fall from height 26.31 % Table 3.

Table 3. Mode of injury in TPEDH patients.

Mode of injury	No of patients	%
Road traffic accidents	12	63.15%
Fall from height	5	26.3%
Assault	1	5.2%
Fall of heavy object on head	1	5.2%
Others	0	0

Study reveled common site of impact in TPEDH were over occipital bone in 64.10%.

Most common presentation was recurrent vomiting followed by loss of consciousness (table 4).

Table 4: Symptoms at the of admission

Symptoms	Number	%
Headache	14	73.68
Recurrent Vomiting	13	68.40
Loss of consciousness	4	21.0%
Respiratory Distress	3	15.7%
Seizure	0	0
Others	0	0

12 patient required sub-occipital craniectomy while 7 patients were managed conservatively.

DISCUSSION

TPEDH is most common type of hematoma in posterior fossa. Incidence of PFEDH accounts for about 4-7 % of total EDH and about 0.3%¹ of total TBI. TPEDH are usually venous², in contrast to supratentorial EDH that are usually arterial in origin. TPEDH arises due to fracture of occipital bone or injury to venous sinuses secondary to rupture of torcula or transverse sinus². As TPEDH is venous in origin they expand slowly because of lower pressure imposed by venous extravasation and become symptomatic late in their course. These hematomas often extend in to the supratentorial compartment by stripping the dura over transverse sinus, resulting in significant hemorrhage during surgical evacuation.

Wharton first described TPEDH in 1901, but it was not until 1941 that Coleman and Thompson reported first successfully operated case³. Bozbuga et al divided into two two distinctive groups on the basis of CT scan findings. In-group A, There was no mass effect, perimesencephalic cistern were open and fourth ventricle was not compressed or displaced while in group B there is mass effect over fourth ventricle⁴.

TPEDH are usually associated with linear fracture of occipital bone, diastasis fracture of lambdoid suture, or both. Occipital fracture is a good marker to detect the localization of TPEDH⁵. In Literature it has been reported that TPEDH are most commonly encountered in first decade of life. According to Coleman et al., the incidence is higher among children and young adults, because the dura and sinus are easily damaged in event to skull fracture, owing to strong adhesion of dura to inner table of skull in children^{1,6}.

There is no characteristic of clinical symptoms of TPEDH. It has been reported that disturbance of consciousness is often present in acute cases, where as symptoms of increased cranial pressure, such as vomiting, headache; cerebellar signs are usually seen in sub acute cases⁵. Since it is difficult to diagnose TPEDH on the basis of clinical signs and symptoms alone, CT is essential element of diagnostic workup. TPEDH is usually associated with supratentorial EDH or hematoma. TPEDH extends in to supratentorial region in 11-64% of total posterior fossa EDH⁷. In literature , supratentorial pathologies associated with TPEDH are reported to be seen in 50%-87.5% of cases. Most commonly frontal and temporal contusions are present due to contre-coup mechanism.

Management of TPEDH is still controversial. Asymptomatic patients with small hematoma can be managed conservatively by close observation and serial CT scans to find size of hematoma, mass effect, development of hydrocephalus and other features. As TPEDH is usually found in young and patient deteriorates very rapidly without giving any warning signs some neurosurgeon prefer surgery as preferred mode of treatment after diagnosis of TPEDH. Indication for surgery varies from surgeon to surgeon but most of neurosurgeon follow this protocol, 1. PFEDH volume more than 10ml in a symptomatic patient. 2, Volume of hematoma > 20cc irrespective of symptoms 3, maximum thickness of hematoma > 15mm 4, Poor visualization of posterior fossa cisterns⁸.

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