Original Article

Assessment Of Surgical Treated Trauma Outcome In Extradural Hematoma Patients

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Abstract

Objective: To asses the surgically treated Trauma outcome in patients having extradural hematoma

Materials & Methods: This study was carried out in Neurosurgical department of tertiary care Hospital dated from Aug 2020 to Aug 2021 for period of one year. A total of 80 cases of EDH (77.5% males and 22.5% females) were participated in this study. Definitive treatment was administered to all patients, including craniotomy

Results: A total of 80 cases of EDH (77.5% males and 22.5% females) were participated in this study, In which 12(15%) cases were ≤15 years old, About 58(72.5%) cases were between 16-35 years old, 10(12.5%) cases between 36-58 Years old. Outcome of the surgically treated patients was good. In 76(95%) patients complete hematoma was removed which improved the conscious level of patients. In 04(5%) patients death occurred due to which complete evacuation couldn't be done.

Conclusion: Our result showed mortality rate of only 5%. Surgical treatment of Hematoma is necessary. It should be done as early as possible.

Keywords: Extradural hematoma, surgical management, hematoma

Introduction:

Severe brain injury due to trauma is a significant cause of sickness and death in children(1). Pediatric traumatic head injuries are becoming more frequent in conjunction with the increased occurrence of various trauma mechanisms (2). Traumatic epidural hematoma (EDH) occurs in approximately 2–3% of all traumatic Brain injury cases in the population with mortality rates varying from 0 to 12% in different investigation (3). Craniotomy and surgical removal are considered the traditional approaches for managing acute traumatic EDH in children (4, 5). To mitigate the risks associated with craniotomy, recent studies have reported the conservative treatment of acute traumatic EDH in these delicate patients (6, 7, 8).

in the majority of instances, epidural hematoma (EDH) is linked to head trauma in results from the disruption of the middle meningeal artery or the rupture of veins caused by a fracture of the skull (9, 10). EDH (Epidural Hematoma) manifests with post-traumatic loss of consciousness, which can be succeeded by a clear interval and lead to clinical deterioration (loss of consciousness, hemiparesis, and ipsilateral pupillary dilation). This trio is witnessed in 30% of instances (11, 12, 13).

Prehospital traumatic brain injury (TBI) Care involves prompt emergency assistance, along with a Uniform and efficient sequence of trauma treatment (14) Furthermore, the In-hospital handling of TBI, which entails contemporary neurosurgical Therapy and neurocritical care medicine, has evolved during the Recent few years (15, 16).
The Rationale of this study was to asses the outcome from surgically treated patients who were suffering from epi dural hematoma.

Materials & Methods: This study was carried out in Neurosurgical department of tertiary care Hospital dated from Aug 2020 to Aug 2021 for period of one year. Approval from Ethical review board was taken.
About eight patients with head injury having EDH were chosen and included in this investigation after obtaining verbal and written consent from patients if he was conscious otherwise consent took from nearby relative who came with that patient. They were classified based on age, sex, initial GCS, type of injury and outcomes.
All patients were received at the emergency department, where a comprehensive evaluation was conducted. Then, GCS was employed for the initial assessment of all patients. This scale can gauge the injury's severity, with patients having a GCS score between 13-15 considered to have a mild injury, those with scores of 9-12 classified as having moderate injury, and individuals with scores ranging from 3-8 regarded as having severe injury. Patients with a GCS score below 8 were transferred to the ICU for specialized resuscitation. A complete medical history was obtained either from the patients themselves or from their family members in cases of unconsciousness or presence of amnesia. Each patient underwent a thorough neurological examination. Brain CT scans were performed as the preferred radiological investigation for all patients. Definitive treatment was administered to all patients, including craniotomy . The patient was typically placed under general anesthesia The surgeon made an incision in the scalp over the area where the hematoma was located. The specific location depends on the individual case and the size and location of the hematoma. The surgeon carefully removed a section of the skull, called a bone flap. After the bone flap was removed, the surgeon identifies the hematoma and carefully removed it. Once the hematoma is removed, the surgeon inspected the brain and the surrounding blood vessels for any signs of injury or further bleeding. After the necessary procedures were completed, the bone flap put back in place and secured using small plate. The patient Was taken to the recovery area and closely monitored for any complications.

Results: A total of 80 cases of EDH (77.5% males and 22.5% females) were participated in this study, In which 12(15%) cases were ≤15 years old, About 58(72.5%) cases were between 16-35 years old, 10(12.5%) cases between 36-58 Years old. Type of injury at the time of admission in emergency department was also noted. About 67(83.75%) acquired this neurotrauma due to Road Traffic accident. Remaining 13(16.25%) sustained epidural dural hematoma due to fall from height

Table 1: Baseline Demographic details and Presentation of patients presenting to tertiary care hospital

Sr.No	Parameter	Number(n)	Percentage (%)
1	Age(years)		
	Less than 15	12	15.0%
	16-35	58	72.5%
	36-58	10	12.5%
2.	Gender		
	Male	62	77.5%
	Female	18	22.5%
3.	Type of injury		
	Road Traffic accident (RTA)	67	83.75%

	Fall from height	13	16.25%
4.	GCS 14-15 9-13 3-8	 36 24 20	 45% 30% 25%
5.	Associated injuries Femur fracture Radius&ulna fracture Nasal bone fracture	 25 48 07	 31.25% 60% 8.75%

Glasgow coma scale at the time presentation was also recorded. Which helped us to determine the surgical outcome. Among eighty participants, 36(45%) presented with GCS in between 14-15. About 24(30%) were having GCS in range of 9-13. Remaining 20(25%) were having bad GCS ranging 3-8.

Table2: Demonstrating outcome after Craniotomy for Epi-dural hematoma

Sr.No	Parameter	Number (n)	Outcome	Percentage
1.	Hematoma completely removed	76	Conscious level improved	95%
2.	Incomplete evacuation	04	Death occurred	05%
3.	GCS 15/15 12-14 Less than 8	59 17 04	Discharged from hospital Discharged with advice of follow-up Couldn't survive and death occurred	73.75% 21.25% 5%

Outcome of the surgically treated patients was good. In 76(95%) patients complete hematoma was removed which improved the conscious level of patients. In 04(5%) patients death occurred due to which complete evacuation couldn't be done . About 59(73.75%) discharged with GCS of 15/15. Remaining 17(21.25%) were having GCS in between 12-14. They called for follow up weekly. GCS was poor in 04(5%), they couldn't survive and death occurred in these patients.

Discussion: Extradural hematoma (also known as epidural hematoma) is a neurosurgical emergency that occurs when blood accumulates between the skull and the outermost layer of the brain called the Dura mater (17).In the majority of instances, epidural hematoma (EDH) is linked to cranial trauma arising from the disturbance of the middle meningeal artery or the rupture of veins due to a fracture of the skull.(18) Management of traumatic brain injury (TBI) has considerably enhanced in recent decades. The prior comprehensive case series examination of medical intervention goes back to the final era of the preceding century(19) These findings fail to consider the advancements achieved during the intervening time in the multidisciplinary management of TBI, particularly epidural hematoma (EDH) (20) In our study A total of 80 cases of EDH (77.5% males and 22.5% females) were participated in this study, In which 12(15%) cases were ≤15 years old, About 58(72.5%) cases were between 16-35 years old, 10(12.5%) cases between 36-58 Years old. Type of injury at the time of admission in emergency department was also noted. About 67(83.75%) acquired this neurotrauma due to Road Traffic accident. Remaining 13(16.25%) sustained epidural dural hematoma due to fall from height. Glasgow coma scale at the time presentation was also recorded. Which helped us to determine the surgical outcome. Among eighty participants, 36(45%) presented with GCS in between 14-15. About 24(30%) were having GCS in range of 9-13. Remaining 20(25%) were having bad GCS ranging 3-8. GCS is important indicator for surgical outcome. (21) Bas et al. stated that a postponed EDH intervention would lead to an unfavorable outcome[9]. The Royal College of Surgeons of England advised that surgical decompression ought to be performed within 4 hours following the emergence of notable symptoms to achieve favorable recuperation(22) The surgical indication is guided by a level III recommendation in findings of EDH(23) Outcome of the surgically treated patients was good. In 76(95%) patients complete hematoma was removed which improved the conscious level of patients. In 04(5%) patients death occurred due to which complete evacuation couldn't be done . About 59(73.75%) discharged with GCS of 15/15. Remaining 17(21.25%) were having GCS in between 12-14. They called for follow up weekly. GCS was poor in 04(5%), they couldn't survive and death occurred in these patients. Epidural hematoma surgery is too important to save life. However Conservative management can not be neglected (24, 25)Management of EDH purely relays on clinical and radiologic findings(26, 27) Patients with traumatic brain injury (TBI) as a result from EDH can vary regarding age, comorbidities. Prehospital TBI management ensures rapid emergency aid, along with it perfect and effective chain of trauma care(28, 29)

Conclusion: surgical outcome of Epidural hematoma is remarkable. In every instance, a timely entrance to the adequately equipped, staffed ready operating room is obligatory. Although our account expounded on the significance of cautious management, additional regulated investigations are required to determine the subset of patients with immediate traumatic EDH who can be managed conservatively.

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