

Conservative Management of Extradural Hematoma. A Report of five cases

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Abstract

Extradural hematoma (EDH) forms 0.5% of all head injuries. In selected patients conservative management may be a feasible option. We report 5 cases which were managed conservatively without neurological sequelae. All patients were males between 18-30 (mean 23.4) years; location was frontal or parietal and volume of EDH between 9-23(mean 17.3) mL. However only patients with GCS 15/15 were considered for conservative management.

INTRODUCTION

Extradural Hematoma (EDH) forms 0.5% of all head injuries.¹ Conventionally urgent evacuation is the accepted mode of management.² With the routine use of Computer Tomogram(CT) for management of head injury patients, nonoperative management is being used more often in selected patients.^{1,2,3,4} Five cases of EDH which were managed conservatively and discharged without neurological sequelae, are reported here. The common factors amongst these cases have also been enumerated.

MATERIALS AND METHOD

Patients having a traumatic EDH with a Glasgow coma Score (GCS) of 15/15 were included in the study. Other inclusion criteria were – Volume less than 25mL (as calculated by Peterson and Esperson equation),⁵ absence of midline shift or mass effect and no other lesion on CT scan. Infratentorial EDH was excluded. All patients were monitored in a neurosurgical Intensive care unit. Specifically GCS, pulse, blood pressure, pupils were observed. The study did not interfere with the set neurosurgical protocols for head injury management.

RESULTS

Out of 6 patients included one patient became drowsy and had to be operated. Five patients were successfully managed conservatively. Mode of injury was road traffic accident in all cases. A summary of the cases is shown in table 1. All patients were males in the age group 18-30 years (mean age 23.4 years), Location was in the parietal region in 3 cases; frontal in two, The volume of EDH ranged from 9mL –

23mL (mean 17.3mL). At no point of time did any of the five cases show any signs of raised intracranial pressure. Immediate neurosurgical care was available at all times.

Figure 1

Table 1: Summary of cases

	Age(years)	Size (mL)	Location
1	18	9	Frontal
2	22	18.4	Parietal
3	28	19.2	Parietal
4	30	23	Parietal
5	19	17.3	Frontal

DISCUSSION

Patients with EDH who are conscious have a mortality of almost nil.¹ Non operative management of EDH is well documented. Patient selection is of utmost importance in conservative management of EDH. Various factors have been found to influence the management strategy.

Volume : Dubey et al,³ and Bezircioglu et al,⁶ have recommended a volume of EDH less than 30mL for conservative management, Bullock et al,⁷ found 12 -38mL suitable, whereas Giordano et al,⁸ have managed patients with a volume upto 55mL, without surgery.

Location: Most studies have taken only supratentorial hematomas into consideration.^{3,4,5,6} Wong,⁹ reports a posterior fossa EDH volume less than 10mL to be favorably managed conservatively. Temporal EDH is unlikely to be managed conservatively,^{3,6} as compared to frontal or parietal.

GCS: a lower GCS has been associated with a worse outcome in most studies^{1,3,10,11}

Others factors like a thickness > 15mm and a midline shift > 5mm have also been found to unfavorably influence the outcome.¹²

Another important consideration is the timing of repeat CT scan. Sullivan et al¹³ have shown that EDH enlargement occurs within 36 hours and a repeat CT is useful at this time. EDH enlargement occurred in 23% of patient and mean time to enlargement was 8 hours of injury.¹³

CONCLUSIONS

Non operative management of EDH can be a safe option in carefully selected patients, where close monitoring is available.

References

1. Narayanan RK, Kempisty S. Close head Injury. In: Principles of Neurosurgery Rengachary SS, Ellenbogen R (eds). Elsevier, New Delhi, 2005 page 304
2. Bricolo AP, Pasaut LM. Extradural Hematoma: towards zero mortality. A prospective study. Neurosurgery 1984; 14:8-12.
3. Dubey A, Pillai SV, Sastry KVR. Does volume of extradural hematoma influence management strategy outcome? Neurology India 2004; 52:443-445.
4. Offner PJ, Pham B, Hawkes A. Nonoperative management of acute epidural hematomas "no barrier". Am J Surg 2006; 192:801-805
5. Peterson OF, Esperson JO. Extradural hematomas: measurement of size by volume summation on CT scanning. Neuroradiology 1984; 26:363-367
6. Bezircioglu H, Ersahin Y, Demircivi F, Yurt I, Donertas K, Tektas S. Nonoperative treatment of acute extradural hematomas: Analysis of 80 cases. J Trauma 1996; 41:696-8.
7. Bullock R, Smith RM, van Dellen JR. Nonoperative management of extradural hematoma. Neurosurgery. 1985; 16(5):602-6.
8. Giordano C, Morello G, Rossano A, Chiloiro C, Boccuzzi F. The benign acute epidural haematoma. J Neurosurg Sci. 1985; 29(4):313-6.
9. Wong CW. The CT criteria for conservative treatment--but under close clinical observation--of posterior fossa epidural hematomas. Acta Neurochir (Wien). 1994; 126(2-4):124-7.
10. Mohanty A, Kolluri VR, Subbakrishna DK, Satish S, Mouli BA, Das BS. Prognosis of extradural hematomas in children. Pediatr Neurosurg. 1995; 23(2):57-63.
11. Bricolo AP, Pasut LM. Extradural hematoma: toward zero mortality. A prospective study. Neurosurgery. 1984; 14(1):8-12.
12. Chen TY, Wong CW, Chang CN, Lui TN, Cheng WC, Tsai MD, Lin TK. The expectant treatment of "asymptomatic" supratentorial epidural hematomas. Neurosurgery. 1993; 32(2):176-9; discussion 179.
13. Sullivan PT, Jarvik JG, Cohen WA. Follow-up of conservatively Managed Epidural hematomas: Implications for timing of repeat CT. Am J Neuroradiol 1999; 20:107-113.

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