

Septated chronic subdural hematoma

To complete a retrospective comparison of endoscope-assisted burr-hole craniostomy (EBHC) and craniotomy in the treatment of septated chronic subdural hematoma (SCSH). METHODS:

A retrospective case note review comparing EBHC and craniotomy of SCSH was therefore performed. Data of patients with a SCSH for EBHC or craniotomy during the period from January 2011 to January 2017 were retrospectively collected and analysed. Of 70 patients, 43 underwent EBHC and 27 patients were treated by craniotomy. The primary outcome measure was recurrence rate, morbidity and mortality rate. The secondary outcome measures were clinical outcome at first postoperative day, discharge, 30 days and 6 months, the length of hospital stay for neurosurgery, the operative time, intraoperative blood loss and the placement time of drainage tube. RESULT:

No patient relapsed in both groups. The rate of morbidity was significantly lower in the EBHC (2/43, 4.7%) than in the craniotomy group (17/27, 63.0%, $p=0.0033$). No patient died as a consequence of the operative procedure in the EBHC group. But there were four patients died as a consequence of the operative procedure in the craniotomy group. The mean operative time was obviously longer in the craniotomy group (95.3 minutes) than EBHC group (56.5 minutes, $p=0.0032$). And the mean intraoperative blood loss was larger in the craniotomy group (213.2 ml) than EBHC group (34.5 ml, $p=0.0044$). A discharge GCS of 15 was recorded in the same proportion participants in the both groups. Patients in EBHC group recovered faster. The mean placement time of drainage tube was similar in the two groups with EBHC (27.2 hours) vs craniotomy (23.2 hours, $p=0.3328$). The mean length of hospital stay for neurosurgery was 4 days in the EBHC group, while it was 8 days in the craniotomy group ($p=0.0023$). The mean hematoma reduction rate was slight higher in those with EBHC than in those with craniotomy at first postoperative day and discharge, but there were no statistical difference. CONCLUSION:

Comparing two invasive procedure protocols for treatment of SCSH, EBHC is a safer and more effective surgical technique. It significantly surpasses the results obtained in craniotomy in lowering morbidity rate, mortality rate, recovery time and length of hospital stay for neurosurgery. We recommend EBHC technique to be widely used in the treatment of SCSH to avoid large craniotomies, particularly in elderly patients, so that patients can receive the best treatment on the basis of minimal trauma ¹⁾.

A retrospective case note review comparing EBHC and OBHC of SCSH was therefore performed. Data of patients with a SCSH for EBHC or OBHC during the period from January 2011 to December 2016 were retrospectively collected and analysed. Of 73 patients, 42 underwent EBHC and 31 patients were treated by OBHC. The primary outcome measure was recurrence rate and secondary outcome measures were clinical outcome at first postoperative day, discharge and 6 months, the length of hospital stay for neurosurgery, the operative time, and the placement time of drainage tube. RESULT:

The rate of recurrence was significantly lower in the EBHC (0/42 0%) than in the OBHC (8/31, 25.8%) group ($p=0.0030$). The rate of morbidity was significantly lower in the EBHC (2/42, 4.8%) than in the OBHC (11/31, 35.5%) group ($p=0.0121$). At 30 days, mortality did not differ between groups. Significantly more patients treated with EBHC were alive at 6 months than were those with OBHC. No patient died as a consequence of the operative procedure in the both groups. A discharge GCS of 15 was recorded in more participants with EBHC than in those with OBHC. Gross neurological deficit was significantly less frequent in those with EBHC than in those with OBHC at first postoperative day and

discharge, but did not differ at 6 month follow-up. The mean placement time of drainage tube was significantly less in those with EBHC (27.2 hours) than in those with OBHC (52.0 hours, $p=0.0055$). The mean length of hospital stay for neurosurgery was 4 days in the EBHC group, while it was 5 days in the OBHC group ($p=0.0015$). The mean hematoma reduction rate was significantly higher in those with EBHC than in those with OBHC at first postoperative day (85.3% vs 72.5%, $p=0.0037$) and discharge (90.3% vs 85.1%, $p=0.0127$). CONCLUSION:

Comparing two minimally invasive procedure protocols for treatment of SCSH, EBHC is a safe and effective surgical technique. It significantly surpasses the results obtained in OBHC in lowering recurrence rate, morbidity rate, placement time of drainage tube, and length of hospital stay for neurosurgery. We recommend EBHC technique to be widely used in the treatment of SCSH, even common chronic subdural hematoma (CSH), subacute and acute subdural hematomas, acute epidural hematomas and empyemas to avoid large craniotomies, particularly in elderly patients, so that patients can receive the best treatment on the basis of minimal trauma ²⁾.

A total of 76 consecutive patients with sCSDH underwent BHC or ES in our institution. Their clinical data were retrospectively analysed to identify the factors associated with sCSDH recurrence and to evaluate the effectiveness of BHC and ES with respect to preventing sCSDH recurrence.

There were no significant differences in gender, age, Markwalder grade, side of haematoma, preoperative mid-line shifts, intervals, clinical features or medical histories between the two groups. Bilateral sCSDH was the only factor that significantly influenced the sCSDH recurrence rate (RR) ($p = 0.001$). Male gender, age ≥ 60 years, poor Markwalder grade, preoperative mid-line shifts ≤ 10 mm, postoperative mid-line shifts >10 mm, neovessels, intervals ≤ 20 days and medical histories tended to be associated with sCSDH recurrence. The RRs in the BHC and ES groups were 13.7 and 8.7%, respectively. ES eliminated more factors associated with recurrence than BHC; however, ES required more surgery time ($p < 0.001$) and more medical consumption ($p < 0.001$) than BHC.

Bilateral sCSDH exerted the most significant influence on the sCSDH RR. There was no difference between ES and BHC with respect to decreasing the sCSDH RR. However, BHC is a more efficient procedure than ES, as it required less surgery time and less medical consumption than ES ³⁾.

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