Chronic Subdural Hematoma Surgical Technique

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There is lack of uniformity about the treatment strategies, such as the role of burr hole, twist drill, craniotomy, etc., in CSDH amongst various surgeons. There is also disagreement about the use of drain, irrigation, and steroid [1) 2)].

Twist drill craniostomy, Burr hole trephination, and standard craniotomy have similar neurologic outcomes in elderly patients. The presence of thick membranes is a relative contra-indication for Twist drill craniostomy due to high 30-day recurrence. Patients > 80 have a higher risk of stroke and increased length of stay with standard craniotomy [3].

(1) Twist drill craniostomy for chronic subdural hematoma is a relatively safe technique that can be employed under local anesthesia and thus can be considered as first-line treatment in high-risk surgical candidates. (2) Single and double burr hole craniotomies have shown comparable results. (3) Intraoperative irrigation during burr-hole craniostomy doesn't affect the outcome. (4) Drain insertion after hematoma evacuation lowers the recurrence risk. (5) Position of the drain is not significant but early drain removal is associated with higher recurrence rates. (6) Craniotomy is associated with high morbidity and mortality, hence should be reserved for recurrent and large septate hematoma cases. (7) Head elevation in the postoperative period reduces recurrence. (8) Middle meningeal artery embolization for chronic subdural hematoma: A novel treatment modality, is promising but requires further approval in terms of large sample-sized multicenter randomized control trials. In conclusion, further research is required on the subject to formulate guidelines regarding the management of this common neurosurgical emergency [4]

Till 1970s, craniotomy was the most commonly used method [5] [6] [7] [8].

Burr hole trephination for chronic subdural hematoma became the most preferred method from 1980s. Later burr hole trephination (BHT) was adopted because it was less invasive with lower morbidity and recurrence rates when compared with standard craniotomy [9] [10] [11] [12] [13] [14].

In 1977, Twist drill craniostomy for chronic subdural hematoma was introduced. Closed system drainage after a Burr hole (BH) or a Twist drill (TD) became the most frequently used surgical method [15].

Pre-operative evaluation of radiological features of CSDHs is crucial in determining the right indication for minimally invasive drainage. Minimally invasive treatments of CSH may reduce the use of anaesthetic drugs and worsening of pre-existing neurodegenerative disorders [16].

The duration of procedure was significantly more in Burr-Hole Craniostomy BHC than in Twist-Drill Craniostomy TDC. In postoperative outcome, there was no significant difference in the GCS score, motor power improvement, motor power deterioration, overall clinical improvement, and improvement in CT scans of both the groups. Postoperative residue requiring reoperation was significantly more in TDC group. There was no significant difference in the development acute SDH, reoperation rate, complications, death, and hospital stay in both the groups. Avoiding the complications of general anesthesia and giving the equal postoperative improvement and complications of BHC, the TDC is considered as an effective alternative to the BHC in the surgical management of CSDH [17]

Although nonsurgical treatment is often successful, trephination has more advantages, such as rapid resolution of the symptoms and short period of hospitalization. Nonsurgical treatment is possible in

asymptomatic patients with a small CSDH. For the symptomatic patients with CSDH, trephination is the treatment of choice, either by BH or TD. In gray zone between surgery and medical treatment, shared decision making can be an ideal approach. For chronic subdural hematoma recurrences, repeated trephination is still effective for patients with a low risk of recurrence. If the risk of recurrence is high, additional management would be helpful. For the refractory CSDHs, it is necessary to obliterate the subdural space [18].

The traditional methods include evacuation via a burr hole with closed system drainage with or without irrigation, two burr-hole craniostomy with closed system drainage with irrigation or craniotomy, with subdural drain or without drain placement.

Minicraniotomy (MC) emerged as an attractive alternative to BHT as it allows better visualisation of the subdural cavity, enabling better haemostasis and resection of membranes.

Although bedside twist drill evacuation may avoid operating room costs and anesthetic complications in an elderly patient population and allow earlier anticoagulation resumption treatment if necessary, there is also a risk of morbidity if uncontrolled bleeding is encountered or the patient is unable to tolerate the bedside procedure. However, bedside twist drill craniostomy is a reasonable and effective option for the treatment of subacute/chronic SDH in patients who may not be optimal surgical candidates [19].

Subperiosteal vs Subdural Drain After Burr-Hole Drainage of Chronic Subdural Hematoma: A Randomized Clinical Trial (cSDH-Drain-Trial) [20].

Burr hole trephination for chronic subdural hematoma

see Burr hole trephination for chronic subdural hematoma.

Twist drill craniotomy for chronic subdural hematoma

see Twist drill craniostomy for chronic subdural hematoma.

Subdural drain for chronic subdural hematoma

see Subdural drain for chronic subdural hematoma.

Subdural evacuating port system for chronic subdural hematoma

see Subdural evacuating port system for chronic subdural hematoma.

Subperiosteal drain for chronic subdural hematoma

see Subperiosteal drain for chronic subdural hematoma

Craniotomy for chronic subdural hematoma

see Craniotomy for chronic subdural hematoma.

Neuroendoscopy

see Chronic subdural hematoma neuroendoscopy.

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