Hypertensive basal ganglia hemorrhage

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This type of basal ganglia hemorrhage is typically caused by chronic high blood pressure, which damages the small blood vessels within the brain, leading to weakening and eventual rupture. The bleeding within the brain tissue can cause inflammation and damage to brain cells, leading to neurological deficits.

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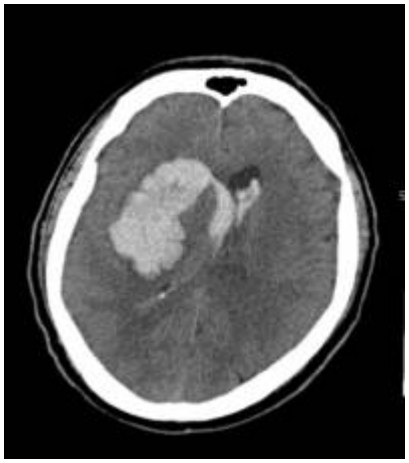
see Hypertensive intracerebral hemorrhage

A 52-year-old patient with dizziness. Subsequently, he suffered a fall, subsequently presenting aphasia and left hemiplegia.



Intraparenchymal blood collection centered on the right basal ganglia of 6 x 6.3 x 3.9 cm (CCxAPx T) can be seen, suggesting a hypertensive origin with an opening to both lateral ventricles, the 3rd and

4th ventricle and also an extension to the parenchyma of the frontal operculum and the ipsilateral parietal.

- General anesthesia. Supine position. Right parietal C-shaped skin incision

- Right parietal craniotomy supported on 3 trephines with the help of a high-speed motor. Pedicled C-shaped durotomy towards the superior longitudinal sinus. Tension brain without a heartbeat. - The part of the hematoma closest to the surface is checked with the help of intraoperative ultrasound. Corticectomy and hyperacute liquid hematoma is observed. Intraparenchymal clot aspiration and washing with abundant serum. Relaxation of the brain and recovery of the heartbeat are observed. - Hemostasis with floseal on the surgical bed. Profuse bleeding from the cortical veins at their entrance into the superior longitudinal sinus is controlled with bipolar and tachosil coagulation. When stretching the dura mater for its suture, the venous bleeding reappeared, so it was decided to apply the tachosil for dural closure. - Craniotomy replacement with miniplates. Closure of the incision by layers (subcutaneous with absorbable and skin with clips).

Case series

The clinical data of 174 HBGH patients treated in our hospital from January 2018 to September 2020 were retrospectively analyzed. They were divided into minimally invasive NES group (n = 90) and SBWC microsurgery group (n = 84). Their operation time, hematoma clearance rate, rebleeding and prognosis were compared.

In the minimally invasive NES group, the operation time and intraoperative hemostasis time were significantly shorter, and the intraoperative blood loss was significantly less than those in SBWC microsurgery group (p menor de 0.001). The preoperative Glasgow coma scale (GCS) score was 8.64 ± 1.04 points and 8.68 ± 1.02 points respectively in minimally invasive NES group and SBWC microsurgery group (p mayor de 0.05). At 24 h after operation, the GCS score in minimally invasive NES group rose to 12.89 ± 1.56 points, and it had a significant difference from that in SBWC microsurgery group (11.18 ± 1.14 points, p menor de 0.001). The volume of brain edema was 11.82 ± 3.25 mL in minimally invasive NES group and 18.89 ± 3.15 mL in SBWC microsurgery group (p menor de 0.001). In minimally invasive NES group, the clearance of hematoma was superior to that in SBWC microsurgery group, and the prognosis was also better than that in SBWC microsurgery group.

Minimally invasive NES has better efficacy than SBWC microsurgery in the treatment of HBGH [1)].

Twenty-six patients were enrolled in the retrospective study. The volume of hematoma in those patients was between 25 and 35 mL, and the Glasgow Coma Scale scores were between 9 and 11; they were divided into a hematoma puncture drainage treatment group and a traditional conservative treatment group. The volume of remaining hematoma, neurological function defect scores, and life quality after treatment, duration of hospitalization, and cost of hospitalization were analyzed in these 2 groups.

Results: The volume of remaining hematoma was significantly less in the drainage group than that in

the traditional group on the first day and the third day after treatment ($P < 0.05$). Posttreatment neurological function defect scores in the drainage group were statistically lower than those in the traditional group ($P < 0.05$). The duration of hospitalization was significantly shorter and the cost of hospitalization was also significantly less in the drainage group than that in the traditional group ($P < 0.05$). The Extended Glasgow Outcome Scale and Barthel Index scores were significantly higher in the drainage group than those in the traditional group ($P < 0.05$). There were no significant differences between the 2 groups in the complication rates ($P > 0.05$).

The modified hematoma puncture drainage treatment represents an effective and safe way to treat hypertensive basal ganglia hemorrhage [2)].

Li et al. developed a simple, low-cost navigation method using an Android smartphone for the localization of HBGH.

All patients' CT DICOM data were processed with open-source software (3D Slicer). The volume of the hematoma, angle, and length of trajectory was calculated automatically. A smartphone running the Android system and the Compass APP was used to help insert the inner introducer. An endoscopic port system was applied to create a working channel for neuro-endoscopic hematoma evacuation.

Results: There were 27 patients enrolled in this study (mean age 56). All patients underwent successful surgical evacuation of HBGH with neuroendoscopic evacuation. The mean time taken for the surgical plan was 4 min. The total operation time from skin incision to final suture was 82.6 min. Compared with standard neuronavigation, mean error of trajectory was 5.1 mm. The mean preoperative hematoma volume was 44.8 ml. The optimal trajectory angle averaged 39.5°and the length was 71 mm. Intraoperative blood loss was about 45 ml. Post-operative hematoma volume was 2.9 ml, and the average evacuation rate was 93.6%. One week after surgery, the mean GCS score was improved from 8.2 to 13.8 ($p < 0.01$).

This simple, low-cost navigation method using 3D Slicer, an Android smartphone with the Compass APP, helps precisely insert the endoscopic working channel to the desired point, which is crucial for the satisfactory evacuation of HBGH [3)].

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study enrolled 102 patients with hypertensive basal ganglia hemorrhage who received treatment at our hospital between April 2020 and June 2020. They were divided into a control group (51 cases, burr hole evacuation of intracranial hematoma) and a study group (51 cases, modified transfrontal puncture drainage) using the random number table method. The operative time, hematoma evacuation rate, time to recovery of consciousness, postoperative Glasgow coma scales (GOS), and the length of hospital stay were compared between the two groups. The postoperative recovery of neurological function in the two groups was observed, and activities of daily living at 3 months postoperatively in the two groups were statistically analyzed. The postoperative complications and recurrent bleeding, as well as prognosis in the two groups, were recorded.

Results: The operative time, hematoma evacuation rate, time to recovery of consciousness, postoperative GOS scores, time to extubation, and the length of hospital stay of the two groups were compared postoperatively, and the difference was statistically significant ($p < 0.05$). The preoperative neurological function of the two groups was compared, and the difference was statistically insignificant ($P > 0.05$). The postoperative neurological function of the study group was lower than that of the control group, and the difference was statistically significant ($P < 0.05$). The postoperative

incidence of stress ulcer, renal failure, and recurrent bleeding in the two groups was compared, and the difference was statistically insignificant ($p > 0.05$). The rate of pulmonary infections and gastrointestinal bleeding in the study group was lower than that of the control group, and the difference was statistically significant ($P < 0.05$). The mortality rate of the study group was 1.96% (1/51) and that of the control group was 3.92% (2/51), and the difference was statistically insignificant ($p > 0.05$). The activities of daily living in the two groups were compared and the difference was statistically insignificant ($p > 0.05$).

Modified trans frontal puncture drainage can effectively treat hypertensive basal ganglia hemorrhage patients and has relatively good safety [4)]

Twenty-nine patients with hypertensive basal ganglia hemorrhage were treated with keyhole surgery and studied in Guangdong sanjiu brain hospital.

Results: By using a bone suture marked keyhole transsylvian approach, near-complete (90%) hematoma evacuation was achieved in 21 cases (72.4), 70% to 90% in 8 cases (24.1), and less than 70% in 1 case (3.4%). In our cohort, 55.1% (16/29) with good function (GOS score 4-5), 41.3% (12/29) with disability (GOS score 3), and 3.4% (1/29) in a vegetative state (GOS score 2). No patients died within 6 months of the operation.

Conclusions: Our method can greatly minimize bone exposure and precisely located the distal Sylvian fissure. A stable keyhole craniotomy based on bone sutures can be identically safe and effective in comparison with classic surgery, and it consumes less time and less intra-operative bleeding [5)].

A total of 64 patients with hypertensive basal ganglia hemorrhage were enrolled in this retrospective study. They were divided into a navigation group and a traditional group based on surgical approaches. The data for the 2 groups of patients were analyzed with regard for the hematoma clearance rate, duration of surgery, duration of hospitalization, Glasgow Outcome Scale score at discharge, Barthel index score at 6 months, and postoperative complication rates for rebleeding and pneumonia.

Results: There were no significant differences in basic characteristics between the 2 groups ($P > 0.05$). The hematoma clearance rate was significantly lower in the navigation group (49.18 ± 16.76%) than in the traditional group (84.29 ± 6.91%, $P < 0.01$). The duration of surgery and duration of hospitalization was significantly shorter in the navigation group (55.00 ± 11.89 minutes and 24.25 ± 7.1 days, respectively) than in the traditional group (156.38 ± 47.9 minutes and 32.63 ± 9.8 days, respectively; both $P < 0.01$). There were also significant differences between the 2 groups in Glasgow Outcome Scale scores ($P = 0.006$). The Barthel index scores were significantly greater in the navigation group (73.13 ± 18.76) than in the traditional group (57.63 ± 26.63, $P < 0.05$). There were no significant differences between the 2 groups in the complication rates ($P > 0.05$).

Conclusions: Under certain conditions, compared with standard craniotomy and hematoma evacuation, navigation-guided hematoma puncture aspiration and catheter drainage is simple, effective, and safe as a treatment for hypertensive basal ganglia hemorrhage [6)].

1)

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