Adequate decompression is the main goal in the surgical management of traumatic brain injury (TBI) patients. It is therefore a contra-intuitive concept to apply minimally-invasive strategies to these patients. However, it is a fact that minimally-invasiveness and adequate decompression may both be achieved in the hope to preserve more viable brain tissue and maximize the neurological recovery of these patients. In recent years, minimally invasive neurosurgery (MIN) has been increasingly applied to surgically treat patients with spontaneous intracerebral hemorrhage (ICH). By preserving more normal brain tissue, these patients have faster recovery and improved neurological outcome. With the recent progress in MIN techniques, imaging, optics, devices, and biologics, several groups have applied similar surgical technique to a group of judiciously selected patients with traumatic contusion, epidural hematoma, and subdural hematoma.

Results

Thirty-eight TBI patients were included in this study, among these, 28 patients have TICH (18 isolated and 10 with brain swelling), 6 have EDH and 4 have SDH. Surgery-related mortality was 2.6%. The average percentage of hematoma evacuated was 85%, and the rebleeding rate was 5.3%. The mean operative time was 102.7 minutes and the average blood loss was 68 mL. The mean postoperative GOSE score was 4.55 at 6-months follow-up.

MIN is safe and effective in carefully selected cases of TBI. It is especially useful for removal of TICH. However, it is crucial to determine the need of decompression craniotomy.