Removal of Putaminal Hemorrhage by Endoscopy


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**Purpose.** Endoscopic surgery for evacuating intracranial hemorrhage (ICH) is a minimally invasive method, but is relatively inefficient for evacuating hematoma. To improve the efficiency of endoscopic surgery, we used a stainless steel tube as an endoscope sheath, combined with a working channel endoscope to evacuate hypertensive putaminal hematoma.

**Methods.** From January 2004 to April 2004, eight patients with putaminal hematoma were treated by endoscopic surgery in our hospital. During surgery, we experimented with two different entry sites (temporal and frontal) to approach the hematomas.

**Results.** There were no surgical complications. The hematoma evacuation rate via the frontal approach was greater than 90% (median 92%) while the rate via the temporal approach was 66%.

**Conclusions.** A working channel endoscope combined with a stainless steel endoscopic sheath via a frontal burr hole approach can facilitate the evacuation of putaminal hematoma in endoscopic surgery. (Mid Taiwan J Med 2005;10:84-9)

**Key words**
endoscopy, intracerebral hemorrhage, minimally invasive surgery

**INTRODUCTION**

Hypertensive intracerebral hemorrhage (ICH) is a common neurosurgical emergency in clinical practice. Evacuation of deep-seated ICH by craniotomy is controversial because of the high rates of mortality and morbidity after surgery. Endoscopic surgery is a less risky procedure [1-4]. Although it has the advantage of being less invasive than craniotomy, many researchers believe that it is relatively inefficient for evacuating hematoma [1]. One of the reasons for such poor results could be the limited visualization of the surgical field. To increase the field of view and to improve the efficiency for evacuating hematoma during endoscopic surgery, we developed a stainless steel tube to guide the endoscope in order to evacuate putaminal hematoma. We also selected different entry points according to the configuration of hematoma in endoscopic surgery in order to increase the efficiency of hematoma evacuation.

**MATERIALS AND METHODS**

**Stainless steel sheath and endoscope**

The endoscopic sheath comprised an 11-cm-long rigid stainless steel tube (Fig. 1). Its outer diameter was 10 mm and the inner diameter was 8 mm. A round-tipped metal stylet was inserted into this sheath while the sheath was advanced into the brain parenchyma. A 4 mm 0-degree-rod-lens working channel endoscope (Carl Storz Gmbh & Co. KG) was used for illumination. A 2.5 mm diameter suction tube was manually inserted and passed through the remaining space within the sheath.