Endoscopic Visualisation of Chronic Subdural Hematoma- A new perspective.

Dr. Partha Ghosh, Prof. (Dr.) Fuminari Komatsu; Endoscopy Unit, Institute of Neurosciences Kolkata.

Chronic subdural hematoma (CSDH) is characterised by dark reddish blood accumulated in subdural space and surrounded by a thin outer membrane, which persisted more than 3 weeks after a head trauma history. It is a common type of intracranial haemorrhage in elderly patients, and its incidence rate increase with age. The standard treatment of symptomatic CSDH is surgical evacuation. The principle techniques presently are twist drill craniotomy, burrhole craniotomy and craniotomy. Of these procedures, burrhole evacuation is the most popular technique worldwide. Recently, minimally invasive surgery with a neuro-endoscope for CSDH has been successfully demonstrated.¹ This technique may provide broader visualization and the chance to separate the membrane of the intra-hematoma cavity to reduce the recurrence rate, which makes it a promising method for the treatment of CSDH.²

In our institution, we performed 52 cases of endoscopic evacuation of Chronic Subdural hematoma within the time period of December 2018 to January 2020. In all cases we used Olympus 4K endoscope or Karl Storz HD Endoscope, 30 degree endoscope, malleable suction, monopolar and angled bipolar coagulation. During those cases we encountered different types of CSDH. From radiological picture of Chronic Subdural hematoma, we often gather much information regarding the nature of CSDH. Imaging of representative patients with chronic subdural hematomas according to the classification described by Nakaguchi³ et al. A) Hypodense subtype ; B) Isodense subtype ; C) Hyperdense subtype ; D) Laminar type ; E) Separated type ; F) Gradation subtype ; and G) Trabecular type.
A) Endoscopic view of CSDH with multiple septations within, B) After evacuation view of subdural space and drain placement, C) Endoscopic view of Multiple compartmental CSDH, D, E, F) opening up the multiple membranes using Jelco needle under endoscopic visualisation, G) placement of subdural drain under endoscopic vision.
By endoscopic procedure, we can see that different kinds of CSDH, and manage under direct endoscopic vision. In our series of patients in one year we encountered a variety of CSDH apart from the above mentioned types of CSDH. We also encountered some subdural types like multiple layers of membranes which were dealt properly with endoscope.

**Advantages of endoscopic evacuation of CSDH are as follows**:

- Chronic subdural hematoma with multiple compartments can be evacuated endoscopically, so that morbid decompressive craniotomy can be avoided.
- Some of the different types of CSDH like CSDH with multiple septations, multiple layers of membrane, chronic subdural with acute component can be properly managed with endoscopy.
- Subdural drain placement can be done with direct endoscopic visualisation, so that subdural drain related complications can be avoided.
- In some types of CSDH like laminated or multiple membranous CSDH by endoscopy, adequate opening of membranes can be done and risk of further recurrence can be reduced.4

**Conclusion**

Endoscopic visualisation and evacuation of CSDH is still not widely practiced, maybe non availability of endoscopic facility is the main cause. In literature there are very few studies till date, which conclusively determine the advantage of endoscopic evacuation of chronic subdural hematoma. May be in near future endoscopic evacuation of CSDH will become the treatment of choice.

**References**:


