ORIGINAL RESEARCH PAPER

Volume-8 | Issue-3 | March-2019 | PRINT ISSN No 2277 - 8179

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

ENDOSCOPIC EVACUATION OF INTRACRANIAL HEMORRHAGE –INSTITUTIONAL EXPERIENCE

Neurosurgery

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ABSTRACT

Intracranial haemorrhage (ICH) accounts for 10-20% of all stroke admission in hospitals, leads to severe mortality and morbidity.6 months mortality is 30-50%.Long term outcomes was very poor. Only 20% patients regain their functional independence in 6 months. The symptomatology mostly depends on location and volume of haematoma often compelling emergency admission. The major prognostic factor in ICH is admission GCS. In endoscopic procedure, one of the major advantages is reduced manipulation of viable brain tissue. Endoscopic procedure have short surgery duration and over all recovery time. Endoscopic evacuation is best procedure of choice in ICH management,but it need multidisipilinary approch and further evaluation .

KEYWORDS

Intracranial hemorrhage, Endoscopic evacuation, Glasgow Outcome Scale

INTRODUCTION

Intracranial haemorrhage (ICH) accounts for 10-20% of all stroke admission in hospitals, leads to severe mortality and morbidity. Six months mortality is 30-50%.Long term outcomes was very poor. Only 20% patients regain their functional independence in 6 months. ICH classified as primary or secondary.

Primary ICH is when the haemorrhage from spontaneous rupture of small arteries or arterioles due to damage from chronic hypertension or amyloid angiopathy. It mainly affects elderly population.

Secondary ICH is result from, head injury; rupture of arteriovenous malformation; rupture of intracranial aneurysm; coagulopathy; haemorrhagic conversion of cerebral infarct; intracranial tumour; other vascular lesion

AIM

The aim of the study is to analyze the effectiveness of endoscopic ICH evacuation.

MATERIALS AND METHODS

Five patients admitted to neuro ICU with intracerebral haemorrhage were chosen after thorough clinical and radiological assessment and planned for endoscopic ICH evacuation.

Laboratory investigations

CT brain
Hb%
Coagulation profile
Liver function test
Routine blood examination
Blood grouping and Rh typing
Serum electrolytes

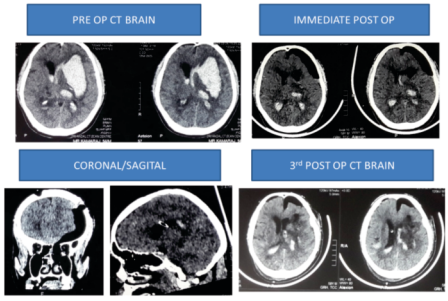
ENDOSCOPE AND ACCESSERIES USED IN THIS PROCEDURE

Using 0 degree rigid scope with camera and camera to projector converter with fibro optic cable and white LED. Patient was administered general anaesthetia with supine positioning and scalp incision and single burr hole over the localized area of ICH using CT guidance.EVD tube positioned, dural opening and conrtisectomy done and evacuation of ICH was done. Absolute hemostasis was obtained and closure was done.

CASE STUDIES

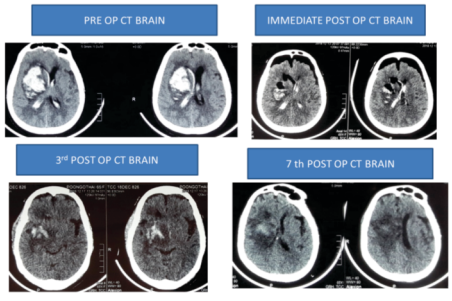
CASE-1

58 years old male , a known HT with abnormal RFT with normal coagulation profile and LFT parameters with admission GCS of E1 V1 M4- 6/15 and CT measured volume of ICH of 60 ml and associated IVH. The patient underwent procedure with a total time of 60 minutes with intraoperative infusion of one unit of blood. The final prognosis was poor.



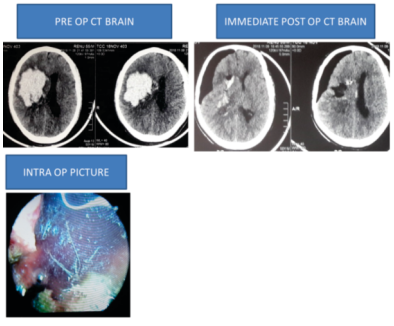
CASE -2

70 years old female who is a known HT with normal coagulation profile and normal renal and liver function parameters with admission GCS of E1 V1 M4 and CT measured volume of ICH of 65 ml. Patient underwent early intervention in the form of EVD and intraoperative time was 50 minutes with transfusion of one unit of blood and had a good prognosis.



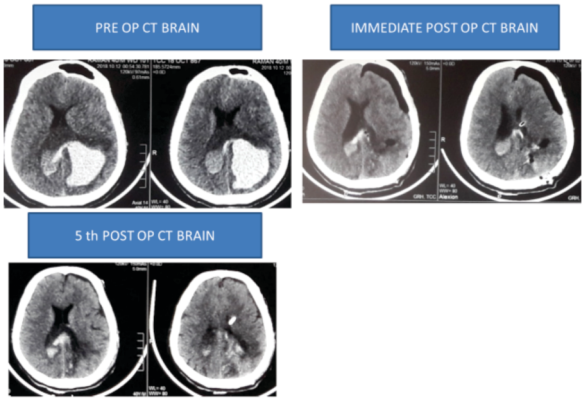
CASE 3

58 year old male who was a known HT with normal coagulation profile ,normal LFT,RFT with admission GCS E1V1M5 7/15 who underwent early intervention in the form of EVD with transfusion of one unit of blood with intraoperative time of 50 minutes and had good prognosis.



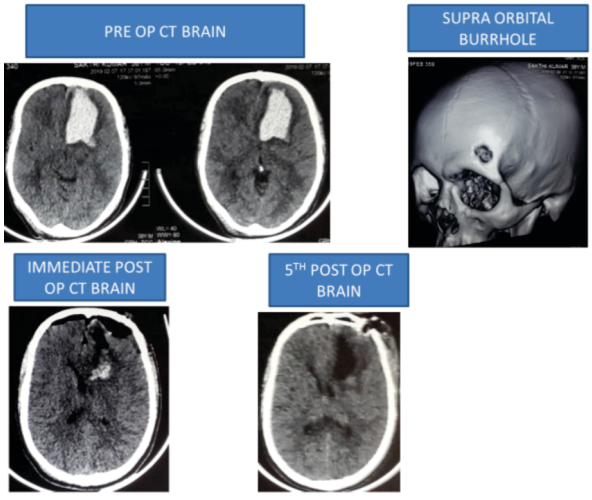
CASE 4

57 years old male who was a known DM with normal coagulation profile and renal and liver paramenters with admission GCS of E2 V4 M5 -11/15 with CT measured ICH volume of 35 ml and who underwent early intervention with no EVD and duration of surgery was 50 minutes with one unit of blood being transfused and had good prognosis.



CASE 5

40 years old male who is a known HT and DM with normal coagulation profile and normal LFT and RFT with admission GCS of E3 V3 M5-11/15 and volume of ICH of 30 ml who underwent early intervention and duration of surgery was 60 minutes with one unit of blood being transfused and no EVD insertion.



DISCUSSION

The symptomatology mostly depends on location and volume of haematoma often compelling emergency admission. Lobar ICHs are associated with the symptoms localised to affected cerebral lobe, paresis of arm or leg, or aphasia and the same were observed in our cases. ICH of basal ganglia could be asymptomatic if small, but larger ICH in this region leads to sensory-motor contralateral hemiparesis, sometimes in combination with aphasic disorders or homonymous hemianopia. Hence thorough clinical examination holds a key role in order to locate the lesion.

SIGNIFICANCE OF CT

The universal availability of CT scan brain round the clock makes it as the first choice of imaging modality in the diagnostic work up of such cases.The sensitivity of CT brain has been reported to be more than 95%. In our cases, CT scan was the only modality of imaging used.

PROGNOSTIC FACTOR

The major prognostic factor in ICH is admission GCS. Invariably, those patients with GCS of less than 8 will have poor outcome, irrespective of the method of evacuation either open or endoscopic, as in other studies.

SURGICAL GOAL

To remove the maximum amount of hematoma without damaging the surrounding normal brain, thus reducing mass effect, toxic burden of blood breakdown products and ICP.

ADVANTAGES

In endoscopic procedure, one of the major advantages is reduced manipulation of viable brain tissue. Instead of conventional blades which are used in open preocedure, the endoscopic sheath will go directly into the hematoma with which maximum volume of hamatoma can be evacuated with only slight tilt. Another advantage is this procedure need only small incision and a burrhole which reduces unnecessary blood loss.Endoscopic procedure have short surgery duration and over all recovery time. We can use thrombolytic agents in the hematoma cavity if needed.

PRE AND POST OP MANAGEMENT

HT management in preoperative and post operative period is paramount important because it is the major causative factor for most of the ICH. In our study, all patients are managed meticulously with anti hypertensive agents.Coagulation profile abnormality corrected with fresh frozen plasma and vitamin K injection in patients presented with that abnormality especially who are taking anti platelet medication.

CONCLUSION

Endoscopic evacuation is best procedure of choice in ICH management,but it need multidisipilinary approch and further evaluation .

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