

# Keyhole Approach for Microscopic Excision of Third Ventricular Colloid Cyst: Our Experience

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**Abstract** Endoscopic surgery has truly revolutionized the surgical management of colloid cysts. Their central and deep location within the third ventricle has historically demanded a great degree of surgical skill and demand on the patient. Until the last two decades the treatment options for patients with colloid cysts included a traditional craniotomy (opening the skull for removal of the cyst), stereotactic cyst aspiration, or placement of a shunt for hydrocephalus.

**Keywords:** colloid cyst, key hole approach

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## 1. Introduction

Colloid cysts are benign tumors that most commonly appear in the third ventricle and account for 0.5-2.0% of all central nervous system tumors. They are composed of an outer fibrous layer and an inner epithelium of ciliated or mucin-producing cells. In patients presenting with symptoms the mortality is estimated to be 3.1-12%. Overall mortality rate, regardless of presenting symptoms, is reported to be 1.2% (6, 8). Nearly 60% of these mucinous cysts are found incidentally during routine work-up for other neurological diseases and are asymptomatic. In symptomatic cases, obstructive hydrocephalus may occur due to proximity with the foramen of Monro. Additional symptoms include coma, headaches, nausea, and vomiting. Patient age, headache as a primary symptom, and hydrocephalus are significantly associated with symptomatic colloid cysts. More than half of the patients presenting with symptoms will need surgical intervention. Surgical treatment is indicated for cysts that are symptomatic, large, or associated with hydrocephalus. Close observation is considered for small asymptomatic lesions. We present here our experience of microsurgical excision of colloid cyst via a minicraniotomy.

## 2. Material and Methods

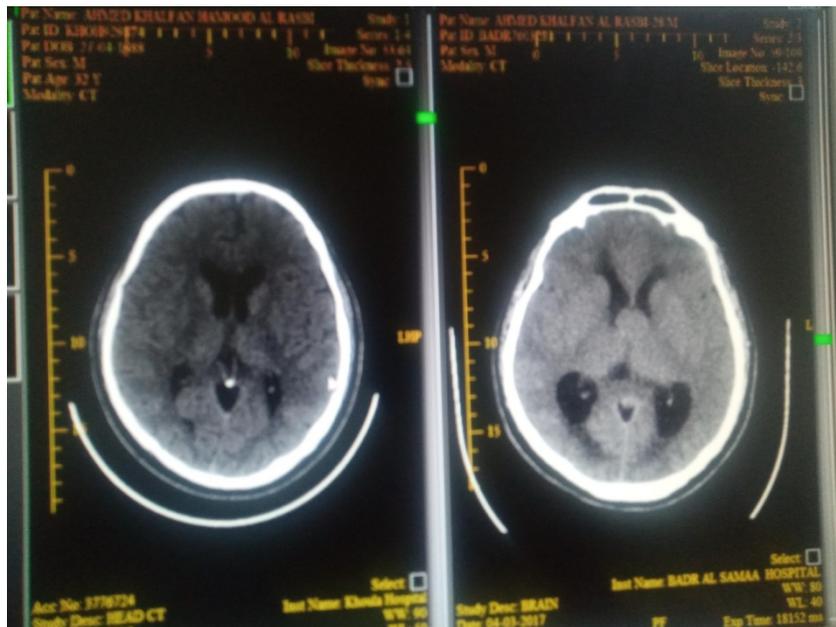
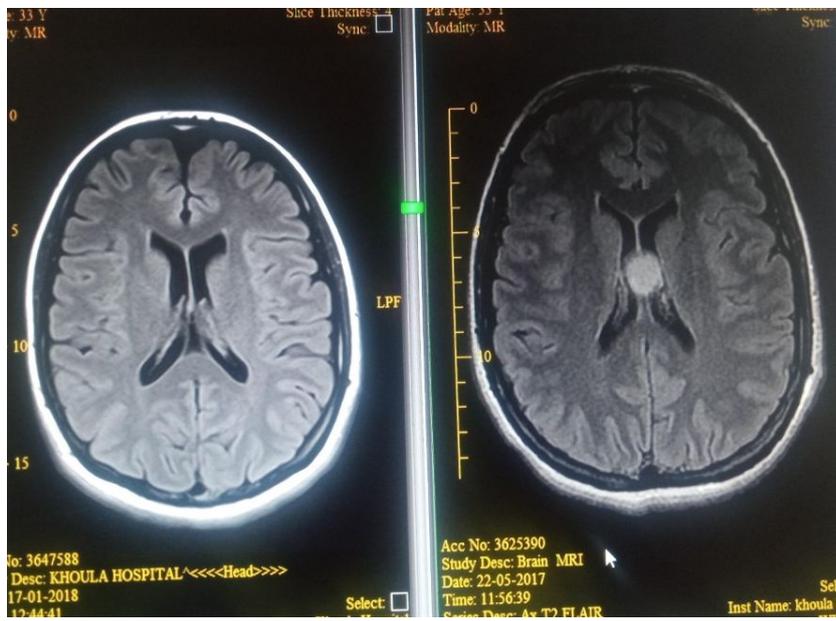
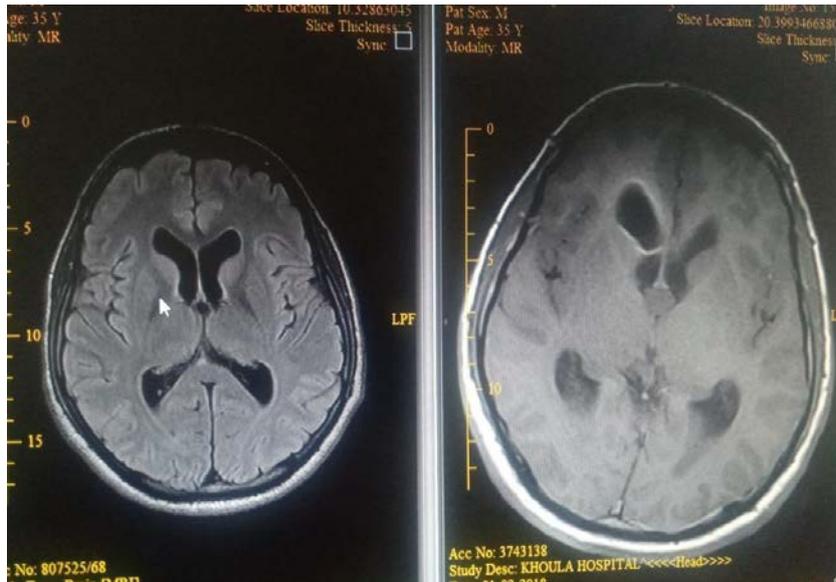
We herewith present 10 patients operated by single surgeon via a minicraniotomy. All these patients presented with headache except one who came as deteriorated GCS which required intubation and emergency external ventricular drain insertion and once patient improved underwent definitive surgery. All patients underwent CT and MRI which revealed third ventricular colloid cyst. After explaining all possible risks and benefits patient underwent navigation assisted minicraniotomy of 2 cm diameter size via a trans sulcal approach through midfrontal gyrus with microsurgical excision of the cyst.

## 3. Results

A total of 10 patients were operated via this approach as outlined in table. Out of these 10 patients, 9 had been males and 1 being female. 9 patients had been having only headache and 1 presented with deterioration of sensorium. Outcome was excellent.

Table 1. Details of the patients operated

S.No.	IP no.	Age/sex	Diagnosis	Approach	Outcome
1	875646	16yrM	Colloid cyst	Minicraniotomy microsurgical excision	Good
2	348166	35yrM	Colloid cyst	Minicraniotomy microsurgical excision	Good
3	113404	78yr M	Colloid cyst	Minicraniotomy Microsurgical excision	Good
4	307411	43 yr. M	Colloid cyst	Minicraniotomy microsurgical excision	Good
5	558338	34yr M	Colloid cyst	Minicraniotomy microsurgical excision	Good
6	854534	47yr M	Colloid cyst	Minicraniotomy microsurgical excision	Good
7	913958	37 yr M	Colloid cyst	Minicraniotomy microsurgical excision	Good
8	929874	32 yr M	Colloid cyst	Minicraniotomy microsurgical excision	Good
9	938511	33 yr F	Colloid cyst	Minicraniotomy microsurgical excision	Good
10	1011219	35 yr M	Colloid cyst	Minicraniotomy microsurgical excision	Good



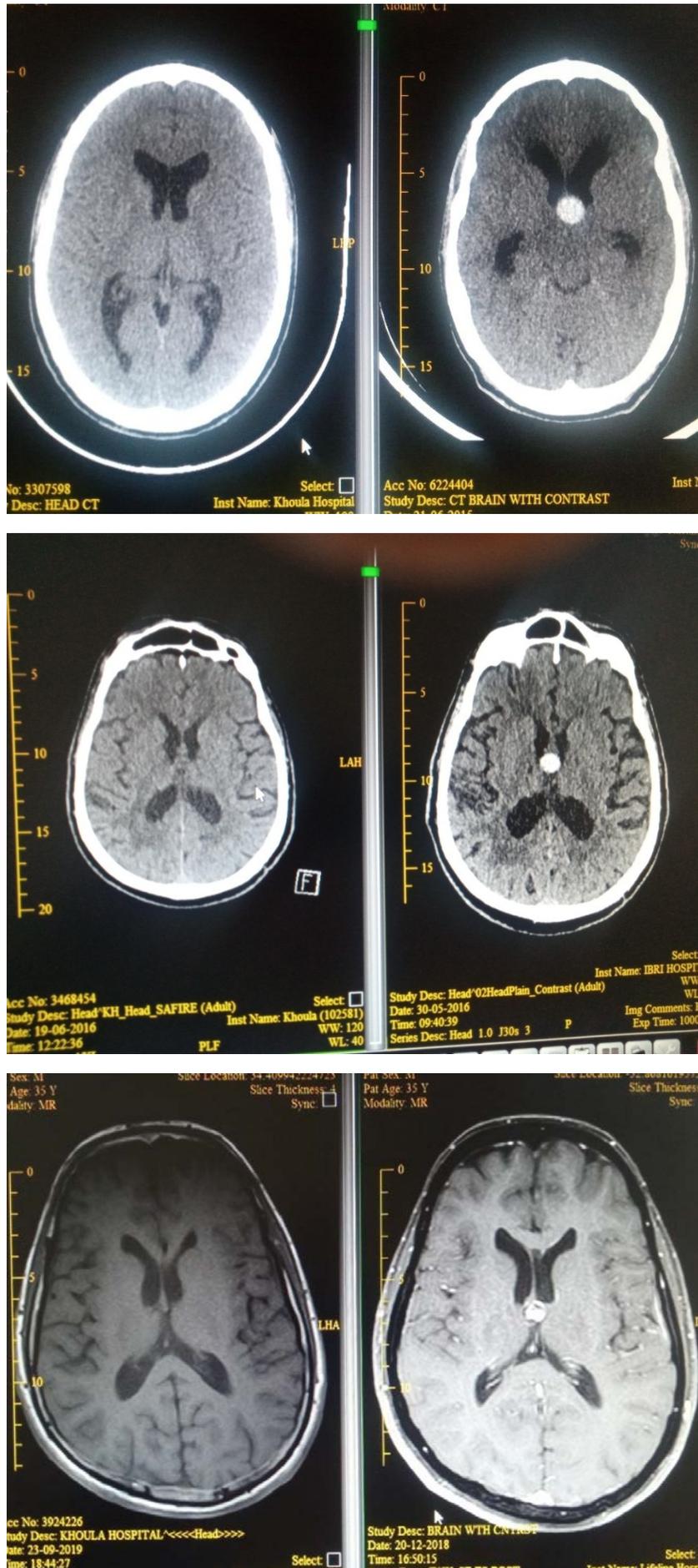
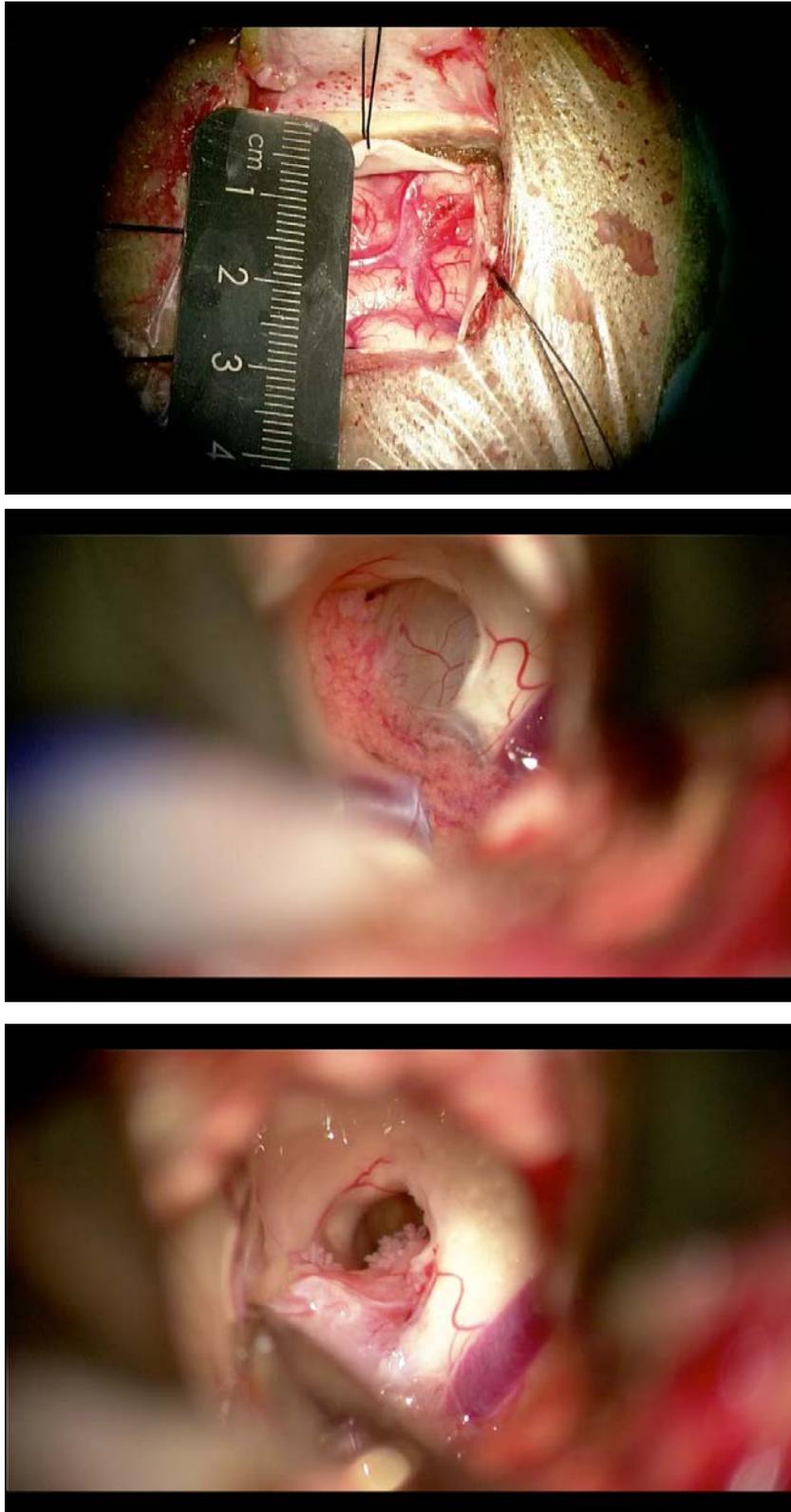


Figure 1. Pre and post op images of our patients with colloid cyst



**Figure 2.** Intraoperative pictures of minicraniotomy , pre and post op excision of colloid cyst

#### 4. Discussion

Haider G in 2017 studied many cases of colloid cysts and put down their guidelines for choosing patients for endoscopic removal or microscopic removal [1]. Shaikh AB in 2014 studied 1278 patients of colloid cyst and did a met analysis on both types of approach as endoscopic versus microscopic [2]. Spanchi PA

in 2017 further studied their group of patients undergoing microsurgical and endoscopic approaches [3]. Cohen Gadol in 2013 described minitubular approach for colloid cyst excision [4]. Ailan AM in 2017 further described tubular endoscopic approach for colloid cyst excision [5]. Bergsnider M on 2007 gave his series of colloid cyst excision by using dual port endoscope [6].

## 5. Conclusion

Endoscopic excision of colloid cysts is currently well established as a minimally invasive and highly effective technique that is associated with less morbidity in comparison to microsurgical resection however minicraniotomy with microsurgical excision still holds a role with comparative results.

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