

The utility of cyst fenestration prior to resection for cystic craniopharyngiomas

Hideyuki Harada, Kazuhito Takeuchi, Yuichi Nagata, Eiji Ito, Tatsuma Kondo, Yoshiki Sato, Ryuta Saito

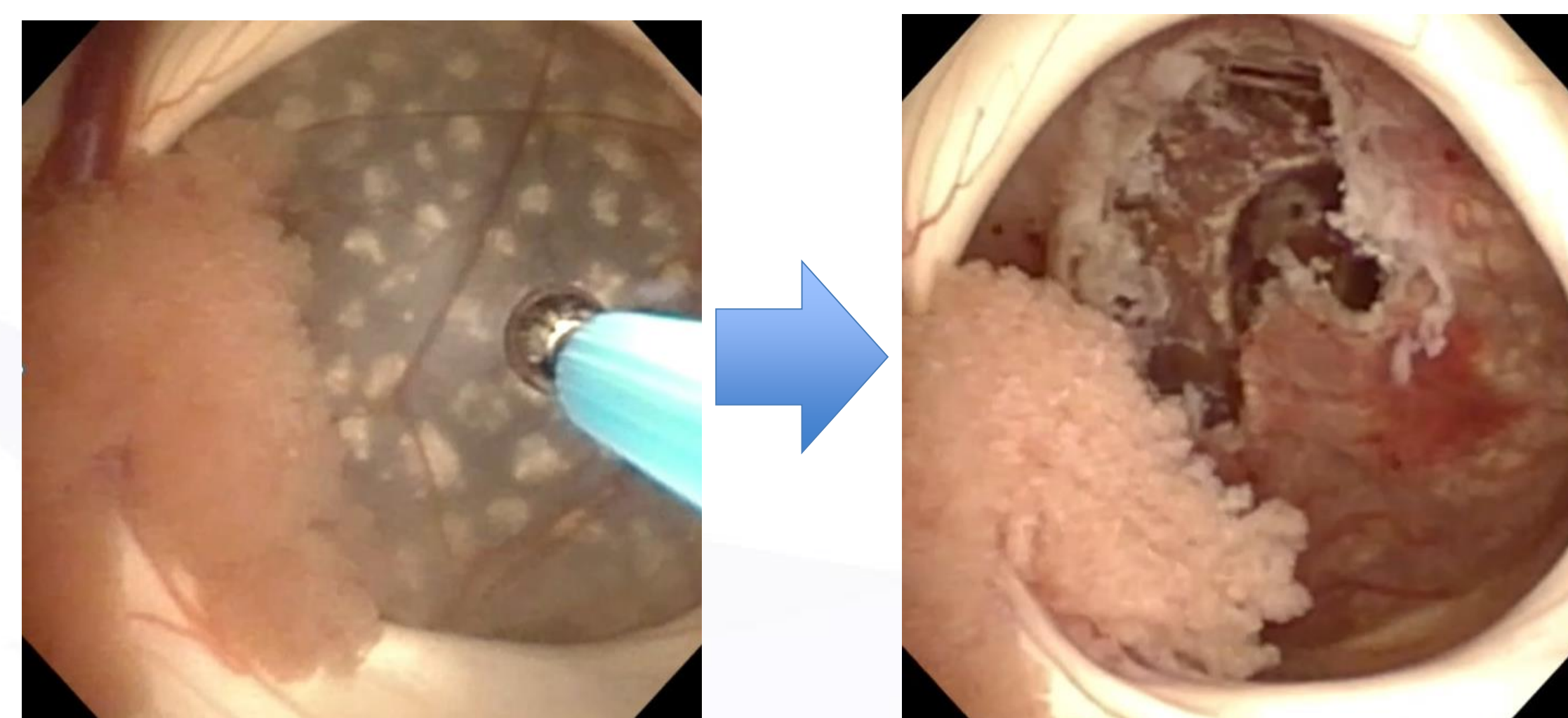
Department of Neurosurgery, Nagoya University, Aichi, Japan

Introduction

Craniopharyngiomas often form cysts, and they can be a cause of obstructive hydrocephalus. In some cases, emergent surgery is required, but total removal by TSS alone can be challenging when the cysts extend to upwards or outwards.¹⁾ In such cases, cyst fenestration prior to resection is an option.

Surgical Technique

Cyst fenestration for cystic craniopharyngioma was typically performed using a flexible endoscope and approached via foramen of Monro. The cyst was fenestrated using monopolar and dissected from the wall of the third ventricle to create a CSF pathway. Additionally, the cyst wall was removed as extensively as possible to prevent cyst closure.



Case series

No.	Age	Sex	Maximam diameter (mm)	Clinical symptoms
1	9	F	45	Headache, Vomit
2	7	F	51	Headache, Vomit
3	6	F	61	Appetite loss
4	47	M	47	Cognitive dysfunction
5	55	M	43	Visual dysfunction
6	55	F	40	Cognitive dysfunction
7	56	F	28	Cognitive dysfunction

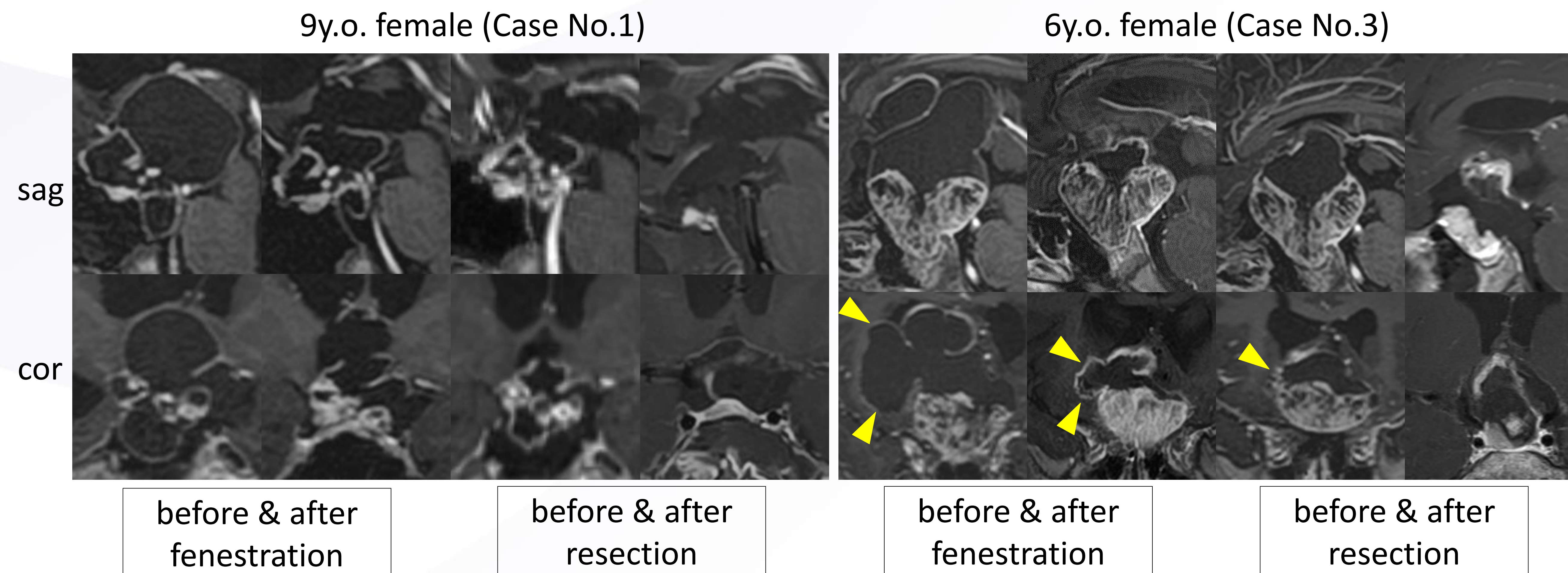
Result

	N=7
From fenestration to resection	Mean 54(27-76) days
Clinical symptoms after fenestration	Improved:100%(7)
Extent of resection	GTR:71%(5) , NTR29%(2)
Pituitary function after resection	Worsen:100%(7)
Visual function after resection	Improved:43%(3), unchanged:43%(3), worsened:14%(1)
Recurrence	29%(2)

Discussion

The symptoms of the obstructive hydrocephalus and nerve compression was successfully resolved after cyst fenestration. In addition, the tumor reduced in size especially in the lateral and upper compartment, making it more accessible for subsequent resection by TSS.²⁾ In particular, lateral extension of the cyst is likely to shrink because they are excluded by the pressure of brain parenchyma after the cyst pressure is relieved. This staged surgery is considered a suitable approach for craniopharyngioma with a large cystic component.

Figure



After cyst fenestration, hydrocephalus improved and the cyst shrank. Tumor resection was performed successfully.

Although the cyst wall was closed before resection, the lateral extension significantly shrank. After resection, the tumor remained because of severe adhesion, so re-op. and RT were added.

Conclusion

Cyst fenestration prior to resection for cystic craniopharyngioma is an effective technique. Especially, the cyst that extend laterally can be expected to shrink.

Reference

1. Tadashi Watanabe et al. Treatment for parasellar lesions with acute obstructive hydrocephalus. *Neurosurg Emerg.* 2022;27:66-71
2. Kelechi Nducuba et al. Cyst fenestration and Ommaya reservoir placement in endoscopic transcortical transventricular approach for recurrent parasellar cystic craniopharyngioma without ventriculomegaly. *J Clin Neurosci.* 2020;72:425-428.