Management of Recurrent Trigeminal Neuralgia Associated with Petro-clival Meningioma

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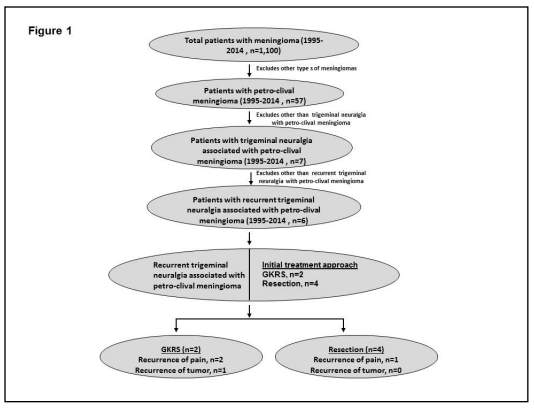
Introduction

Treatment approach for recurrent trigeminal neuralgia (TN) with petro-clival meningioma (PM) is not well understood. In this study, we sought to summaries the treatment approach for recurrent TN with PM.

Methods

We performed a retrospective review of 57 patients with PM. Out of 57, only seven patients presented with trigeminal neuralgia and six patients experienced recurrent TN. The study population was evaluated clinically and radiographically after treatment.

Figure 1



Learning Objectives

Management pattern of patients with recurrent trigeminal neuralgia with petro-clival meningioma.

Variables	Value
Age	
Median	47
Range	21-66
Gender	
Male	3 (50%)
Female	3 (50%)
Ethnicity	
Caucasians	5 (83%)
African Americans	1 (17%)
Tumor Location	
Petro-clival	6
Distribution of trigeminal nerve pain	
V2	4
V2/V3	2
Tumor Size before treatment (cm)	
GKR	1.4 (0.8-2)
Resection	3.3 (3.4-1)
First Intervention	
Gamma knife radiosurgery (GKRs)	2 (33%)
Prior resection (Sx)	4 (67%)
Median follow-up time (months)	149 (62-236)

Patient's demographics

Results

Overall improvement of pain control after different treatment was 83% and tumor control was 100%. The Karnofsky performance scale (KPS) was significantly improved after treatment compared to the pretreated status (78 vs. 88, p=0.044). Results from this study reveals that the patients with recurrent trigeminal pain after initial GKRS should be managed with resection rather using GKRS again because GKRS does not result prolong pain relief. Moreover, patients treated with initial resection, repeated resection or resection with up-front GKRS would be preferable for further intervention since adjunct therapy with GKRS cannot control the pain for a longer period compared to resection.

Patient	Treatment strategy (primary)	Subsequent treatment 1: dose, reason and interval	Subsequent treatment 2: dose, reason and interval	Subsequent treatment 3, dose, reason and interval	Present status
1	Sx	GKRS, 13 Gy, small residual tumor, no significant pain, 13 months	-	-	Pain relieved
2	Sx	Sx, recurrence of pain and tumor, 5 years	Sx and GKRS, 13 Gy, same sitting with third surgery for the minimal residue recurrence of pain and tumor, 11 years	GKRS alone , 12 Gy recurrence of pain, elderly patient with co-morbidities 3.5 years	V2/3 pain, controlled with medication
3	GKRS as primary treatment for TN dose-use high (80 Gy)	Sx, recurrence of pain and tumor, 2 years	-	-	V3 pain controlled with medication
4	Sx	Sx , recurrence of pain and tumor, 5 years	GKRS , small residue, 2 months after Sx	-	Pain relieved
5	Sx	Sx, recurrence of pain, 3.5 years	GKRS, 13 Gy tumor, 1 month after 2nd Sx for the small residue	Sx, recurrence of pain and tumor, 8 years	Pain relieved
6	GKRS, as primary treatment for TN, dose- 80 Gy	Sx, recurrence of pain and tumor, 2 years	-	-	Pain relieved
7	GKRS, small tumor, occasional TN, 13 Gy	-	-	-	Pain relieved

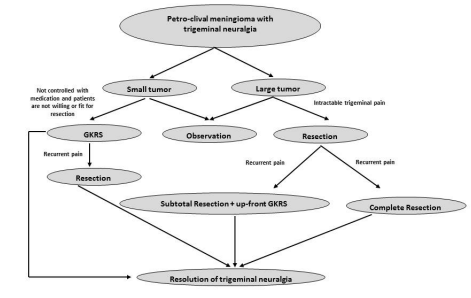
Sx: Resection, TN: trigeminal Neuralgia, GKRS: Gamma Knife Radiosurgery

Outcome

Clinical Features	Pre-Rx	Post-Rx	p Value
Trigeminal Neuralgia	6 (100%)	2 (33.3%)	**0.0001**
Headache	3 (50%)	1 (16.6%)	NS
Visual impairment	2 (33.3%)	0 (0%)	NS
Facial nerve dysfunction	1 (16.6%)	0 (0%)	NS
Hearing deficit	1 (16.6%)	0 (0%)	NS
Dizziness	1 (16.6%)	1 (16.6%)	NS
Total symptoms (all patients)	14 (233%)	4 (67%)	**0.0001**
GKRS	3 (50%)	1 (16.6%)	**0.0001**
Resection	11 (157%)	3 (50%)	**0.0001**
KPS (all patients)	78.33	88	**0.044**
GKRS	80	80	NS
Resection	77.5	92	**0.02**

Outcome

Figure 2



summary

Conclusions

Microsurgical resection with microvascular decompression is superior to GKRS in achieving and maintaining pain free status in the patients with recurrent trigeminal pain associated with petro-clival meningioma.

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