

# "Microvascular Decompression in Young Adults 30 Years or Less"

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### Introduction

To evaluate background factors of hemifacial spasm (HFS) and trigeminal neuralgia (TN) in patients with ages less than or equal to 30 years.

### **Methods**

From 1996 to 2012, we treated 227 patients with HFS and 190 patients with TN by microvascular decompression (MVD) at a single institute. 7 patients (6 with HFS and 1 with TN) who were 30 years or younger at the time of surgery. Assessments were based on clinical history, magnetic resonance imaging (MRI), magnetic resonance angiography (MRA), surgical findings and follow-up records.

### **Characteristics of patients** Base-line characteristic of the 417 patients.

Characteristic	HFS	HFS	TN	TN	
	>30 years	≤30 years	>30 years	≤30 years	
Total- no.	222	5	189	1	
Female: male (ratio)	140:81	2:4	113:76	1:0	
Left: Right	125:96	1:5	74:115	1:0	
Compressing vessel involved-no. (%)					
Anteroinferior cerebellar artery (AICA)	54	2	21		
Posteroinferior cerebellar artery (PICA)	74	2	5	-	
Superior cerebellar artery (SCA)	2	-	86	1	
Vertebral artery (VA)	4	-	2		
AICA+PICA	30			-	
AICA+VA	19			-	
PICA+VA	23		1		
AICA+PICA+VA	14	-		-	
AICA+SCA		-	26		
PICA+SCA	-	-	1	-	
AICA+ Basilar artery (BA)			1	-	
SCA+BA	-	-	1	-	
VA+BA			2	-	
Vein	-	-	10	-	
Vein + artery			12	-	
Atypical	-		4	-	
Adhesion	-	-	5	-	
SCA duplication		2.0	2	-	
PICA duplication	-	2		-	
Adhesion due to previous MVD	-		10		
Age groups:	l				
Less or 30		6	1.	1	
31-40	15	-	7	-	
41-50	40	-	12	-	

Base-line characteristic of the 417 patients with hemifacial spasm and trigeminal neuralgia.

## **Results**

Earliest onset of vascular compression symptoms was at the age of 11 years in a patient with HFS.

6 out of 7 cases had various kinds of vascular variations on preoperative evaluation.

One patient with HFS had compression at a distal portion of the nerve.

Single case of TN among 7 cases was found to have arachnoid thickening intraoperatively.

Surgical outcomes with mean follow up duration of 29.71 months in young HFS patients were comparable with elder HFS patients.

# Clinical summary of 7 patients with HFS and TN aged 30 years or less at the time of MVD

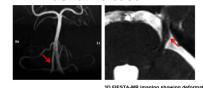
S. N.	Age at onset (yr)	Sex	Age at operati on (yr)	Side	Diagnosis	Offend er	Vascular variation & Basilar artery (BA) length (mm)	Arachn oid thickne ss	Other treatment	Symptoms at age of discharge	F/U course and period (m)
1	11	М	23	Rt	HFS	AICA Betwee n distal CN VII & VIII	Larger If VA & Rt VA hypoplasia BA length=22	(-)	Diazepam	Slight facial pain	Slight facial pain 1 month
2	24	F	26	Rt	Reoccura nce HFS	PICA	Double PICA BA length=22.8	(-)	MVD 2 years back	Mild blepharospasm	Good recovery 69 months
3	n/a	М	30	Rt	HFS	PICA	Thicker & longer Rt VA BA length=27.3	(-)	Botulinum Toxin	Slight facial spasm	Good recovery 10 months
4	21	F	28	Rt	HFS	PICA	Double PICA, Thicker Rt VA Ba length=22.9	(-)	Botulinum Toxin	No symptoms	Good recovery 21 months
5	29	М	29	Rt	HFS	AICA	AICA origin from distal VA with short basilar artery BA length=18	(+)	Clonazepam	No symptoms	Good recovery 42 months
6	25	М	26	Lt	HFS	PICA	Normal BA length=22.7	(-)	Non	Mild facial spasm	Good recovery 17 months
7	23	F	23	Lt	TN	AICA Branch	Rt Hypoplastic VA BA length=21.6	(+)	Carbamazep ine	No symptoms	Facial pain once in 3 months

### Illustrative cases

# **Illustrative case HFS**

MRI imaging and intraoperative findings of 29 year-old-male patient with right HFS.

### Illustrative case TN





MRI images and intraoperative findings of a 23 year-old-female patient with left sided

### **Conclusions**

Even though the pathogenesis of early onset of HFS and TN remains unclear, our data suggest that vascular variations may have some role.

MVD seems a useful treatment tool for neurovascular compression symptoms in younger patients also.

# **Learning Objectives**

By the conclusion of this session, participants should be able to:

- 1) Understand the importance of vascular variation and imaging studies in microvascular compression.
- 2) Discuss the baseline studies of 417 patients along with the findings and outcomes of microvascular decompression in patients younger than 30.
- 3) Understand that microvascular decompression is effective treatment even in younger patients.