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·临床研究·

微血管减压术治疗三叉神经痛患者的临床效果分析

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摘要 目的:探究微血管减压术(Microvascular decompression,MVD)治疗三叉神经痛(Trigeminal neuralgia,TN)患者的临床效果。**方法**：回顾性分析2014年1月至2015年1月于我科经MVD治疗的TN患者，分析其预后及影响预后的相关因素。**结果**:120例TN患者中,单纯静脉压迫所致TN患者13例,单纯动脉压迫所致TN患者60例,混合性血管压迫所致TN患者46例。单纯静脉压迫患者术后1天、3月、1年、3年的缓解率分别为84.6%、76.9%、69.2%、61.5%。单纯动脉压迫患者为88.3%、85.0%、83.3%、70.0%。混合型压迫患者为93.5%、93.5%、91.3%、87.0%。A组患者术后1年、3年缓解率低于C组患者(P<0.05)。A组与B组、B组与C组术后1天、3月、1年缓解率比较均无统计学差异(P>0.05),但是C组术后3年缓解率显著高于B组(P<0.05)。**结论**:单纯静脉压迫TN患者MVD术后缓解率较单纯动脉压迫TN患者及混合性压迫TN患者低,混合性压迫TN患者长期缓解率最高。

关键词:三叉神经痛;微血管减压术;静脉压迫;缓解率

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A Study on the Effect of MVD on the Patients with Trigeminal Neuralgia

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ABSTRACT Objective: To explore the clinical effect of Microvascular decompression (MVD) in the treatment of patients with Trigeminal neuralgia (TN). **Methods:** A retrospective analysis of patients with TN treated with MVD in our department from January 2014 to January 2015 was conducted, to investigate the prognosis and prognostic factors. **Results:** 120 cases of patients with TN were selected, including 13 patients with simple venous compression, 60 patients with simple arterial compression, and 46 patients with mixed compression. The remission rates of patients with simple venous compression at 1 day, 3 months, 1 year, and 3 years after surgery were 84.6%, 76.9%, 69.2% and 61.5%, and those with simple arterial compression were 88.3%, 85.0%, 83.3% and 70.0%, the patients with mixed compression were 93.5%, 93.5%, 91.3% and 87.0%, respectively. The remission rate of patients in group A was lower than that in group C at 1 year and 3 years after MVD (P<0.05). There was no significant difference in the remission rate between group A and group B, group B and group C at 1 day, 3 months and 1 year after surgery (P>0.05), but the remission rate in group C was significantly higher than that in group B after 3 years (P<0.05). **Conclusions:** The remission rate of MVD in TN patients with simple venous compression is lower than that in patients with arterial compression and mixed compression, patients with mixed compression have the highest long-term remission rate.

Key words: Trigeminal neuralgia; Microvascular decompression; Venous Compression; Remission rate

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前言

三叉神经痛(Trigeminal neuralgia,TN)是一种阵发性、短暂的刀割、针刺、闪电样的疼痛,每次发作时间持续数秒至数分钟不等。Dandy[1]首次描述TN是由于血管压迫三叉神经引起,该神经-血管冲突理论目前已经被广泛接受[2,3]。绝大多数TN患者是由动脉压迫或动静脉混合压迫神经引起的,然而单纯静脉压迫并不少见[4,5],并且静脉压迫被视为减压不充分及术后复发的主要因素[6]。典型的TN呈间歇性发作,有明确的扳机点,而不典型的TN疼痛常呈持续性,无明显扳机点,常伴有面部麻木等特点。人们普遍认为典型的TN由动脉压迫的可能性更大,且MVD术后缓解率更高[6,7]。本研究回顾性分析了由单纯静脉、单纯动脉及混合性血管压迫所致TN患者的MVD术后的缓解情况,结果如下。

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1 资料与方法

1.1 一般资料

本研究由上海交通大学医学院附属新华医院伦理委员会批准。选择 2014 年 1 月至 2015 年 1 月在上海交通大学医学院附属新华医院神经外科接受 MVD 治疗的 156 例原发性 TN 患者。其中,有 4 例因肿瘤引起 TN 患者,21 例单纯 MVD 术后复发患者,4 例单纯射频后效果不明显患者,3 例伽马刀术后复发患者,4 例经多种方式术后复发患者。排除这些患者后,本次行 " 单纯 "MVD 治疗患者 120 例,单纯静脉压迫患者 13 例,单纯动脉压迫 60 例,混合型压迫 46 例,未见明显血管压迫患者 1 例,分别记为 A、B、C、D 组,记录其术后 1 天、3 月、1 年、3 年的缓解率。

1.2 MVD 手术方法

通常采用 3/4 侧俯卧位,枕下乙状窦后入路,外侧至乙状窦内缘,上缘暴露横窦。在硬脑膜被打开后,释放脑脊液,良好视野的暴露在于充分松解蛛网膜而非过度牵拉小脑。REZ 被认为是病理学的常见病变部位[8],因为它是从中枢到外周髓鞘的转变位点,是神经中容易产生脱髓鞘病变的部位。三叉神经根无髓鞘中枢段很长, 从 REZ 区至脑池段需要全程探查[9,10]。Feng[11]等将三叉神经分为 I-V 区(见图 1),我们根据这种分类方法全程探查三叉神经,以明确所有的责任血管。抬起责任血管,在血管与脑干或神经之间垫入 Teflon 海绵,绝大多数患者仅仅垫开责任血管后便可以获得充分减压,少数患者需要电凝责任静脉(见图 2)。手术中我们格外注意岩静脉的保护,因其较动脉更为脆弱,一旦撕裂将造成大量出血,单纯电凝往往无法止血。

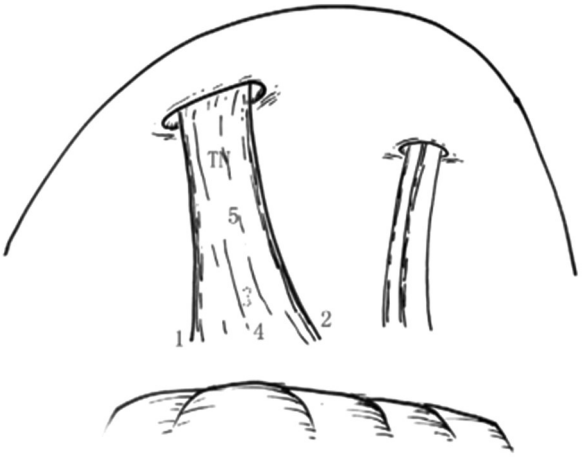

图 1 三叉神经 5 区分布

Fig.1 The trigeminal nerve and its 5 zones

Note: Zone 1, 2, 3, 4 is located at the rostral, caudal, ventral, and dorsal of the trigeminal root entry zone, respectively, and zone 5 is located at the distal of trigeminal nerve.

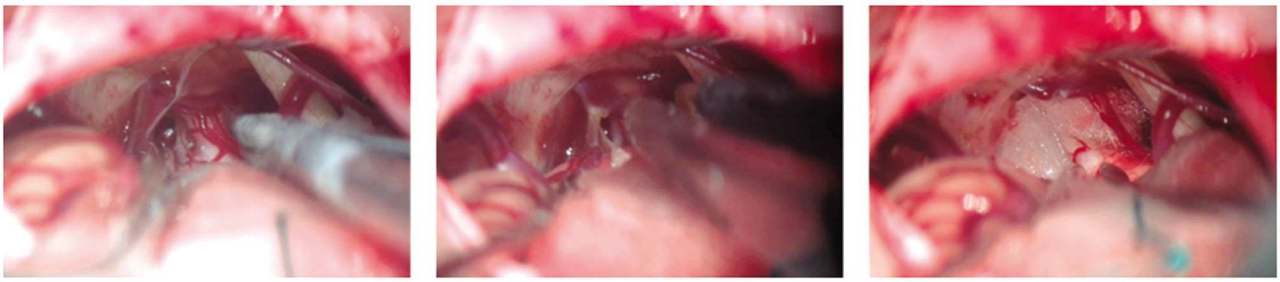

图 2 MVD 术中静脉减压

Fig.2 Venous decompression during MVD

Note: Sacrifice a barrier to the operation of the vein, and finally use the Teflon felt to completely separate the veins from the trigeminal nerve.

1.3 术后随访

我们通过电话随访手术效果和术后并发症,随访内容主要包括面部疼痛的变化及程度, 面部麻木感等情况。我们根据 BNI 分级评估术后面部疼痛程度及术后麻木程度, 并将术后 BNI 分级 I 级、II 级患者视为缓解,III-V 级视为不缓解(见表1)。

1.4 统计学分析

采用 SPSS 22.0 软件进行数据统计分析, 计数资料组间比较采用 x^2 检验,以 P<0.05 为差异有统计学意义。

2 结果

2.1 患者信息

总共 120 名患者,A 组中包括 5 名男性, 平均年龄 64.4 岁,平均住院天数 9.4 天;8 名女性,平均年龄 57.6 岁,平均住院天数 9.5 天。B 组包括 21 名男性,平均年龄 64.7 岁,平均住院天数 9.3 天;39 名女性,平均年龄 62.9 岁,平均住院天数 9.1 天。C 组包括 13 名男性,平均年龄 61.1 岁,平均住院天数 8.5 天;33 名女性,平均年龄 59.9 岁,平均住院天数 9.2 天。D 组 1 名 52 岁男性患者,住院 7 天。

2.2 MVD 术后缓解情况

A 组患者术后 1 天、3 月、1 年、3 年的缓解率分别为 84.6%、76.9%、69.2%、61.5%,B 组患者为 88.3%、85.0%、83.3%、70.0%,C 组患者为 93.5%、93.5%、91.3%、87.0%。A 组患者术后 1 年、3 年缓解率低于 C 组患者(P<0.05)。A 组与 B 组、B 组与 C 组术后 1 天、3 月、1 年缓解率比较均无统计学差异(P>0.05),但是 C 组术后 3 年缓解率显著高于 B 组(P<0.05)。在 A 组中,典型 TN 患者 6 人, 不典型 TN 患者 7 人, 术后长期缓解率(≥ 3 年)分别为 66.7%和 57.1%;术中电凝静脉患者 3 人,未电凝患者 10 人(见表 2、表 3)。

3 讨论

MVD 已经成为治疗 TN 的首选方法,其缓解率非常高,根据 Zhong 对 1282 例 TN 患者的研究, 其术后即刻缓解率达到了 89.3%;其 10 年缓解率叶达到了 80%以上[12-14]。但是 TN 复发并不少见,其复发率达到 3%-20%,且通常在两年后复发[15]。

表 1 Barrow Neurological Institute (BNI)疼痛和面部麻木分级

Table 1 Barrow Neurological Institute (BNI) pain intensity score and facial numbness score

	Pain intensity score
I	No pain, no medication
II	Occasional pain, not requiring medication
III	Some pain, adequately controlled with medication
IV	Some pain, not adequately controlled with medication
V	Severe pain/no pain relief
Facial numbness score	
I	No facial numbness
II	Mild facial numbness, not bothersome
III	Facial numbness, somewhat bothersome
IV	Facial numbness, very bothersome

其观点与我们的研究相似,在该 120 名患者中,术后即刻缓解率为 90.0%,长期复发率为 24.2%。文献报道单纯静脉压迫的患者并非少见,数量占据 3.3%-29%不等[2,14,16],在导致 TN 的静脉中,岩上静脉最为常见[17,18]。传统观念认为单纯静脉压迫患者其预后较差[19],而 Dumot[18]认为单纯静脉压迫患者其术后缓解率较混合性压迫没有统计学差异。根据我们的统计,A 组患者平均发病时长为 79.2 个月,最短 3 个月,最长达 240 个月,而 B 组患者平均发病时长为 67.0 个月,C 组为 71.1 个月,A 组患者其患病时长要高于 B、C 两组,而其在性别、年龄、平均住院天数等无明显差异。A 组患者其术后 1 天、3 月、1 年、3 年的缓解率为 84.6%、76.9%、69.2%、61.5%,与 B、C 两组相比,A 组患者术后 1 年、3 年缓解率低于 C 组患者,且有统计学差异。这符合传统观点,单纯静脉压迫患者其长期缓解率较低。而 A 组与 B 组、B 组与 C 组术后 1 天、3 月、1 年缓解率均无统计学差异,在术后 3 年 C 组缓解率要高于 B 组,这表明混合型压迫的患者术后长期缓解率最高。

根据 Dumot[18]的统计,单纯静脉压迫 TN 患者 V2 支及 V2 混合支占据 96.2%,明显高于混合血管压迫的患者 62.1%的比例。在我们 A 组 13 例患者中全部涉及 V2 支或其混合支,而 C 组患者中有 95.7%(44/46) 涉及到了 V2 支,B 组则为 83.3%(50/60),高于 Dumot 的统计。由此可见,在 TN 患者中,V2 支是最常涉及到的疼痛区域。

表 2 MVD 术后缓解率

Table 2 Remission rate after MVD

	1 day	3 months	1 year	3 years
A	11(84.6%)	10(76.9%)	9(69.2%)	8(61.5%)
	2(15.4%)	3(23.1%)	4(30.8%)	5(38.5%)
B	53(88.3%)	51(85.0%)	50(83.3%)	42(70.0%)
	7(11.7%)	9(15.0%)	10(16.7%)	18(30.0%)
C	43(93.5%)	43(93.5%)	42(91.3%)	40(87.0%)
	3(6.5%)	3(6.5%)	4(8.7%)	6(13.0%)

Note: Postoperative pain relief rate in group A, B, and C. There was a statistically significant difference in the pain relief rate between the two groups in A and C at 1 and 3 years after surgery, and a statistically significant difference in the pain relief rate between the two groups in B and C.

表 3 临床特点

Table 3 Clinical features

Total	Group A(n=13) n%	Group B(n=60) n%	Group C(n=46) n%
Type			
Typical	6(46.2%)	42(70.0%)	35(76.1%)
Atypical	7(53.8%)	18(30.0%)	11(23.9%)
Operation			
Coagulation	3(23.1%)	0(0%)	13(28.3%)
Non-coagulation	10(76.9%)	60(100%)	33(71.7%)
Division			
V1	0(0%)	0(0%)	1(2.2%)
V2	2(15.4%)	11(18.3%)	17(36.9%)
V3	0(0%)	10(16.7%)	1(2.2%)
V1-2	3(23.1%)	16(26.7%)	8(17.4%)
V2-3	7(53.8%)	15(25.0%)	12(26.1%)
V1-3	1(7.7%)	8(13.3%)	7(15.2%)

典型的 TN 呈间歇性发作,有明确的扳机点,而不典型的 TN 疼痛呈持续性,无明显扳机点,常伴有面部麻木等特点。根据 Burchiel[20]的分类方法,将大于 50%时间间歇性疼痛发作视为典型 TN,而大于 50%时间持续性疼痛发作视为不典型 TN。关于单纯静脉压迫的患者的疼痛类型,意见各不相同,Sandell 发现典型与不典型患者术后缓解率分别为 81%与 77%,单纯静脉压迫患者中有 68%的为典型 TN,32%为不典型 [21];Miller[22]发现疼痛更加趋向于不典型疼痛,而 Dumot[18]则发现两者的数目并无统计学上的差异。 Burchiel[23]认为病程较长的患者更趋向于不典型 TN,而 Sindou[24]认为病程长短与是否典型并不相关。在我们的 13 例单纯静脉压迫的患者中,包括 7 例不典型 TN 患者,平均病程 51.4 月;6 例典型 TN 患者,平均病程 111.5 月。显然在我们的研究中,典型 TN 患者平均病程时间更长,与上述观点并不相同,这可能也与本组病例数量不足有关。在本组研究中,单纯静脉压迫患者典型不典型术后 3 年缓解率分别为 66.7%,57.1%,由此可见,典型 TN 患者术后缓解率要高于不典型 TN 患者,不典型 TN 患者术前需要进行充分评估。

在 TN 患者中,如何处理静脉仍有没有一个明确的标准。Takuro Inoue[25]认为可以安全切断直径小于桥脑小脑裂静脉的静脉。如果静脉阻挡手术视野,那么为了操作方便,该静脉应予以牺牲[26]。而根据 Zhong[27]的经验,直径小于 2 mm 的静脉可以被安全的切断,而直径大于 2 mm 的静脉将进行静脉阻断实验,静脉阻断 15 分钟后如果术中监测的脑干诱发电位有任何变化,将停止静脉阻断实验并保留该静脉,若无变化,则可安全切断。我们在手术中,尽量不牺牲相关静脉,只有在细小静脉(直径小于 2 mm)且与三叉神经表面紧密黏连、无法钝性分离的情况下才考虑用低功率双极电凝该静脉。许多文献表示,静脉的牺牲可能引起术后面部麻木感,这可能与电凝静脉时损伤了神经相关[28]。在 13 名单纯静脉压迫患者中,3 名患者术中牺牲 1 支或多支静脉,这些患者术后均未出现强烈的面部麻木感(BNI IV 级)且无其他明显并发症,这可能与我们行电凝操作时尽量远离三叉神经,减少对三叉神经的损伤有关。尽管 Takuro Inoue[25]认为电凝静脉后术后患者缓解率更高,但是牺牲静脉的风险使我们尽可能的保留静脉。静脉被电凝后,有可能发生急性的小脑或者脑干的梗死、出血或者水肿,严重者甚至发生死亡[29,30]。因此,虽然该 3 位患者牺牲静脉后未出现明显并发症,我们仍然认为尽量减少电凝操作是更合理的操作选择。

综上所述,单纯静脉压迫的 TN 患者 MVD 术后缓解率最低,且不典型 TN 患者较典型 TN 患者缓解率更低。这种类型的患者虽然占比不多,术中仍要谨慎处理,严格遵循全程减压,确定没有任何压迫后才能结束手术,尽量不牺牲静脉,以减少术后并发症的发生。

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