

玻璃体切割联合内界膜剥离术治疗 IMEM 不同眼内填充物的临床观察

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Vitrectomy and internal limiting membrane peeling with different vitreous tamponade for idiopathic macular epiretinal membrane

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Abstract

• AIM: To compare visual outcomes, central foveal thickness (CFT), and postoperative complications after vitrectomy and internal limiting membrane (ILM) peeling, with balanced salt solution (BSS) or gas tamponade, for the treatment of idiopathic macular epiretinal membrane (IMEM).

• METHODS: Retrospective clinical study. 44 patients with IMEM were included in this study. All patients had undergone vitrectomy and ILM peeling. Eyes were divided into two groups: 20 eyes in group A with BSS tamponade. 24 patients in group B with gas tamponade (11 eyes were injected with filtered air and 13 eyes with perfluoropropane, 100mL/L C₃F₈). The follow-up period was 12-16 (mean 13) months. The following parameters were collected and compared: best-corrected visual acuity (BCVA) and CFT (at baseline and 1, 3, 6 and 12 months postoperatively), intraocular pressure (IOP) (at baseline and on the 1st, 7th day, 1, 3 months postoperatively).

• RESULTS: BCVA significantly improved, and 29 of 44 eyes (65.9%) achieved visual recovery ≥ 0.2 logMAR. There were no significant differences between group A and group B in mean baseline logMAR BCVA (0.53 ± 0.18 vs 0.52 ± 0.14 ; $P > 0.05$) and final logMAR BCVA (0.31 ± 0.14 vs 0.28 ± 0.09 ; $P > 0.05$). With respect to OCT parameters, the mean CFT at 12 months ($285.25 \pm 70.07 \mu\text{m}$) was

significantly decreased from that of the baseline ($407.82 \pm 97.00 \mu\text{m}$), ($Z = 4.29$, $P < 0.05$). There were no significant differences between group A and group B in mean baseline CFT ($409.45 \pm 108.40 \mu\text{m}$ vs $406.46 \pm 88.76 \mu\text{m}$; $P > 0.05$) and final CFT ($287.60 \pm 66.94 \mu\text{m}$ vs $283.29 \pm 73.95 \mu\text{m}$; $P > 0.05$). With respect to IOP, there were no significant differences between group A and group B at mean baseline and on the 7th day, 1, 3 months postoperatively ($P > 0.05$). The IOP in group A was significant lower at 1th postoperative day compared with group B ($Z = 3.12$, $P < 0.05$), but the mean IOP of both groups were within normal range (10-21mmHg). Patients in group B with filtered air tamponade were instructed to maintain a prone position for 1 to 3 days and with perfluoropropane tamponade instructed to maintain a prone position for at least 1 week, however, patients in group A were not.

• CONCLUSION: Vitrectomy and ILM peeling can significantly improve the visual acuity and decrease the CFT no matter with gas or with BSS tamponade, there were no significant differences in clinical outcomes, but it is neither necessary for patients with BSS tamponade to maintain a prone position nor have physically and psychological burden compared to who with gas, which makes surgery more efficient and safe.

• KEYWORDS: macular epiretinal membrane; idiopathic; vitrectomy; vitreous tamponade

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摘要

目的: 探讨玻璃体切割联合视网膜内界膜剥离手术治疗特发性黄斑前膜 (idiopathic macular epiretinal membrane, IMEM) 术不同眼内填充物术后疗效及并发症的观察。

方法: 回顾性分析特发性黄斑前膜患者 44 例 44 眼。患者随机分成 A、B 两组, 其中 A 组 20 例; B 组 24 例, 两组患者均行玻璃体切割联合视网膜内界膜剥离手术, A 组玻璃体腔内行平衡盐溶液 (BSS) 填充, B 组行气体填充 (13 眼填充滤过空气, 11 眼填充 100mL/L C₃F₈)。术后随访 12~16 (平均 13) mo。术前、术后 1, 3, 6, 12 mo 检查最佳矫正视力 (BCVA), 光学相干断层扫描 (OCT) 测量黄斑中心凹厚度 (CFT), 术后 1, 7 d; 1, 3 mo 行眼压 (IOP) 检查, 对比观察手术前后视力, 间接检眼镜, CFT, IOP 检查结果。

结果: 末次随访时两组患眼 BCVA 较术前显著提高, 提高 0.2 logMAR 及以上者 29 眼 (66%)。两组间 logMAR BCVA 的差异术前 (0.53 ± 0.18 vs 0.52 ± 0.14) 及末次随

访时(0.31 ± 0.14 vs 0.28 ± 0.09)均无统计学意义($P > 0.05$)。末次随访时A、B组患眼CFT较术前明显降低,从 $407.82 \pm 97.00 \mu\text{m}$ 下降到 $285.25 \pm 70.07 \mu\text{m}$ ($Z = 4.29, P < 0.05$)。两组间CFT的差异术前($409.45 \pm 108.40 \mu\text{m}$ vs $406.46 \pm 88.76 \mu\text{m}$)及末次随访时($287.60 \pm 66.94 \mu\text{m}$ vs $283.29 \pm 73.95 \mu\text{m}$)均无统计学意义($P > 0.05$)。术后1d, A组眼压($14.25 \pm 3.06 \text{mmHg}$)低于B组($17.71 \pm 3.20 \text{mmHg}$), 差异有统计学意义($Z = 3.12, P < 0.05$),但两组眼压均值均未超过正常范围($10 \sim 21 \text{mmHg}$)。术前、术后7d;1,3mo 两组间眼压差异均无统计学意义($P > 0.05$)。A组患者术后无需俯卧位,B组患者填充滤过空气者术后俯卧位1~3d,填充100mL/L C_3F_8 者俯卧位至少7d。

结论:玻璃体切割联合视网膜内界膜剥离手术治疗特发性黄斑前膜手术未填充BSS或气体均能显著提高视力、降低黄斑中心凹厚度,两者的临床疗效无显著差异,但填充BSS可避免术后俯卧位,减轻患者术后身体及精神负担,同时手术更加快捷、安全。

关键词:黄斑前膜;特发性;玻璃体切割术;眼内填充物

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0 引言

特发性黄斑前膜(idiopathic macular epiretinal membrane, IMEM)是影响老年人视功能的常见疾病^[1],指发生于一般正常的、没有任何已知的其他眼部疾病或玻璃体视网膜病变的视网膜前膜^[2]。黄斑部视网膜前膜为黄斑区及其附近的视网膜前无血管的纤维组织膜,其收缩可引起视网膜皱褶血管扭曲及牵引性黄斑水肿引起视力下降,视物变形等视力障碍^[3],玻璃体切割联合视网膜内界膜剥离术已被证实是治疗特发性黄斑前膜安全有效的方法^[4-9],但术末应用不同填充物手术后视功能,黄斑区结构的恢复情况及术后并发症的发生率,国内外学者的研究尚未见,本研究观察分析了玻璃体切割联合视网膜内界膜剥离手术,治疗特发性黄斑前膜术末应用BSS或气体(滤过空气或100mL/L C_3F_8)为填充物,术后最佳矫正视力,黄斑中心凹厚度,及术后并发症,报告如下。

1 对象和方法

1.1 对象 回顾性分析2010-08/2011-10于我院行玻璃体切割联合视网膜内界膜手术治疗的IMEM患者44例44眼,随机分成A、B两组,其中A组20例;B组24例,两组患者均行玻璃体切割联合视网膜内界膜剥离手术,A组玻璃体腔内行平衡盐溶液(BSS)填充,B组行气体填充(13眼填充滤过空气,11眼填充100mL/L C_3F_8),随访时间至少12mo的纳入本研究,诊断时排除重度白内障患者,排除糖尿病视网膜病变、视网膜静脉阻塞、眼外伤、葡萄膜炎、玻璃体切割术等继发性因素;年龄相关性黄斑变性、高度近视、青光眼等合并因素,详细的患者资料见表1,两组患者术前各项资料差异均无统计学意义。

1.2 方法 所有患者手术前后均应用国际标准视力表检查最佳矫正视力(BCVA),再转换为最小分辨角的对数(logMAR)视力,行裂隙灯显微镜、间接检眼镜及前置镜检查,自动眼压计(Topcon KR. 8800)及光学相干断层成像

(OCT, Zeiss Stratus OCT Version 4.0.4)检查。手术方法:常规睫状体平坦部三切口闭式玻璃体切除术,切除玻璃体后皮质,用眼内钩将前膜组织勾离视网膜表面后,用眼内镊撕除前膜,所有眼均行吲哚菁绿(Indocyanine green, ICG)染色,剥除视网膜内界膜(ILM)。其中21眼(A组10眼,B组11眼)联合晶状体超声乳化及人工晶状体植入术。A组患眼行BSS填充,B组13眼行滤过空气填充,11眼行100mL/L C_3F_8 填充。术后处理:A组患眼填充BSS,患者术后无体位要求。B组根据气体吸收及视网膜情况,填充滤过空气者,术后俯卧位1~3d;填充100mL/L C_3F_8 者,术后俯卧位至少7d。

统计学分析:所有的数据使用SPSS 17.0 For Windows统计学软件分析,采用Mann-Whitney *U*检验,卡方检验,Spearman相关分析, $P < 0.05$ 为差异有统计学意义。

2 结果

2.1 手术前后视力 末次随访时BCVA为 $0.52 \pm 0.16 \text{logMAR}$ 与术前 0.29 ± 0.12 相比显著提高,差异有统计学意义($Z = 14.64, P < 0.05$),BCVA提高 0.2logMAR 及以上者29眼(66%)。A组患眼末次随访时视力较术前显著提高,差异有统计学意义($Z = 3.86, P < 0.05$),BCVA提高 0.2logMAR 及以上者14眼(70%);B组患眼末次随访时视力较术前显著提高,差异有统计学意义($Z = 4.23, P < 0.05$),BCVA提高 0.2logMAR 及以上者15眼(63%)。手术前及末次随访时两组间比较logMAR BCVA差异均无统计学意义($P > 0.05$,图1)。两组患眼术后1~3mo logMAR BCVA提高较显著。两组患眼术后12mo较术前logMAR BCVA显著提高。各随访期两组间差异无统计学意义($P > 0.05$)。

2.2 手术前后黄斑中心凹厚度 手术前所有患者均行OCT检查,OCT图像均可见黄斑区视网膜神经上皮层表面厚薄不一的膜样高反光带,其中黄斑中心凹变浅或消失。手术后所有患眼黄斑区膜样反光带均消失。末次随访时黄斑中心凹厚度较术前显著降低,从 $407.82 \pm 97.00 \mu\text{m}$ 下降到 $285.25 \pm 70.07 \mu\text{m}$,差异有统计学意义($Z = 3.92, P < 0.05$)。末次随访时,A组患眼CFT较术前明显降低,从 $409.45 \pm 108.40 \mu\text{m}$ 下降到 $287.60 \pm 66.94 \mu\text{m}$,差异有统计学意义($Z = 3.92, P < 0.05$),B组患眼CFT较术前明显降低,从 $406.46 \pm 88.76 \mu\text{m}$ 下降到 $283.29 \pm 73.95 \mu\text{m}$,差异有统计学意义($Z = 4.27, P < 0.05$)。手术前及末次随访时两组间CFT差异均无统计学意义($P > 0.05$)。比较两组黄斑中心凹降低的值,差异无统计学意义($Z = 0.46, P > 0.05$,图2)。两组患眼术后1,3mo CFT降低明显。两组患眼术后12mo较术前CFT显著降低。各随访期两组间差异无统计学意义($P > 0.05$)。

2.3 手术并发症 两组术中、术后均未发生严重并发症。末次随访时两组患眼均未观察到黄斑前膜复发,白内障形成,视网膜脱离等严重并发症。术前两组眼压差异无统计学意义($Z = 0.73, P > 0.05$),术后1d B组患眼眼压(17.71 ± 3.20) mmHg高于A组(13.70 ± 3.34) mmHg,差异有统计学意义($Z = 0.12, P < 0.05$),但两组均值均未超过正常范围($10 \sim 21$) mmHg。术后7d;1,3mo 两组间眼压差异均无统计学意义($P > 0.05$,图3)。术后1d,A组眼压低于B组,差异有统计学意义,但眼压均值在正常范围内。术前、术后7d;1,3mo 差异无统计学意义。术后1d两组之间比较眼压差异有统计学意义($P < 0.05$)。

表1 患者详细资料

分组	术眼		性别(例)		年龄 ($\bar{x}\pm s$,岁)	随访时间 ($\bar{x}\pm s$,mo)	术前 logMAR BCVA($\bar{x}\pm s$)	术前 CFT ($\bar{x}\pm s$, μm)	术前 IOP ($\bar{x}\pm s$,mmHg)
	右眼	左眼	男	女					
A组	12	8	12	8	61.40 \pm 7.05	12.75 \pm 1.37	0.53 \pm 0.18	409.45 \pm 108.40	15.50 \pm 2.33
B组	11	13	11	13	60.58 \pm 8.24	13.13 \pm 1.33	0.52 \pm 0.14	406.46 \pm 88.76	15.96 \pm 2.53
合计	23(52%)	21(48%)	23(52%)	21(48%)	-	-	-	-	-
Z	-	-	-	-	0.33	0.98	0.28	0.12	0.73
P	-	-	0.82	0.82	0.74	0.33	0.78	0.91	0.47

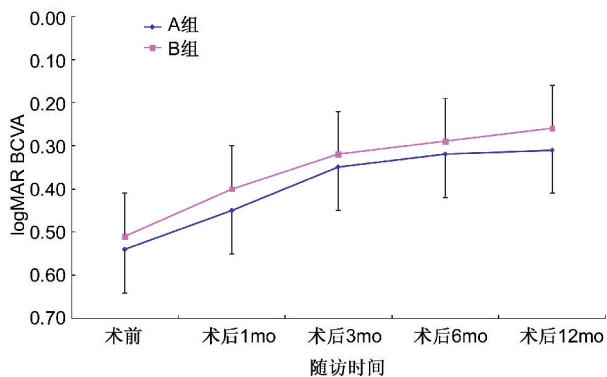


图1 两组手术前后最佳矫正视力最小分辨角的对数视力(logMAR BCVA)变化图。

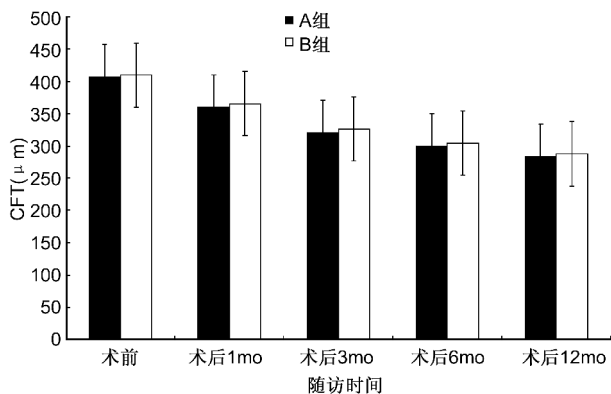


图2 两组手术前后黄斑中心凹厚度变化(CFT)。

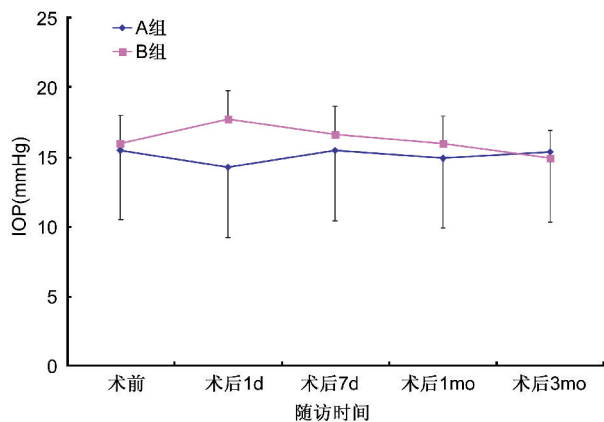


图3 两组手术前后眼压变化。

3 讨论

目前特发性黄斑前膜已经成为影响老年人视功能的一个较普遍的疾病,有研究表明,60岁以下的人群中黄斑前膜的患病率为2%,而在70岁以上的人群中达12%^[10]。玻璃体切割联合视网膜内界膜剥离术是目前治疗特发性黄斑前膜较成熟且安全有效的方法^[4,8,9],但很多文献只

研究了特发性黄斑前膜手术前后疗效及术中、术后并发症的发生率,尚未见文献探讨术末应用不同填充物对手术疗效及并发症的影响,本研究发现玻璃体切割联合视网膜内界膜剥离手术,术末中应用气体(滤过空气或100mL/L C₃F₈)或者BSS,术后视力均显著提高,BCVA提高0.2logMAR及以上29眼(66%),同时术后1~3mo视力提高较显著,这其他相关研究结果相近^[11,12]。本研究表明术中填充气体或者BSS,对于视力影响的差异无统计学意义。患眼白内障会影响试验的结果,本研究术中行白内障超声乳化联合人工晶状体植入术A组10例(50%),B组11例(46%),两者构成比之间无统计学差异($\chi^2=0.08, P>0.05$)。为了降低白内障对于研究结果的影响,本研究排除了重度白内障患者,并对有晶状体眼的老年患者施行预防性的白内障超声乳化及人工晶状体植入术。有晶状体眼在末次随访时未发现严重的白内障。然而,已有研究表明玻璃体切割手术术后最常见的并发症是加速白内障形成及核硬化,其发生率在12.5%~80%^[5,7,13-17]填充BSS可能减少这种并发症的发生率,然而本研究的病例数较少,未能证明术后两组之间白内障发生率的差别,尚需大量病例、长期的随访观察。

本研究所有患者均行OCT检查,随访患者术后CFT的变化。随访期末患者CFT较术前明显降低,从407.82 \pm 97.00 μm 下降到285.25 \pm 70.07 μm ,差异有统计学意义,与其他相关研究报道的结果相近^[9,12,18-20]。术前及术后1,3,6,12mo两组患眼CFT间差异均无统计学意义,表明术中应用何种填充物,对黄斑部结构的恢复无明显影响。对于术后视力与术前视力,术后视力与手术前后CFT是否相关,国际上尚存在争议,有文献研究表明术后视力与术前视力,术后视力与术前CFT或术后CFT存在显著相关^[12,21,22]。本研究表明末次随访时患者的视力与术前视力($r_s=0.68, P<0.05$),与术前CFT($r_s=0.34, P<0.05$),与手术后1mo CFT($r_s=0.43, P<0.05$),3mo CFT($r_s=0.37, P<0.05$) CFT存在显著性相关,这与Kim等^[19]的研究结果相同。然而也有研究显示术后视力与手术前后CFT无显著相关^[23],因此,我们认为在手术技巧比较娴熟的情况下,应综合考虑术前视力,黄斑区结构及黄斑水肿情况等,预测术后视力情况。

然而玻璃体切割联合视网膜内界膜剥离手术治疗特发性黄斑前膜仍存在一定的风险,术中并发症包括:玻璃体积血,视网膜损伤如视网膜点状出血、医源性视网膜裂孔、视网膜及脉络膜脱离等。术后并发症包括前膜复发、视网膜及脉络膜脱离、继发性白内障、眼压升高等。本研究中两组术中均未发生严重的并发症。术后A组患眼眼压术前为15.50 \pm 2.33mmHg,术后第1d降至13.70 \pm 3.34mmHg,差异有统计学意义($Z=2.26, P<0.05$),术后

1d有2例患者眼压低于10mmHg,未过特殊处置,术后7d眼压恢复正常,余眼压均在正常范围内。有研究表明^[24],黄斑前膜玻璃体切割术后第1d患眼眼压明显增高,这与本研究B组的结果相近(从 $15.96\pm 2.53\text{mmHg}$ 升高到 $17.71\pm 3.20\text{mmHg}$; $Z=2.86, P<0.05$),B组术后1d 2例患者眼压高于21mmHg,未经特殊处理,术后7d眼压恢复正常,余患者眼压均在正常范围内。术前两组患者眼压之间差异无统计学意义,而术后除第1d外,术后7d,1,3mo,眼压差异均无统计学意义。术后1d两组间眼压差异虽有统计学意义,但均值均在正常范围内,对术后疗效影响较小。据此,我们认为术中应用何种填充物对眼压无明显影响。然而,对于眼压的变化情况由于本文病例较少,随访的时间较短,尚需大样本,长期随访观察。

此外,A组患者术后无需俯卧位,B组患者术后需俯卧位,根据气体吸收及视网膜情况,填充100mL/L C_3F_8 者,术后俯卧位至少7d,填充滤过空气者术后俯卧位1~3d,A组患者均可避免术后俯卧位,减轻了患者术后身体及精神负担,同时手术更加快捷,安全。

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