

颈内动脉眼动脉段动脉瘤手术治疗分析

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【摘要】目的 探讨颈内动脉眼动脉段动脉瘤(OSAs)的手术治疗方法及其疗效。方法 回顾性分析2005年8月至2015年12月年收治的88例OSAs的临床资料。88例共109枚动脉瘤。无眼部症状的48例69枚小型动脉瘤中,支架辅助弹簧圈栓塞49枚,单纯弹簧圈栓塞20枚;无眼部症状的17例单发大型或巨大动脉瘤中,球囊辅助栓塞2例,支架辅助栓塞13例,球囊联合支架辅助栓塞2例;合并视力障碍的23例(均为单发动脉瘤,小型动脉瘤12枚,大型或巨大型动脉瘤11枚),12例栓塞,11例行动脉瘤夹闭术。结果 栓塞治疗的98枚动脉瘤术后即刻造影示,致密栓塞87枚,瘤颈部分显影11枚。88例术后平均随访18个月,术后6个月DSA或CTA随访,致密栓塞的47枚小型动脉瘤中,复发2枚(4.2%);17例大型或巨大型动脉瘤中,复发5例(29.4%)。合并视力障碍的23例中,术后眼部症状改善13例(栓塞6例,夹闭7例),未见明显变化6例(栓塞3例,夹闭3例),加重4例(栓塞3例,夹闭1例)。结论 血管内栓塞治疗OSAs微创、安全、有效,但对改善视力障碍而言,夹闭术可能优于栓塞术。

【关键词】 颅内动脉瘤;颈内动脉眼动脉段;视力障碍;血管内治疗;夹闭术;支架;弹簧圈

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Clinical analysis of effects of different surgical forms on internal carotid artery ophthalmic segment aneurysms

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【Abstract】 Objective To investigate the clinical effects of different operative forms on ophthalmic segment aneurysms (OSAs). Methods The clinical data of 88 patients with 109 OSAs including with 57 unruptured OSAs and 31 with ruptured OSAs, who were treated in Renji Hospital from August, 2005 to December, 2015, were analyzed respectively. Of 88 patients with 109 OSAs, 77 with 98 OSAs were treated by endovascular embolization, and 11 with 11 OSAs by microsurgical clipping. All the patients were followed up with MRA or CTA or DSA and received the assessment of prognosis with modified Rankin scale (mRS) 3, 6 and 12 months after the operation. The improvements of ophthalmic symptoms were followed up 3, 6 and 12 after the operations in the patients with visual deficit caused by OSAs. Results Of 69 small OSAs in 65 patients without ophthalmic symptoms, 49 received stent-assisted coiling embolization and 20 only by coiling embolization. OSAs recurred in 2 (3.1%) aneurysms during the following-up. Of 17 large or giant OSAs in 17 of these 65 patients without ophthalmic symptoms, 2 were treated by balloon-assisted coiling embolization, 13 by stent-assisted coiling embolization, and 2 by balloon combined with stent-assisted coiling embolization. OSAs recurred in 5 (29.4%, 5/17) during the following-up. Of 23 patients with visual deficit caused by OSAs including 12 patients with small OSAs and 11 patients with large or giant OSAs, 12 were treated by interventional embolization, and 11 by microsurgical clipping of OSAs. The following-up after the operation showed that the ophthalmic symptoms were improved in 6, unchanged in 3 and worsen in 3 of 12 patients with visual deficit undergoing the interventional embolization. The ophthalmic symptoms were improved in 7, unchanged in 3 and worsen in 1 of 11 patients with visual deficit undergoing the microsurgical clipping during the following up. Conclusions The endovascular embolization is a minimally-invasive, safe, and effective method to treat OSAs, but the microsurgical clipping is superior in the improvement of visual deficit to interventional embolization in the patients with OSAs.

【Key words】 Intracranial aneurysm; Internal carotid artery; Ophthalmic segment; Endovascular treatment; Microsurgery

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颈内动脉眼动脉段动脉瘤(ophthalmic segment aneurysms, OSAs)发病率在0.5%~8%^[1],一旦破裂,则导致蛛网膜下腔出血(subarachnoid hemorrhage, SAH)^[2];并且,随着体积的增大,也会压迫视神经,导致视力下降。由于其与神经血管、硬脑膜和骨性结构等均有密切而复杂的解剖学关系,因此,相对于其他位置的动脉瘤,OSAs的治疗有更高的难度和风险^[3,4]。本文探讨血管内栓塞及开颅夹闭术治疗OSAs

的疗效。

1 资料与方法

1.1 研究对象 回顾性收集上海交通大学医学院附属仁济医院神经外科 2005 年 8 月至 2015 年 12 月收治的 OSAs 88 例,其中男 36 例,女 52 例;平均年龄为 55 岁。88 例共发现动脉瘤 109 枚,其中小型动脉瘤(<10 mm)81 枚,大型动脉瘤(10~25 mm)24 枚,巨大动脉瘤(>25 mm)^[5]4 枚。无眼部症状的 65 例中,48 例共发现 69 枚小型动脉瘤,另 17 例为单发大型或巨大型动脉瘤。合并视力障碍的 23 例中,单发小型动脉瘤 12 枚,单发大型或巨大型动脉瘤为 11 枚。术前 Hunt-Hess 分级 0 级 57 例,Ⅰ~Ⅲ级 28 例,Ⅳ3 例。

1.2 围手术期处理 对需放支架的病人,术前 3 d 口服阿司匹林(100 mg/d)和硫酸氢氯吡格雷(75 mg/d)。急诊手术的病人给予负荷量阿司匹林(300 mg)和硫酸氢氯吡格雷(300 mg)顿服或胃管内给药。在术中释放支架时,给予盐酸替罗非班(具体量根据体重计算)。术中充分肝素化(60 U/kg),每隔一小时追加肝素 1 000 U。术后常规静脉泵入尼莫地平预防脑血管痉挛。对动脉瘤破裂出血的病人,在静脉泵入尼莫地平的同时,并行腰椎穿刺术引流血性脑脊液。支架辅助弹簧圈栓塞的病人,术后继续口服阿司匹林(100 mg/d)及硫酸氢氯吡格雷(75 mg/d)3 个月,3 个月后改为持续口服阿司匹林(100 mg/d)。

1.3 治疗方法 无眼部症状的 48 例共小型动脉瘤 69 枚,其中支架辅助弹簧圈栓塞 49 枚,单纯弹簧圈栓塞 20 枚;另无眼部症状的 17 例单发大型或巨大动脉瘤中,球囊辅助栓塞 2 例,支架辅助栓塞 13 例,球囊联合支架辅助栓塞 2 例。合并视力障碍的 23 例(均为单发动脉瘤,其中小型动脉瘤 12 枚,大型或巨大动脉瘤 11 枚)中,12 例栓塞,11 例行夹闭术。

1.3.1 单纯弹簧圈栓塞 穿刺右侧股动脉留置 6F 血管鞘,透视下 6F 导引导管置入颈内动脉,选定工作位置后使用 Echelon 10 微导管通过 Synchro 微导丝进入动脉瘤内,依次填入弹簧圈。

1.3.2 支架辅助弹簧圈栓塞 根据动脉瘤具体形态及大小选择合适的支架到达瘤颈部位释放,瘤体内依次填塞弹簧圈。所选支架有 Enterprise 和 LIVS。

1.3.3 球囊辅助弹簧圈栓塞 充盈球囊,依次填塞弹簧圈。

1.3.4 球囊联合支架辅助弹簧圈栓塞 微导丝到位后填入弹簧圈成篮,充盈球囊后缓慢向瘤体内注入 Olynx 胶,每隔 5 min 释放球囊,造影剂示胶无外溢。

后撤下微导管后经过球囊置入交换导丝,更换支架导管,选择 Enterprise 支架到达动脉瘤颈部释放。

1.3.5 动脉瘤夹闭术 磨去前床突和视神经管顶的骨质,切开视神经的固有膜,向内侧牵开视神经,切开硬脑膜环,打开外侧裂蛛网膜,释放脑脊液后抬起额叶,暴露颈动脉池,发现动脉瘤后仔细辨认清楚眼动脉、视神经、视交叉以及颈内动脉以便上临时阻断夹,控制性降压后分离出动脉瘤颈(或颈部切开暴露颈内动脉以备临时阻断),临时阻断颈内动脉后夹闭动脉瘤。

1.4 疗效评估 栓塞治疗病人,术后即刻的影像学结果按 Raymond 分级^[6]评估。术后 3、6、12 个月进行随访,3 个月行 MRA 或 CTA 检查,6 个月复查 DSA,此后每年随访 1 次(仍建议 DSA 检查)。采用改良 Rankin 量表(modified Rankin scale, mRS)评分评估预后^[7]。

2 结果

2.1 术后即刻影像学结果 无眼部症状的 65 例中,48 例 69 枚动脉瘤,支架辅助栓塞的 49 枚小型动脉瘤术后即刻造影显示致密栓塞 47 枚,瘤颈部分显影 2 枚;单纯弹簧圈栓塞的 20 枚小型动脉瘤术后即刻造影显示致密栓塞 17 枚,瘤颈部分显影 3 枚。另无眼部症状的 17 例大型或巨大型动脉瘤中,球囊辅助栓塞 2 例术后即刻造影显示动脉瘤均致密栓塞;13 例支架辅助栓塞术后即刻造影显示 10 例致密栓塞、瘤颈部分显影 3 例;2 例使用球囊+支架辅助栓塞术后即刻造影显示 1 例致密栓塞、1 例瘤颈少量显影。合并眼部症状的病人中,12 例栓塞术后即刻造影显示致密栓塞 10 例,瘤颈部分显影 2 例。

2.2 随访结果 88 例术后平均随访 18 个月,术后 6 个月行 DSA 或 CTA 随访。致密栓塞的 47 枚小型动脉瘤中,DSA 或 CTA 证实复发 2 例(4.2%)。17 例大型或巨大型动脉瘤中,DSA 或 CTA 证实复发 5 例(29.4%)。合并视力障碍的 23 例中,12 例栓塞术后随访显示 6 例(50.0%)眼部症状改善,3 例(25.0%)未见明显变化,3 例(25.0%)加重;11 例夹闭术后随访显示 7 例(63.6%)眼部症状明显改善,3 例(27.3%)改善不明显,1 例(9.1%)加重。

3 讨论

颈内动脉分出眼动脉和后交通动脉之间的颈内动脉瘤,称为 OSAs,包括眼动脉动脉瘤、垂体上动脉动脉瘤、颈内动脉眼动脉段背侧动脉瘤。由于瘤颈

在颈内动脉的下内侧方,若采用夹闭术,瘤颈常被颈内动脉遮挡而看不到,有时需要磨除前床突以暴露瘤颈的近侧缘,视野受限,如不慎夹闭垂体上动脉,有可能造成视交叉缺血,从而影响视力。

自从栓塞材料及技术的发展,血管内栓塞治疗 OSAs 已成为一种比较普遍的方式^[8]。瘤腔致密填塞,取决于微导管的位置和塑形,以及弹簧圈的选择;而瘤颈的完全覆盖,则取决于 3D 成篮圈以及一些辅助技术的应用,包括双导管技术等。支架辅助弹簧圈栓塞技术的应用,使瘤颈>4 mm 或体颈比<2 的宽颈动脉瘤介入治疗更加安全^[9]。而对于大型或巨大型 OSAs,无论夹闭术还是血管内治疗,都具有相当大的挑战性。对于大型或巨大型 OSAs,血管内治疗是一种有效的治疗方法^[10],但是单纯弹簧圈栓塞效果并不理想,单纯弹簧圈栓塞后的完全闭塞率仅 12.1%~68%,复发率在 52.9%~83%^[11,12]。随着颅内专用膨胀支架的应用,对于大型或巨大型 OSAs 的治疗又有了新的改善,然而术后复发率仍在 28.8%~40%^[13,14]。对于大型或巨大型 OSAs,我们采用“钢筋混凝土”方法,即先放弹簧圈,再在球囊暂时封闭下注胶,最后释放支架,取得很好的效果。

对于合并眼部症状的 OSAs,夹闭术和血管内栓塞各有利弊。本文夹闭术后 63.6% 的病人眼部症状明显改善,而血管内栓塞的病人 50.0% 眼部症状改善,提示夹闭术后眼部症状改善可能优于栓塞治疗^[15,16]。原因可能有:①夹闭动脉瘤瘤颈后,动脉瘤体积减小,对周围结构的压迫作用减轻,而栓塞不但没有减小动脉瘤的体积,动脉瘤体积近期内反而有可能增大;②夹闭术中可充分分离动脉瘤与周围结构,一定程度上也会起到减压效果。因此,对于合并眼部症状的 OSAs,我们建议手术夹闭动脉瘤。

综上所述,血管内栓塞治疗 OSAs 是一种安全、有效、创伤小的方法,但是对于合并眼部症状的 OSAs,手术夹闭动脉瘤可能更有优势。由于本文病例数有限,因此仍需要长时间积累病例数及长期随访结果来证实以上结论。随着介入材料和技术的不断发展,OSAs 的血管内治疗效果会不断提高。

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