·论　著·

颅内破裂动脉瘤合并脑内血肿的复合手术治疗

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【摘要】**目的** 探讨复合手术治疗颅内破裂动脉瘤合并脑内血肿的疗效。**方法** 回顾性分析簧圈栓塞术后行颅骨钻孔血肿腔引流术治疗的5例颅内破裂动脉瘤合并脑内血肿的临床资料。**结果** 5例头颅CT均表现为典型蛛网膜下腔出血(SAH)合并脑内血肿;DSA发现动脉瘤位于大脑前动脉A_2段分叉部1例、大脑前动脉A_2段1例、前交通动脉1例、颈内动脉后交通动脉1例、大脑中动脉分叉部1例;术前Hunt-Hess分级Ⅱ级2例,Ⅲ级2例,Ⅳ级1例。引流术后3~4 d血肿大部分引流干净,无再出血、感染及脑梗死。术后6个月GOS评分3分1例,4分1例,5分3例。**结论** 对合并脑内血肿的自发性SAH,首先应考虑动脉瘤破裂出血可能,需尽早行DSA检查明确诊断;复合手术对于部分未发生脑疝又合并脑内血肿的破裂动脉瘤是可行的,能取得良好的疗效。

【关键词】颅内破裂动脉瘤;脑内血肿;复合手术;疗效

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Clinical observation of hybrid surgery on ruptured intracranial aneurysms associated with cerebral hematomas (report of 5 cases)

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【**Abstract**】**Objective** To explore the curative effect of hybrid surgery on ruptured intracranial aneurysms associated with cerebral hematomas. **Method** The clinical data of 5 patients with ruptured intracranial aneurysms associated with cerebral hematomas treated by endovascular embolization combined with burr hole drainage were analyzed retrospectively. **Results** The CT showed that there was typical subarachnoid hemorrhage associated with cerebral hematomas in all the patients who were diagnosed as intracranial aneurysms by DSA including 1 aneurysm of the bifurcation of A_2 segment of anterior cerebral artery, 1 aneurysm of A_2 segment of anterior cerebral artery, 1 anterior communicating artery aneurysm, 1 posterior communicating artery aneurysm, and 1 aneurysm of the bifurcation of middle cerebral artery. The condition belonged in Hunt-Hess grade Ⅱ in 2 patients, grade Ⅲ in 2 and grade Ⅳ in 1. Most of the hematomas were successfully drained from 3 to 4 days after operation. There was no re-bleeding, infection or cerebral infarction during the hospital stay. The following up of 6 months after the operation showed that GOS scores were 3 in 1 patient, 4 in 1 and 5 in 3. **Conclusions** For spontaneous subarachnoid hemorrhage associated with intracranial hematomas, we should first consider the possibility of aneurysm rupture and DSA examination should be carried out as early as possible. Hybrid surgery is feasible for the patients with the ruptured aneurysms associated with intracranial hematomas but without cerebral hernia.

【**Key words**】Intracranial aneurysm; Subarachnoid hemorrhage; Intracranial hematoma; Hybrid surgery

文献报道,动脉瘤性蛛网膜下腔出血合并脑内血肿发生率为4%~34%[1],传统开颅手术夹闭动脉瘤并清除血肿病死率及致残率较高。我们对5例未发生脑疝的合并脑内血肿的破裂动脉瘤行复合手术治疗,即弹簧圈栓塞术后行颅骨钻孔血肿腔引流术,取得了良好的效果,现总结如下。

1 临床资料

1.1 一般资料 本组男2例,女3例;年龄44~68岁,平均51岁。均以头痛、呕吐起病,均有不同程度意识障碍,其中1例伴一侧肢体瘫痪,1例伴失语。术前Hunt-Hess分级:Ⅱ级2例,Ⅲ级2例,Ⅳ级1例。

1.2 影像学检查 入院后均行颅脑CT扫描,均表现为典型蛛网膜下腔出血并脑内血肿,其中2例为额叶及胼胝体膝部血肿,1例为额叶血肿,1例为颞叶血肿,1例为额叶及侧裂区血肿;血肿量分别为60、40、40、17、15 ml,平均34 ml。术前均行DSA检查明确诊断,发现大脑前动脉A_2段分叉部动脉瘤1例(图1),大脑前动脉A_2段动脉瘤1例,前交通动脉动脉瘤1例,大脑中动脉分叉部动脉瘤1例,颈内动脉后交通动脉动脉瘤1例(图2)。

1.3 手术治疗 入院24 h内均急诊行DSA明确诊断,并行单纯弹簧圈致密栓塞,术中用肝素钠行全身肝

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素化(1 mg/kg体重)。待体内肝素代谢后(约2 h)行CT引导下颅骨钻孔血肿引流术,注意穿刺点还要避开重要血管及皮层功能区。术后常规复查头颅CT确定引流管位置,如位置良好,从留置的引流管内注入尿激酶3~5万U引流,根据引流情况每天可使用尿激酶2~3次。术后每天复查CT扫描,根据血肿清除情况调整尿激酶用量,必要时调整管尖深度。一般待血肿清除80%左右即可拔除引流管。

2 结 果

5例均顺利完成手术,术后3~4 d待血肿大部分引流后拔管,住院期间无再出血、感染及脑梗死。术后6个月GOS评分3分1例,4分1例,5分3例。

3 讨 论

3.1 *颅内动脉瘤破裂致脑内血肿的诊断* 约85%自发性蛛网膜下腔出血为动脉瘤破裂所致[2],其中4%~42.6%可合并脑内血肿。动脉瘤破裂出血如不及时治疗,病死率、致残率极高;而合并脑内血肿的动脉瘤破裂出血较单纯蛛网膜下腔出血有更高的病死率、致残率,及时正确诊断尤为重要。

单纯自发性蛛网膜下腔出血,考虑动脉瘤破裂并不困难,但对合并脑内血肿时,诊治应尤为注意。单纯脑内血肿而无蛛网膜下腔出血为动脉瘤破裂所致非常少见[3,4]。头颅CT发现蛛网膜下腔出血合并脑内血肿,则首先应考虑动脉瘤破裂可能,应进一步行DSA检查。目前DSA仍是诊断颅内动脉瘤的金标准,只要条件允许都应行DSA检查。即使脑疝形成,在开颅清除血肿时,应探查与血肿相毗邻部位有无动脉瘤,不要只想到清除血肿,而忽略了动脉瘤,尤其是动脉瘤好发部位的自发性脑内血肿更要提高警惕。一般情况下,前交通动脉动脉瘤破裂出血形成的血肿主要位于纵裂、额叶底部及破入脑室;上纵裂出血多为大脑前动脉A_2段以上动脉瘤;后交通动脉动脉瘤破裂出血形成的血肿主要位于鞍上池、侧裂池、颞叶;大脑中动脉动脉瘤破裂出血形成的血肿可位于侧裂池、颞叶;第四脑室、枕大池、四叠体池出血多为后循环动脉瘤破裂。

3.2 *动脉瘤破裂合并脑内血肿的治疗方法* 动脉瘤破裂合并脑内血肿,传统治疗方法是急诊DSA检查明确责任动脉瘤后,行开颅动脉瘤夹闭+血肿清除术,避免再出血的同时解除血肿的占位效应,减少脑组织不可逆性损伤,达到挽救生命的目的,但其病死率仍达47%~58%[5~7]。其病死率较高的原因主要有以下几个方面[1]:①脑组织肿胀使动脉瘤暴露更加困难,手术加重了对脑组织的机械性损伤,同时动脉瘤的暴露过程中,对载瘤动脉的骚扰使脑血管痉挛进一步加重;②血肿清除及动脉瘤分离过程中,动脉瘤再次破裂出血;③动脉瘤夹闭过程中,载瘤动脉临时阻断使水肿脑组织缺氧状态进一步加重;④手术时间延长使手术并发症增加。因而传统的动脉瘤夹闭术并脑内血肿清除术对颅内动脉瘤破裂合并脑内血肿有时不一定是最合理的治疗手段。

有学者报道血管内治疗Hunt-Hess分级较高的动脉瘤取得良好的预后[8~10]。而对合并脑内血肿的高级别动脉瘤,先行血管内治疗处理责任动脉瘤避免动脉瘤再次出血,随后行开颅血肿清除术也取得良好预后[11]。其原因主要有以下两个方面:第一,血管内治疗较开颅手术相对来说创伤小,并发症少;第二,责任动脉瘤栓塞后再清除脑内血肿,可以减少脑组织损伤,避免对脑血管的机械性损伤,降低与脑血管痉挛有关的并发症[12]。基于上述研究,我们将血管内治疗与颅骨钻孔血肿引流术结合起来,进一步减少手术创伤,获得了良好的效果,但这种方法不适合所有合并脑内血肿的破裂动脉瘤。首先,已发生脑疝或血肿巨大,有可能出现脑疝时,应首选开颅动脉瘤夹闭+脑内血肿清除术;其次,责任动脉瘤为宽颈动脉瘤,血管内治疗需支架辅助,术后需应用抗血

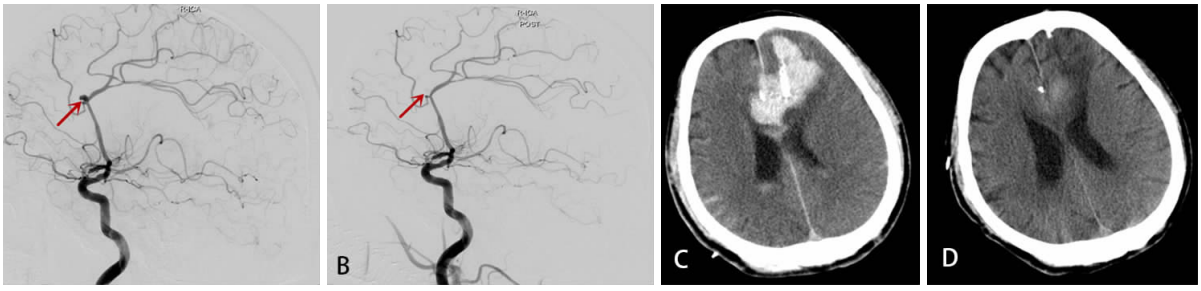

图1 大脑前动脉A_2段分叉部破裂动脉瘤合并额叶血肿手术前后影像

A. 栓塞术前DSA,大脑前动脉A_2段分叉部动脉瘤(↑示);B. 弹簧圈栓塞术后DSA,动脉瘤未显影(↑示);C. 颅骨钻孔血肿腔引流术后即刻复查头颅CT示,引流管位置良好,无新增出血;D. 颅骨钻孔血肿腔引流术后2周复查头颅CT示血肿基本吸收

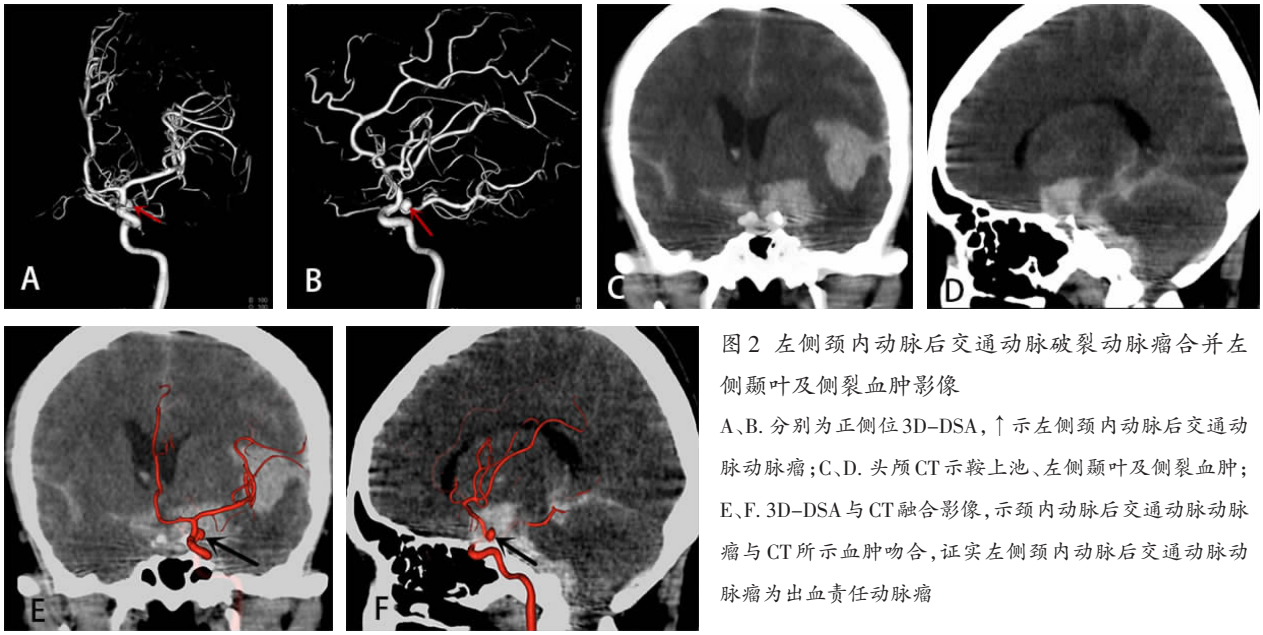

图2 左侧颈内动脉后交通动脉破裂动脉瘤合并左侧颞叶及侧裂血肿影像

A、B. 分别为正侧位3D-DSA，↑示左侧颈内动脉后交通动脉动脉瘤；C、D. 头颅CT示鞍上池、左侧颞叶及侧裂血肿；E、F. 3D-DSA与CT融合影像，示颈内动脉后交通动脉动脉瘤与CT所示血肿吻合，证实左侧颈内动脉后交通动脉动脉瘤为出血责任动脉瘤

小板聚集药物，应慎重选择；第三，须有专门从事血管内治疗工作的医疗团队和设备，能随时完成急诊病人的救治工作。

尽管目前我们治疗的病例数有限，但是从有限的病例中，我们发现选择未发生脑疝的合适病例，先行弹簧圈栓塞术再行颅骨钻孔血肿腔引流术是可行的，同时也获得了良好的效果，还需要积累更多的病例来判断这种方法的安全性与有效性。

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