

. 论 著 .

两次 DSA 阴性的颅内破裂动脉瘤 1 例报道并文献复习

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【摘要】目的 报告 1 例经两次全脑、全程血管造影阴性的破裂小脑后下动脉动脉瘤患者诊治经验。**方法** 回顾性分析 1 例颅内破裂动脉瘤病人的临床资料,包括症状、体征、影像学检查、手术过程及病理结果,分析其脑血管造影阴性的原因。**结果** 患者为 21 岁男性,以突发头痛起病,外院头部 CT 示蛛网膜下腔出血,但脑血管造影未发现动脉瘤,头部 MRI 检查怀疑脑干背侧海绵状血管瘤。转入我院后,复查全脑、全程血管造影仍然为阴性,复查头部 MRI 检查再次怀疑海绵状血管瘤并行开颅手术治疗,术中于小脑延髓裂发现病变为豌豆大小。呈结节状,有供血动脉入口和输出口,术后病理证实为动脉瘤内血栓形成并机化。术后病人恢复良好。将 MRI 影像与 3D-DSA 影融合后,发现病变旁有小脑后下动脉通过,考虑为动脉瘤出血后继发血栓形成而闭塞。**结论** 脑血管造影虽然是颅内动脉瘤诊断的金标准,但是两次脑血管造影阴性仍然不能完全排除颅内动脉瘤,其中原因之一就是动脉瘤出血后继发血栓形成。

【关键词】 颅内动脉瘤;蛛网膜下腔出血;脑血管造影;阴性;瘤内血栓形成;显微手术

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Both negative DSA findings in 1 patient with ruptured intracranial aneurysm (case report and review of literature)

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【Abstract】 Objective To summarize the experience in diagnosing and treating a ruptured inferior cerebellar artery aneurysm which was not found by two examinations of DSA. **Methods** The clinical data of 1 patient with intracranial aneurysm, which was not found by two examinations of DSA, were analyzed retrospectively, including the clinical manifestations, imaging data, operative process and pathological data. **Results** A 21-year-old male patient was presented with sudden headache. CT revealed subarachnoid hemorrhage, and the initial cerebral angiography found no aneurysm in the patient, who be resuspected of cavernous hemangioma in the dorsal brainstem by MRI. The patient was transferred to our hospital, and second the cerebral angiography was performed. The pan-angiography was technically adequate and showed aneurysmal non-visualization. The cavernous hemangioma was suspected again by MRI in the patient, in whom surgery was performed. The bean-like size lesion was found in the cerebellomedullary fissure by the operation. The lesion was removed and pathologically confirmed to be intravascular thrombosis. The patient was recovered well without neurological deficit. Retrospectively, 3D-DSA and MRI image fusion, which were attained through Inspace3D-3D-Fusion software (Siemens System Syngo X-WP), showed that the posterior inferior cerebellar artery passed by the nodular lesion. It is highly likely that the aneurysmal spontaneous occlusion occurred after the rupture. **Conclusions** The cerebral angiography is the gold standard for the diagnosis of intracranial aneurysm, but the diagnosis of intracranial aneurysm could not be completely excluded by repeated negative cerebral angiography because the intraaneurysmal secondary thrombosis after the aneurysmal rupture may interfere with the visualization of the aneurysm.

【Key words】 Subarachnoid hemorrhage; Cerebral angiography; Intravascular thrombosis; Magnetic resonance imaging; computed tomography; Negative finding

三维数字减影血管减影(three dimensional digital subtraction angiography, 3D-DSA)是诊断颅内动脉瘤的金标准,我们在临床上收治 1 例蛛网膜下腔出血(subarachnoidhemorrhage, SAH)病人,DSA 阴

性,半月后复查 DSA 仍然为阴性。按常规,此病人的出血原因可以排除颅内动脉瘤,后经开颅手术和病理证实为小脑后下动脉瘤出血后继发血栓形成,现报告如下。

1 病例资料

患者为 21 岁男性,以突发头痛起病,当地医院头颅 CT 扫描发现 SAH(图 A),但 DSA 检查未发现颅内动脉瘤(图 B、C),头颅 MRI 扫描怀疑脑干海绵状

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血管瘤(图D)。半月后,患者头痛症状消失,转入我院,复查DSA并行三维重建仍然未发现颅内动脉瘤(图E、F);复查头颅MRI示小脑下蚓部类圆形低信号影(图G),仍然怀疑海绵状血管瘤,并行开颅手术治疗。经枕下后正中入路打开右侧小脑延髓裂,于小脑下蚓部脑表面发现病变为结节样,有血管入口(图H)和出口(图I),电灼血管入口和出口后切除病变。术后病人恢复顺利,无脑梗死发生,恢复正常学习和生活。术后应用3D-DSA影像与MRI影像进行三维影像融合,在融合图像上发现结节样病变旁有右侧小脑后下动脉通过(图J、K)。术后病理检查示动脉瘤瘤内血栓形成并机化(图L)。

2 讨论

随着技术进步和先进脑血管造影机器的应用,越来越多的颅内出血的病人可以找到出血原因。然

而,在自发性SAH病人的第一次脑血管造影中,仍然有约5.6%~15%是阴性结果^[1],可能的原因主要为中脑周围非动脉瘤性SAH,占脑血管造影阴性的自发性SAH病人的21%~68%^[2],出血局限在中脑周围和脚间池,而侧裂、脑室内出血不明显,临床症状较轻,再出血率不高^[3]。其次是脑血管造影假阴性的动脉瘤或动静脉畸形。还有药物滥用、血液病和抗凝治疗等导致的凝血功能障碍,更为少见的是脊髓血管畸形。另外,造影投射条件、角度、时间、位置及药物等因素也可以导致脑血管造影假阴性的发生。

DSA假阴性的动脉瘤仍然会再出血,而且死亡率高,所以需要早期发现并处理责任动脉瘤,这些对于DSA阴性的SAH病人是最重要的。造成动脉瘤破裂后DSA阴性的原因有血管痉挛、瘤颈狭窄、动脉瘤继发血栓形成和邻近血肿压迫等^[4-6]。本例病人就是SAH后继发血栓形成,导致动脉瘤闭塞。

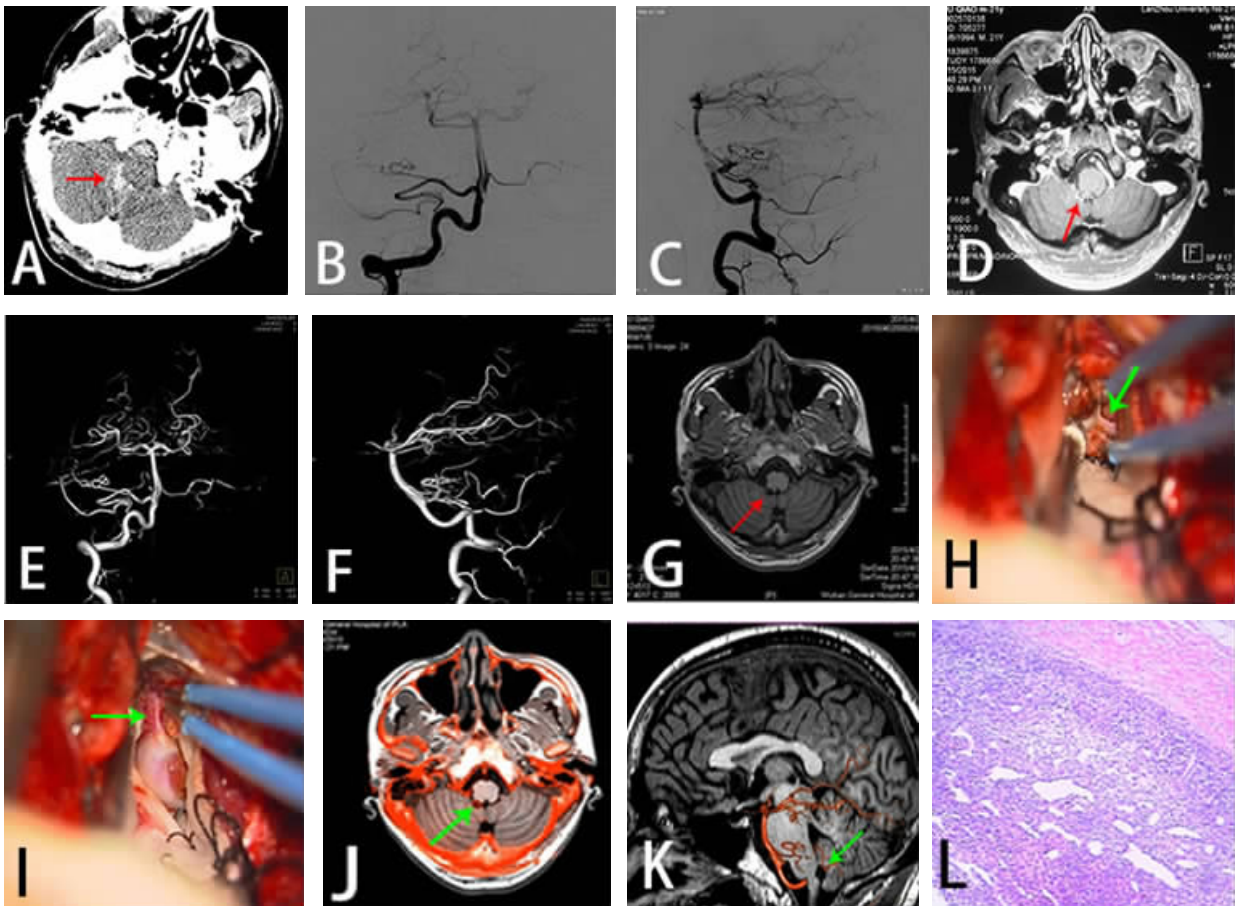


图1 例两次DSA阴性破裂小脑后下动脉动脉瘤患者影像学图、术中显微镜下图及术后病理图

A. 术前头部CT,红色↑示蛛网膜下腔出血;B、C. 第一次DSA未发现动脉瘤;D. 第一次头部MRI,红色↑示脑干背侧结节样病变;E、F. 第二次DSA仍未发现动脉瘤;G. 第二次头部MRI,红色↑示脑干背侧结节样低信号影;H. 术中发现,绿色↑示血管入口;I. 术中发现,绿色↑示血管出口;J、K. 3D-DSA影像和MRI影像融合,绿色↑示右侧小脑后下动脉从结节样病灶旁通过;L. 术后病理检查示动脉瘤内血栓形成并机化(HE,×100)

对于DSA阴性的SAH病人,是否需要再次脑血管造影存在争议。早期,Forster对56例DSA阴性的病人复查DSA,仅1例有阳性发现,所以认为DSA复查的必要性不大^[7],后有学者报道SAH初次DSA阴性再复查DSA的阳性率明显提高,因而对所有不明原因的自发性SAH建议重复造影^[4,8,9]。van Rooij等^[10]对48例首次DSA造影阴性的病例进行重复造影,发现颅内动脉瘤的比率高达40.4%,主要发生在前交通动脉,并提出重复造影应在脑血管痉挛高峰期过后7~14 d进行。

对DSA阴性的SAH病人,MRI检查是必要的。MRI检查可以发现一些肿瘤病变,如海绵状血管等,对病因的判断、病情的解释,及指导进一步的诊治或随访是有益的。Acciarri等^[11]曾报道1例以SAH发病而无明显神经系统功能障碍的病人,因DSA阴性而出院,6年后再次出血,MRI检查发现为高颈段髓外硬膜下海绵状血管瘤。本例病人也是因为MRI发现结节样病灶,提示为SAH来源,才提示我们进一步行开颅手术,最终找到引起SAH的病因。

我们术后将头颅CT或MRI图像与3D-DSA图像融合,看能否在术前利用影像融合技术来判断出血根源;结果发现,此种三维影像融合技术对寻找出血根源确有帮助,从三维融合影像上确实能够清楚看到MRI影像上小脑延髓裂处所见的类圆形低信号影与小脑后下动脉解剖结构密切相关,分析其可能为出血根源。所以本例病人诊断除海绵状血管瘤外,还应该想到动脉瘤的可能。

手术探查有时也是必要的。Koyama等^[12]曾报道124例SAH患者中10例为DSA阴性,其中4例行急诊探查手术,有3例发现动脉瘤。所以对于高度怀疑出血部位应有病变存在而DSA检查阴性的患者,应积极行开颅手术探查。本例病人术前怀疑海绵状血管瘤,正是因为开颅手术才得以确认为动脉瘤,并彻底去除了再出血的原因。

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