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·病例报告·

椎动脉起始部腔内血栓1例

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【摘要】 椎动脉起始部腔内血栓（intraluminal thrombus，ILT）临床少见，因症状不典型易漏诊，但其动脉-动脉栓塞风险可致严重后循环缺血。本文报道1例漏诊ILT病例，旨在提升临床识别能力。患者，男，49岁，2023年6月25日因“突发头晕伴恶心12 h”急诊就诊，头颅CT提示后循环缺血，予阿司匹林0.2 g/d、阿托伐他汀20 mg/d口服后离院。次日门诊头颅MRI示右侧小脑半球新近梗死灶。28日再发头晕，伴行走不稳、右侧偏身麻木，持续不好转，于29日入院。颈部CTA示右椎动脉开口重度狭窄、远端管腔内充盈缺损合并Donut征，确诊ILT。调整药物治疗方案为阿司匹林100 mg/d联合氯吡格雷75 mg/d，共15周。门诊颈部血管高分辨MRI示右椎动脉V1~V2段闭塞。11月2日在局麻下行血管内治疗，术后90 d及6个月随访，无脑缺血事件复发，mRS评分0分。本例患者提示，对后循环缺血患者，若初诊影像未明确责任病灶，需警惕ILT可能；药物治疗联合早期（5~7 d）CTA动态评估可有效逆转血栓进展，改善预后。

【关键词】 椎动脉　腔内血栓　抗血小板　椎动脉开口狭窄　椎动脉开口支架植入术　血管内治疗

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【Abstract】 Intraluminal thrombus (ILT) at the vertebral artery origin is rare and often missed due to atypical symptoms. However, it poses a high risk of artery-to-artery embolism and severe posterior circulation ischemia. This article reports a case of missed diagnosis of ILT to improve the diagnostic ability. The patient, a 49-year-old male was admitted to emergency department with sudden dizziness accompanied by nausea for 12 hours. Head CT suggested posterior circulation ischemia. Patient was given aspirin 0.2 g/d and atorvastatin 20 mg/d orally and discharged from the

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hospital. Head MRI in the outpatient department showed a recent infarct in the right cerebellar hemisphere next day. On the 28th, dizziness recurred, accompanied by unsteady walking and right-sided hemisensory numbness. The symptoms persisted and did not improve. He was admitted to the hospital on the 29th. Cervical CTA showed severe stenosis at the origin of the right vertebral artery, filling defect in the distal lumen combined with the Donut sign. Thus, ILT was diagnosed. The drug treatment regimen was adjusted to aspirin 100 mg/d combined with clopidogrel 75 mg/d for a total of 15 weeks. High-resolution MRI of the cervical blood vessels in the outpatient department showed occlusion of the V1-V2 segment of the right vertebral artery. On November 2, endovascular treatment was performed under local anesthesia. At 90 days and 6 months of follow-up after the operation, no recurrence of cerebral ischemia events occurred, and the mRS score was 0. This case highlights the need for vigilance toward ILT in posterior circulation ischemia when initial imaging is inconclusive. Early dynamic CTA (5-7 days) combined with dual antiplatelets may prevent thrombus progression and improve outcomes.

【**Keywords**】 Vertebral artery Intraluminal thrombus Antiplatelet Vertebral artery ostium stenosis Vertebral artery ostium stenting Endovascular treatment

椎动脉起始部腔内血栓(intraluminal thrombus, ILT)较为少见,可通过脱落或破碎致下游栓塞、进展致椎动脉闭塞而引发后循环缺血[1]。诊断上CTA是首选辅助检查。治疗上虽无统一的规范,但现有证据支持抗血小板聚集治疗和抗凝治疗可作为首选[1-2]。我们报道1例椎动脉起始部ILT的漏诊病例,对其诊断和治疗进行探讨。

1 临床资料

患者,男,49岁,因"发作性头晕4 d,再发伴行走不稳1 d"入院。2023年6月25日患者开车时突发头晕,伴恶心,无自身和外物旋转感,无视物重影、口角歪斜,无耳鸣、听力下降,无言语障碍、口齿不清,无肢体麻木、无力,持续5 min自行缓解,3 h后类似发作1次,持续10 min,遂来我院急诊,查头颅CT未见出血,考虑后循环缺血,予口服阿司匹林肠溶片0.2 g/d、阿托伐他汀片20 mg/d治疗,患者自行离院,次日门诊完善头颅MRI示右侧小脑半球新近梗死灶(图1),28日再发头晕,伴行走不稳、右侧偏身麻木,持续不好转,于29日入住我院。既往发现高血压2个月、未治疗,有长期吸烟史。神经专科体格检查:直线行走不能,右侧偏身浅感觉减退,其余未见阳性体征。入院后颈部CTA示:右椎动脉开口重度狭窄、远端管腔内充盈缺损合并Donut征,即ILT典型影像学特征(图1)。改药物治疗方案为阿司匹林100 mg/d联合氯吡格雷75 mg/d,共15周,患者症状缓解、无脑缺血事件复发,但门诊查颈部血管高分辨MRI示右椎动脉V1~V2段闭塞(图2),于2023年10月30日再次入院。入院后行数字减影血管造影(DSA)示:右椎动脉V1~V2段闭塞伴钝形

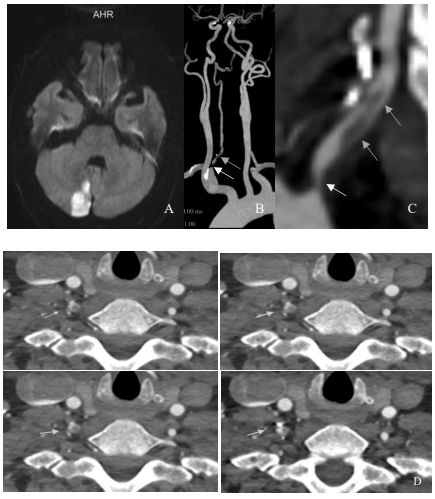

Fig.1 Cranial MRI-DWI on June 26, 2023 and Cervical CTA on June 30, 2023

图1 2023年6月26日头颅MRI-DWI和6月30日颈部CTA A示右小脑上动脉内侧支供血区新发梗死灶;B、C示右椎动脉开口重度狭窄,其远端腔内低密度充盈缺损;D示CTA横断位上连续4个源图像完全被造影剂包绕(Donut征)。

Fig.2 High resolution MRI and DSA

图2 高分辨MRI和DSA A示右椎动脉V1~V2段闭塞(2023-10-11高分辨MRI);B-C示右椎动脉V1~V2段闭塞、左椎动脉未向右椎动脉代偿供血(2023-10-31 DSA);D-E示右椎动脉起始部植入一枚4.0 mm×15.0 mmHerculink、再通右椎动脉(2023-11-02血管内治疗)。

残端，同侧颈升动脉通过肌支向V2段远端代偿至小脑后下动脉（图2）；颅脑CT灌注示右小脑后下动脉供血区低灌注Ⅱ1期（图3）。鉴于右椎动脉为功能孤立，且其供血区存在严重血流动力学障碍，2023年11月2日在局麻下行血管内治疗，术中于右椎动脉起始部植入4.0 mm×15.0 mm Hercu-link (Abbott Lab.) 球扩式支架1枚，再通成功（图2）。术后90 d及6个月随访，无脑缺血事件复发，mRS评分0分。

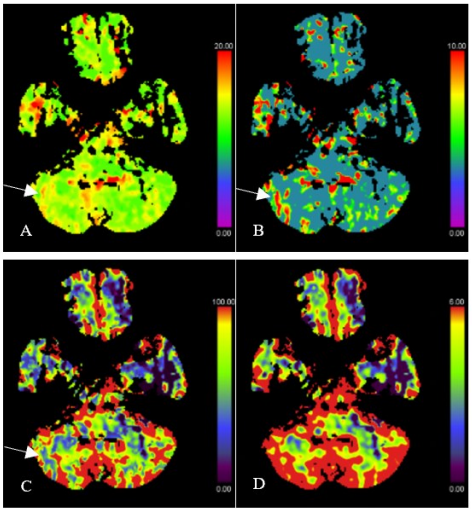

Fig.3　Cerebral CT perfusion, November 1, 2023

图3　2023年11月1日颅脑CT灌注　A示右小脑后下动脉供血区TTP延长；B示右小脑后下动脉供血区MTT延长；C示右小脑后下动脉供血区rCBF减低；D示右小脑后下动脉供血区rCBV正常。

2　讨论

颈部血管腔内血栓在缺血性卒中的检出率约1.6%，其中椎动脉ILT占11.5%[1]。椎动脉ILT多位于椎动脉起始部，主要继发于椎动脉开口重度狭窄病变，常通过栓塞机制引发脑卒中[1-6]。关于椎动脉起始部ILT的诊断，CTA是辅助检查的首选，典型表现为Donut征，即动脉管腔内的充盈缺损在CTA横断位上至少连续2个源图像完全被造影剂包绕[1-2,7-8]；此外，充盈缺损经过药物治疗2周内明显缩短或消失对于ILT的诊断具有很高的敏感性和特异性[1-2,4-5,9]。

关于椎动脉起始部ILT的治疗，缺乏高级别证据，最佳方案不明确[1]。尽管国内有学者运用抽吸取栓进行血管内治疗的成功经验[3,6]，但更多的报道支持药物治疗的首选[1-5]。药物治疗方案中，大部分以抗凝为主，包括普通肝素、低分子肝素、新型口服抗凝剂（利伐沙班）[2,4-5]。目前唯一一项前瞻性队列研究采用的是普通肝素（维持活化部分凝血活酶时间于正常值的1.5~2.0倍）联合阿司匹林100 mg/d或氯吡格雷75 mg/d的两联方案[1]，结果发现中位时间6 d，3/4的血栓溶解，没有出血并发症，显示了良好的疗效和安全性。新近关于椎动脉起始部ILT血管内治疗的个案发现，术中取出的血栓经苏木精-伊红染色显示富含红细胞，为临床抗凝治疗提供了病理依据[6]。综上所述，关于椎动脉起始部ILT的初始治疗，抗凝可能是更好的选择。

此外，从此例患者及文献复习中得到的另一教训是：接受抗血小板聚集治疗和抗凝治疗同时，早期（5~7 d）复查CTA以监测ILT的动态变化是必要的，可以及时地调整治疗以获得更好的临床预后。

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