.个案报道.

经永存舌下动脉介入治疗急性基底动脉闭塞1例

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【摘要】永存舌下动脉(PHA)是一种较为罕见的脑血管变异,常伴有椎动脉、Willis环发育不良,作为颈动脉-基底动脉吻合支,为后循环的主要血液供应途径。术中误栓PHA,可导致严重的后果。本院收治1例PHA合并基底动脉闭塞,经PHA进行介入治疗,术后症状改善出院。1月后门诊复查,生活可自理,改良Rankin量表评分1分。因此,PHA是一种罕见的颈动脉-椎基底动脉吻合,常伴随椎动脉发育不良,为后循环的主要血液供应途径,PHA的准确识别对于脑血管病介入治疗的安全性和识别特定类型的梗死非常重要。

【关键词】永存舌下动脉;急性基底动脉闭塞;血管内介入治疗

【文章编号】1009-153X(2024)09-0574-03　【文献标志码】B　【中国图书资料分类号】R 743; R 815.2

A case of acute basilar artery occlusion treated with endovascular techniques via the persistent hypoglossal artery

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【**Abstract**】Persistent hypoglossal artery (PHA) is a rare cerebrovascular anomaly, frequently associated with hypoplasia of the vertebral arteries and incomplete development of the circle of Willis. As a collateral branch of the carotid-basilar anastomosis, it serves as a critical blood supply route for the posterior circulation. Misidentification or inadvertent embolization of PHA during endovascular procedures can lead to severe neurological consequences. We report a case of acute basilar artery occlusion associated with PHA. The patient underwent successful endovascular intervention via PHA, resulting in significant clinical improvement and subsequent discharge. One month post-treatment, follow-up evaluation revealed that the patient had achieved functional independence, with a modified Rankin Scale (mRS) score of 1. Therefore, accurate identification of PHA is crucial for ensuring the safety and efficacy of cerebrovascular interventions. It also plays a vital role in diagnosing specific types of posterior circulation infarction. Given its rarity and potential impact on treatment outcomes, clinicians should be vigilant in recognizing this anatomical variation.

【**Key words**】Acute basilar artery occlusion; Persistent hypoglossal artery; Endovascular intervention

永存舌下动脉(persistent hypoglossal artery,PHA)是颈动脉系统与椎-基底动脉系统第二常见的吻合血管,为罕见的解剖变异,常伴有椎动脉、Willis环发育不良。本院报道1例基底动脉闭塞合并PHA,充分评估后,经PHA进行血管内介入治疗,取得良好的效果。

1 病例资料

67岁女性,因头晕7.5 h伴言语不清5.5 h于2022年10月27日入院。7.5 h前,出现头晕,伴恶心、呕吐,非喷射样,呕吐物为胃内容物,症状持续不缓解;5.5 h前,出现言语不清,伴一过性意识不清,约1 h后自行缓解。既往高血压病20年,最高160/110 mmHg,予以硝苯地平缓释片(Ⅱ)(20 mg,2次/d),未监测血压。心房颤动6个月,近1个月未抗凝治疗。冠心病病史6个月,自服阿司匹林(2片,2次/d)、硝酸异山梨酯(10 mg,3次/d)。入院体格检查:血压159/84 mmHg;神志清楚,重度构音障碍,可见水平眼震;心律绝对不齐。急诊检查血常规、凝血功能、肝肾功能正常。头颅CT显示双侧脑室旁稍低密度影,考虑缺血灶。头颈部CTA显示左侧椎动脉起自左侧颈内动脉,基底动脉尖管腔重度狭窄,余大脑动脉主干及分支未见明显异常(图1A)。入院诊断:脑栓塞;心律失常(心房颤动);冠心病;高血压病3级(极高危)。入院后急诊脑血管造影显示右椎动脉纤细,左侧颈内动脉开口正常,发出永存舌下动脉并向基底动脉供血,基底动脉尖闭塞(图1B~D)。经PHA行抽吸取栓术,抽出血栓后造影示基底动脉开通,TICI分级3级(图1E)。术后予以利伐沙班抗凝(15 mg,1次/d)、匹伐他汀钙片调脂治疗(2 mg,1次/晚)。术后头颅MRI显示脑干及小脑亚急性脑梗死(图1F)。经治疗症状改善而出院,出院时言语欠清,视物不清,肢体可自主活动;轻度构音障碍。出院后继续抗凝、调脂等治疗。出院1个月门诊复查,生活自理,改良Rankin量表评分1分。

2 讨 论

在人类胚胎的早期发育过程中,原始颈动脉和椎-基底动脉系统之间存在短暂的吻合血管。在胚胎发育中,基底动脉、后交通动脉、椎动脉逐渐形成,同时胚胎吻合血管相继退化并消失。若吻合支未消退,且持续存在到成年,即成为颈动脉-椎基底动脉吻合支,依据其解剖位置分别命名为:永存三叉动脉(persistent trigeminal arteries,PTA)、永存耳动脉(persistent auricular artery,PAA)、PHA及寰前间动脉

doi:10.13798/j.issn.1009-153X.2024.09.016
基金项目:邢台市科技计划项目(2020ZC319)
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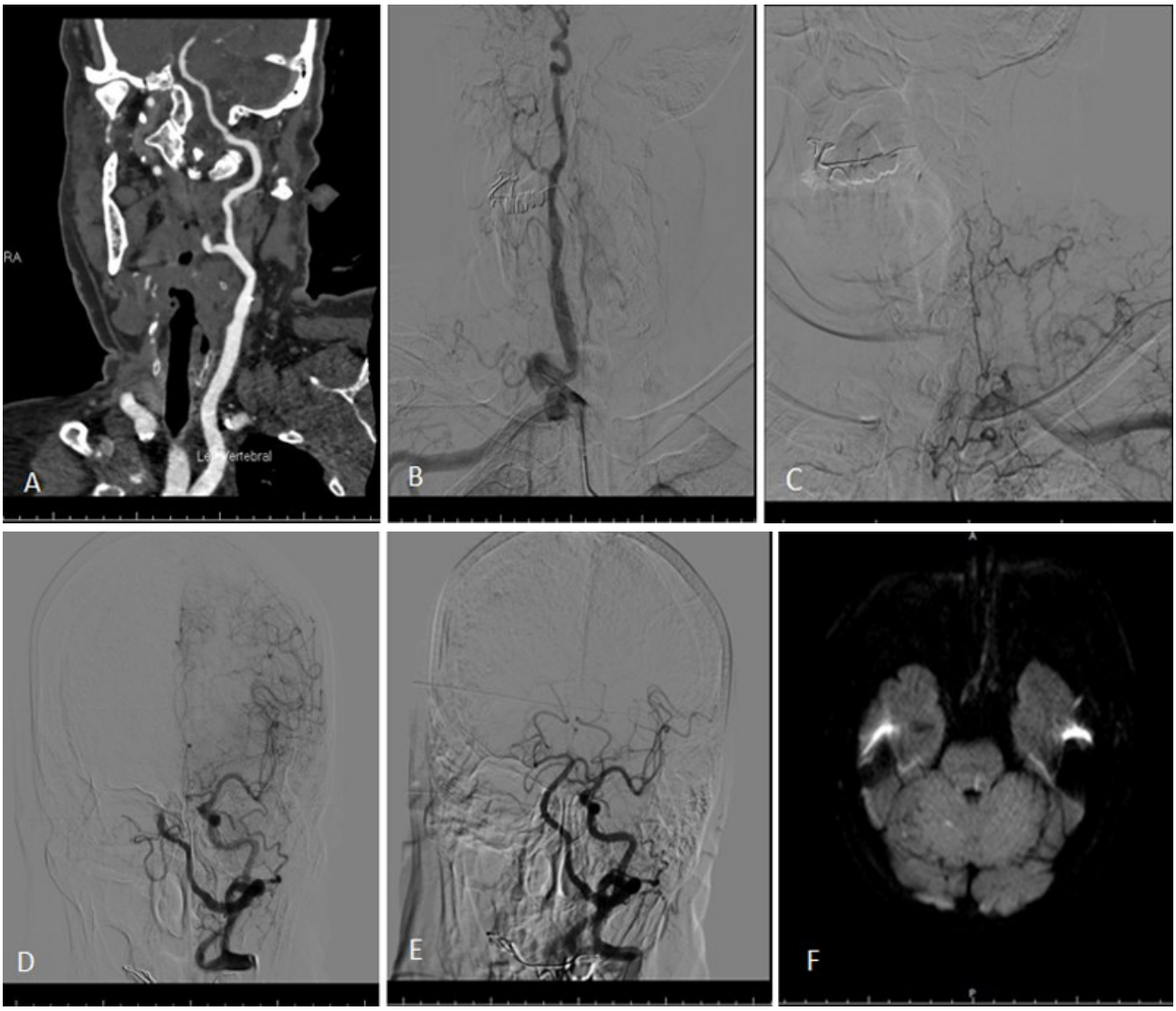

图 1 伴经永存舌下动脉的急性基底动脉闭塞经经永存舌下动脉介入治疗前后影像学表现

A. 术前CTA显示左侧椎动脉起自左侧颈内动脉；B、C. 术前DSA显示右侧椎动脉纤细，左侧锁骨下动脉未见左侧椎动脉；D. 术前DSA显示左侧颈内动脉C1段发出永存舌下动脉，基底动脉尖闭塞；E. 术后DSA显示基底动脉开通，前向血流恢复；F. 术后头颅MRI显示脑干及小脑亚急性脑梗死

Figure 1 Pre− and post−operative images of a patient with acute basilar artery occlusion associated with a persistent hypoglossal artery undergoing endovascular treatment via the persistent hypoglossal artery

A: Preoperative CTA reveals that the left vertebral artery originates from the left internal carotid artery. B−C: Preoperative DSA demonstrates a slender right vertebral artery and absence of the left vertebral artery from the left subclavian artery. D: Preoperative DSA shows that the persistent hypoglossal artery arises from the C1 segment of the left internal carotid artery, with occlusion at the tip of the basilar artery. E: Postoperative DSA confirms revascularization of the basilar artery with restored antegrade blood flow. F: Postoperative cranial MRI reveals subacute infarction in the brainstem and cerebellum.

(proatlantal in−tersegmental artery，PIA)。PHA起源于颈内动脉C1段或颈外动脉，位于颈1~3椎体之间，经舌下神经管入颅后和基底动脉汇合，发生率在0.02%~0.1%[1]，女性多见，左侧多见[2]。PTA起源于颈内动脉虹吸段，发生率在0.4%[3]。PAA、PIA较为罕见。

颈内动脉起始部为狭窄好发部位，PHA虽起源于此但很少会受到影响。在伴有PHA的脑梗死中，无论血栓来源于心脏或动脉斑块脱落，病变通常会累及颅内前、后循环[4]。若颈内动脉存在严重的狭窄或闭塞，基底动脉可通过PHA逆转血流以代偿颈内动脉系统[5]。PHA还与颅内动脉瘤、Moyamoya病等脑血管病相关，机制考虑为血流动力学改变相关[6,7]。由于PHA的存在可导致椎动脉、Willis环发育不良[8]，因此，PHA为后循环最重要的血液供应途径，颈内动脉系统则成为后循环的主要供血源。这种解剖变异对于手术具有临床意义，需在手术中识别。本文病人右侧椎动脉发育纤细，基底动脉主要依靠PHA供血，经PHA开通基底动脉，使病人获益。

临床上，PHA多无症状，通过影像学检查发现。少数情况下，可出现舌咽神经痛、舌下神经麻痹、晕厥等症状[9]。诊断上需与Ⅰ型PIA鉴别，二者不同点在于[1]：①Ⅰ型PIA位于PHA下方，起源于颈2~3椎体水平；②PHA走形相对更垂直；③Ⅰ型PIA通过枕骨大孔入颅，而PHA经舌下神经管入颅，与基底动脉汇合。

急性基底动脉闭塞临床预后差，致残率及病死率高，基底动脉尖为好发部位，且多为心源性栓塞所致[10]，尽早血管开通是首选方案。与单纯支架取栓相比，抽吸导管直接抽吸取栓技术（a direct aspirationfirst-pass technique，ADAPT）操作过程简单，增加了导管对血栓的吸附力，降低了血栓逃逸风险，减少血管损伤，提高了血管单次再通率，缩短手术时间。研究证实，对于ABAO，ADAPT技术可作为首选治疗策略，且恢复良好[11,12]。本文病例为心源性栓塞所致ABAO，紧急采取血管内治疗，通过术中对病变性质的判断，选择ADAPT技术快速开通基底动脉，恢复血流，预后良好。

综上所述，PHA是一种罕见的颈动脉-椎基底动脉吻合，常伴随椎动脉发育不良，为颅内后循环的主要血液供应途径。因此，PHA的准确识别对于脑血管病介入治疗的安全性和识别特定类型的梗死非常重要。

【利益冲突声明】：本文不存在任何利益冲突。

【作者贡献声明】：张博刚收集病例资料、撰写论文；王国玲、彭敏负责文献检索、资料整理；陈秀晓、申晓平负责临床资料收集；闫喜格参与修改论文及最后定稿。

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（2022-12-14收稿，2024-01-08修回）