

神经内镜下鼻蝶入路术中脑脊液漏的颅底重建

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[摘要] 目的: 探讨神经内镜下鼻蝶入路术中脑脊液漏的颅底重建方法。方法: 对39例神经内镜下鼻蝶入路术患者采用生物胶、明胶海绵及人工硬脑膜进行颅底重建, 观察颅底重建治疗脑脊液漏的可行性和应用效果。结果: 首次颅底重建后, 34例患者颅底一次性修补成功, 脑脊液漏完全治愈。5例患者发生短暂性脑脊液鼻漏, 采用保守治疗后在3~5 d内治愈。术后随访12~18个月, 平均15.3个月, 1例患者在术后13个月时因打喷嚏再次发生脑脊液鼻漏伴颅内积气, 行颅底重建后治愈。本组患者一次性手术成功率97.44%, 随访期间均未发生神经功能缺损及感染、脑疝等并发症。结论: 颅底重建可有效治疗神经内镜下鼻蝶入路术中脑脊液漏, 一次性手术成功率高, 安全性好。

[关键词] 脑脊液漏; 神经内镜; 鼻蝶入路; 颅底重建

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Reconstruction of the skull base with cerebrospinal fluid leakage under neuroendoscopic transsphenoidal approach LIU Shuli, WU Lihua, CHENG Liang, CHEN Kai. Department of neurosurgery, Langfang People's Hospital, Langfang 065000, China

[Abstract] **Objective:** This study was conducted to investigate the reconstruction of cerebrospinal fluid leakage through nasosphenoidal approach under neuroendoscopy. **Methods:** 39 patients with cerebrospinal fluid leakage were treated by neuroendoscopic rhino-sphenoidal approach with bioglass, gelatin sponges and artificial dura mater. **Results:** After the first cranial base reconstruction, the cranial base was repaired successfully in 34 patients, and the cerebrospinal fluid leakage was completely cured. Transient cerebrospinal fluid rhinorrhea occurred in 5 patients and was cured within 3-5 days after conservative treatment. Postoperative follow-up was 12-18 months, with an average of 15.3 months. One patient suffered cerebrospinal fluid rhinorrhea with intracranial pneumocephalus again due to sneezing 13 months after surgery, and was cured after skull base reconstruction. In this group, the one-time operation success rate was 97.44%. During the follow-up, there were no neurological defects, infection, cerebral hernia and other complications. **Conclusions:** Cranial base reconstruction can effectively treat cerebrospinal fluid leakage in nasosphenoidal approach under neuroendoscopy.

[Key words] cerebrospinal fluid leakage; neuroendoscopy; nasosphenoidal approach; reconstruction of the skull base

神经内镜具有手术视野好、创伤小、操作灵活等优点, 在垂体腺瘤等的治疗中得到广泛应用, 也取得了较好疗效^[1-2]。但肿瘤切除后造成的颅底缺损较大, 导致术后发生脑脊液漏的风险增高^[3]。周涛等^[4]的研究对375例垂体瘤患者采用神经内镜下鼻蝶入路治疗, 结果发现脑脊液漏发生率为14.2%。有研究证实, 颅底缺损超过1 cm的患者

中脑脊液漏发生率增至20%~30%^[5-7]。而脑脊液漏是引起颅内感染、脑膜炎的主要因素, 对患者预后威胁较大^[8]。积极采用可靠的颅底重建技术治疗脑脊液漏对减少并发症、改善患者预后非常重要。我科采用自体材料、生物胶、明胶海绵及人工硬脑膜等材料, 对神经内镜下鼻蝶入路术中脑脊液漏进行颅底重建, 现总结颅底重建的病例, 观察其对脑

脊液漏的治疗效果。

1 资料与方法

1.1 一般资料

患者入院时间2014年8月至2017年2月,39例患者中男性患者17例,女性患者22例,年龄23~62岁,平均43.18岁,首发症状包括视野改变并视力下降31例,闭经9例,肢端肥大并口鼻肥厚5例,溢乳7例,头痛12例,性功能减退2例,多饮多尿1例。肿瘤类型包括颅咽管瘤9例,鞍结节脑膜瘤16例,垂体腺瘤14例。垂体腺瘤患者中9例为大腺瘤(瘤体最大径1.1~3.9 cm),5例为巨腺瘤(最大径4.0 cm以上)。鞍结节脑膜瘤瘤体最大径均低于3.0 cm。

1.2 手术方案

患者取仰卧位,行全身麻醉,头部后仰并偏向医师,根据肿瘤位置选取合适的鼻孔,采用碘伏对鼻周皮肤及鼻腔黏膜进行消毒,在神经内镜下暴露蝶窦开口,将黏膜切开显露骨性蝶窦开口,尔后依次将蝶窦前壁及内分隔切除,充分显露鞍底,将硬膜切开,按从后至前的顺序切除肿瘤。

所有患者肿瘤切除后均发生脑脊液漏,首先用明胶海绵与小棉片封堵漏口,防止漏口扩大,尔后继续切除肿瘤,肿瘤切除结束后首先修补漏口,探查漏口大小,漏口较大时采用自身脂肪填塞,小漏口采用明胶海绵与止血纱填塞,并用骨蜡填塞骨性裂隙,用速即纱铺在漏口周围进行止血,注入纤维蛋白胶密封漏口。第二步修补鞍底,将速即纱平铺在残留垂体及鞍隔表面进行止血,将合适大小的人工硬脑膜置入鞍内,并在其表面铺一层速即纱,注入纤维蛋白胶完成鞍底修复。第三步重建鞍底,裁剪一张与鞍底骨窗形状相似、面积稍大的人工硬脑膜进行重建,用医用胶密封间隙。鞍隔破口较大的患者,在大腿外侧取适量肌肉条,制成肌浆后平铺在鞍底,最后用纤维蛋白胶加固。复位蝶窦前壁黏膜,用碘仿纱条填塞鼻腔,并用明胶海绵分隔碘仿纱条与黏膜,避免在取出纱条时引起修补材料的移位。

术后密切监护引流情况及鼻腔漏液情况,定期复查头颅CT。再次发生脑脊液漏应首先考虑卧床休息、降压、通便等保守治疗,无效者再次行颅底重建治疗。

1.3 随访

术后至少随访12个月,分为电话随访和门诊复查。电话随访每个月进行1次,询问患者病情变

化情况。门诊复查每3个月行1次垂体MRI平扫及强化检查,12个月后视情复查。

2 结果

首次颅底重建后,34例患者颅底一次性修补成功,脑脊液漏完全治愈。5例患者发生短暂性脑脊液鼻漏,采用保守治疗后在3~5 d内治愈。术后随访12~18个月,平均15.3个月,1例患者在术后13个月时因打喷嚏再次发生脑脊液鼻漏伴颅内积气,再次行颅底重建后治愈。本组患者一次性手术成功率97.44%,随访期间均未发生神经功能缺损及感染、脑疝等并发症。

3 讨论

目前对于肿瘤切除术后颅底骨质缺损是否需要重建尚无定论,但对于伴有脑脊液漏者应即刻行颅底重建已经是临床共识^[9]。脑脊液漏是神经内镜下鼻蝶入路肿瘤切除术中常见的并发症,可能引起颅内感染、脑膜炎等恶性事件的发生^[10]。因此理想的颅内重建应达到纠正脑脊液漏的主要目的。同时,颅内重建应恢复颅底及颅外间的永久性屏障,防止脑疝的形成^[11]。临床上认为颅底骨性缺损<1 cm时仅需修复硬脑膜,采用明胶海绵与筋膜将骨性缺损严密覆盖骨性缺损即可达到纠正脑脊液漏的目的^[12]。而对于直径超过1 cm的缺损,脑疝发生风险较高,需要重建骨性颅底^[13]。采用微型钛网、游离植片等修补材料修复颅底骨性缺损,早期修复效果较好^[14]。但颅内潮湿环境的持续刺激可能导致修补材料分解进而发生异物反应,影响重建效果^[15]。此外,还有研究发现微型钛网具有神经毒性,可能损伤视神经、嗅神经^[16]。

人工硬脑膜是人脑膜的生物替代物,具有化学性质稳定、无毒、致密性及韧性好等特点^[17]。本次研究将人工硬脑膜置于硬脑膜下,利用脑脊液与脑组织的压力作用使其与颅骨面充分贴合,并用明胶海绵与生物蛋白胶水加固,最后再次用人工硬脑膜修复,形成“三明治”结构的颅内外屏障。本组患者一次性手术成功率97.44%,随访期间均未发生神经功能缺损及感染、脑疝等并发症。表明该种方式颅内重建能够有效纠正脑脊液漏,减少术后并发症的发生。

颅底重建的效果受缺损面积、空腔容积、放射治疗、再次手术、修补材料、脑室及脑池的开放、肿瘤性质、肿瘤切除程度等多种因素影响^[18-20]。还有研究发现过度肥胖也可对颅底重建效果产生不利影响^[21]。本次研究中术后共5例患者发生短暂

性脑脊液鼻漏,采用保守治疗后在3~5d内治愈。分析临床资料发现2例患者由于肿瘤形状不规则,反复切除及刮除肿瘤组织导致骨性缺损大且不规则,修复效果欠佳,但经过保守治疗脑脊液漏可得到纠正。另外3例患者均为颅咽管瘤,且均为部分切除术。颅咽管瘤可分泌胆固醇结晶及液体蛋白,部分切除后残留肿瘤组织仍可继续分泌,对伤口修复产生不利影响,进而引起脑脊液鼻漏,待伤口修复后脑脊液漏即可得到控制^[22]。此外,术后随访发现1例患者因打喷嚏再次发生脑脊液鼻漏伴颅内积气,行颅底重建后治愈。二次重建时发现该患者“三明治”结构已明显移位,分析其资料发现合并脑池开放、术前放射治疗及肿瘤部分切除等多个影响颅底重建效果的因素,综合作用导致固定效果欠佳。

本次研究采用带蒂鼻腔黏膜瓣和支撑球囊为重建的颅底提供支撑,鼻腔黏膜瓣可将支撑球囊与重建的颅底分开,避免发生粘连,降低异物反应发生风险。同时,带蒂鼻腔黏膜瓣可保证黏膜血供,促进伤口愈合,且不影响术后复查。此外,术后常规行腰池导流4~7d,避免“三明治”结构被脑脊液浸泡,也可在一定程度上减轻术后疼痛。随着神经内镜技术和颅底重建技术的发展,目前已知对颅底重建影响较大的因素均可能得到解决,颅底重建效果得到进一步提高。总体而言,颅底重建可有效治疗神经内镜下鼻蝶入路术中脑脊液漏,一次性手术成功率高,安全性好。

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