

经鼻内镜手术技术治疗颅底肿瘤新进展

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摘要

为了降低颅底肿瘤手术的风险, 以及促进微创外科发展, 经鼻内镜手术技术引进神经外科已有70余年, 目前仍然在继续发展和完善。神经外科医生对于经鼻内镜入路切除颅底肿瘤范围的探索从未停止, 本文通过检索文献资料, 对相关研究进行总结报道。

关键词

神经外科, 经鼻内镜手术, 颅底肿瘤, 进展

New Progress of Transnasal Endoscopic Surgery in the Treatment of Skull Base Tumors

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Abstract

In order to reduce the risk of skull base tumor surgery and promote the development of minimally invasive surgery, transnasal endoscopic surgery has been introduced into neurosurgery for more

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than 70 years. Neurosurgeons have never stopped exploring the extent of transnasal endoscopic resection of skull base tumors. This paper summarizes and reports the relevant studies by searching relevant data.

Keywords

Neurosurgery, Transnasal Endoscopic Surgery, Skull Base Tumor, Progress

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1. 引言

在经鼻内镜入路切除垂体瘤手术技术发展成熟之后, 内镜下颅底解剖研究、手术器械以及颅底重建方法的发展推动经鼻内镜治疗颅底肿瘤适应症的广泛扩展[1]。而且, 大量的研究表明经鼻内镜术后脑脊液漏、颅内感染等并发症不会高于开颅手术, 这种微创手术的优势也被患者广泛接受[2]。近年来, 一些经鼻内镜扩大手术入路的病例被发表, 可治疗颅底病变的范围从额窦到 C2 椎体区域, 从中线向两侧可达岩尖及颈静脉孔等区域。解剖学上颅底分为前、中、后三部分, 根据经鼻内镜手术技术又将颅底解剖分为中线区域和侧颅底区域[3] [4] [5] [6] [7]。本文将探讨神经内镜经鼻腔入路治疗颅底病变范围的新进展。

2. 前颅底

主要切除的病变包括脑膜瘤、神经鞘瘤、颅眶沟通的恶性肿瘤等, 一般为切除鼻中隔后双鼻孔通道四手操作[8] [9]。

2.1. 中线区域

前颅底中线区域常见手术为经筛板入路, 去除筛板骨质后骨性结构的界限前方为蝶窦后壁, 后方为蝶骨平台, 两侧可达眶内侧壁, 需要注意的是对于筛前、后动脉的处理, 这一组血管为大多数前颅底肿瘤的供血来源, 而且眶内段损伤后出血可能会造成继发性视觉系统损伤[10] [11]。额窦入路是经鼻内镜手术可到达的颅底最前方区域, 骨性结构向前可达鼻骨, 但可操作空间狭小且邻近前额部皮肤、视觉系统、额极动脉以及上矢状窦等结构, 对于一些病灶范围较大或生长复杂的肿瘤往往采用经鼻内镜联合开颅手术[12] [13] [14]。

2.2. 侧颅底

可以分为眶上和经眶入路, 常见的手术包括眼眶及视神经减压术[15] [16] [17], 经骨膜下到达眶顶, 这里也要注意处理筛、前后动脉, 经眶入路一般经过眼外肌间隙切除病灶, 但为了保护眼球运动功能常常需要眼科医生协助手术[18] [19] [20]。

3. 中颅窝

主要切除的病变包括鞍结节脑膜瘤、垂体瘤、颅咽管瘤、三脑室及脉络丛区域的肿瘤、骨肿瘤、纤维血管瘤等, 有术者为了保护患者的嗅觉功能采用单鼻孔双手操作技术[21] [22]。

3.1. 中线区域

根据骨性解剖结构可以分为经蝶骨平台-鞍结节入路和经蝶鞍入路。经蝶鞍入路属于经鼻内镜手术中最常规的手术入路,前界为鞍结节,两侧为颈内动脉隆起,后界为斜坡隐窝,但如果蝶窦气化不足或分隔不规则会导致颅底结构的判断出现失误,为了避免因此对两侧的颈内动脉和前方的视神经造成损伤,术前需要依靠影像学资料规划手术通道[23] [24] [25]。蝶骨平台-鞍结节入路通常被用来处理鞍结节和鞍上区颅内的病变,前界为筛板,后界为蝶鞍前壁,对于由鞍内突入鞍上的肿瘤经常与经蝶鞍入路联合,在此入路中进入颅内时要特别注意保护视神经、垂体柄、垂体上动脉以及颈内动脉等重要结构[26] [27] [28]。

3.2. 侧颅底

首先为经翼上颌入路,用于治疗一些蝶窦外侧病变,准确定位颈内动脉岩骨段是关键[29] [30],其中最主要的间隙是翼腭窝,其内走行翼管神经、上颌神经及上颌动脉等[31]。其次是经海绵窦入路,因为海绵窦内血管、神经集中分布的特殊性,要求操作者具备详细的解剖学认识和丰富的经鼻内镜手术经验,特别是海绵窦外侧区域操作空间相对狭小,术后很可能会出现颅神经功能的永久性丧失[32]。再向外是经岩尖入路,周围重要的解剖结构包括颈内动脉、三叉神经、外展及面听神经,还有颈静脉孔内结构[33] [34]。岩骨上入路主要用来处理 Meckel 腔内病变或向上沿三叉神经突入颅内的病变,要点在于确定颈内动脉在此处的走行[35]。

4. 后颅窝

此区域常见的肿瘤包括脊索瘤、脑膜瘤、软骨瘤等,通常选择双鼻孔通道四手操作。

4.1. 中线区域

经斜坡入路从鞍背至枕骨大孔,以鞍底和蝶窦底为界分为上、中、下三部分。上斜坡入路可以到达后床突和鞍背,但为了扩展视野,需要移除后床突,然后将垂体进行移位甚至切除,但容易损伤动眼神经及垂体下动脉导致术后垂体功能低下。中段入路需要注意保护的是两侧颈内动脉和外展神经[36]。下段主要的骨性解剖标志有颈静脉结节、舌下神经管和枕髁,相对于中上段斜坡其两侧颈内动脉已远离斜坡区域,入颅后可以观察到脑干部分区域以及其腹侧的血管神经,但是由于颅神经损伤的风险导致操作难度增加[37] [38]。

4.2. 侧颅底

分为岩骨下入路、经髁和咽旁入路,前者主要用于切除岩尖部及颞下病变,向外侧可达卵圆孔,需要注意三叉神经第三支走行,后两者可切除部分颅咽管后进一步处理颈静脉孔区及舌下神经管区病变,缺点在于骨性结构的磨除可能会破坏颅颈交界区稳定性,由于位置较深且角度倾斜大幅度降低了术中操作的灵活性[39] [40]。

5. 经齿突入路

中线区域极后方可经齿突入路显露 C2 椎体前区域,除了切除病变组织外经常用来对脑干进行减压,但与斜坡下段入路共同面临术后关节不稳的隐患,需要行颅颈融合[41] [42]。

6. 展望

经鼻内镜手术技术的发展已经势不可挡,然而事物的发展总是曲折的,新的挑战不断出现,比如颅

底重要血管、神经的损伤,鼻腔结构破坏带来的术后不适,特别是术后颅底重建的难度明显增加。但前途是光明的,在医学和科技共同、快速发展的过程中,经鼻内镜下颅底解剖内容不断完善[43],内镜器械和设备持续优化,角度内镜、3D 内镜以及神经电生理监测[44]、神经导航等辅助技术接连更新[45] [46] [47],神经外科与耳鼻喉科、眼科等学科的交叉合作更加紧密,多个神经外科中心定期举办经鼻内镜手术解剖讲座、病例汇报和操作培训,以这些成果为基石,经鼻内镜手术技术必然朝着高效率 and 低风险的方向发展。

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