

· 鼻整形美容专题综述 ·

鼻唇沟解剖及相关面部年轻化治疗的最新研究进展

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【摘要】 鼻唇沟是鼻翼外侧延伸至口角的面部凹陷性区域。鼻唇沟的解剖层次由浅至深为皮肤层、脂肪室、表浅肌肉腱膜系统、纤维连接层和肌肉层,因产生机制不同可将鼻唇沟分为五型:皮肤型、脂肪垫型、肌肉型、下颌后移型和综合型。对于不同类型的鼻唇沟需采用差异化的治疗方法。因此掌握其解剖结构、准确评估并正确分类,对面部年轻化治疗至关重要。现对鼻唇沟的解剖、分型及相关面部年轻化的研究进展作一综述。

【关键词】 鼻唇沟;解剖;分型;面部年轻化

鼻唇沟是鼻翼外侧延伸至口角的凹陷性面部区域,深度和形状因人而异^[1]。鼻唇沟皱褶治疗方式较多,如注射填充、外科手术和激光射频^[2]等,但如果分类不够详细,很难获得较好的治疗效果。因此,整形外科医师应充分了解面部软组织的解剖结构以及衰老相关的变化。笔者现对鼻唇沟解剖以及不同分类的鼻唇沟皱褶相关面部年轻化的研究进展作一综述。

1 鼻唇沟的解剖和影响因素

鼻唇沟区域由浅至深分别为皮肤层、脂肪室、表浅肌肉腱膜系统(superficial muscular aponeurotic system, SMAS)、纤维连接层和肌肉层等组成。

1.1 鼻唇沟周围的软组织 (1)皮肤层。皮肤的厚度在鼻唇沟内、外侧无显著差异,东方人鼻唇沟区域的皮肤厚度为1.3~1.8 mm^[2]。人衰老时皮肤层松弛、变薄,由于重力作用被拉长,细胞外基质蛋白(原蛋白和弹性蛋白)含量减少^[3]。(2)脂肪室。脂肪室的概念由 Rohrich 和 Pessa^[4]提出,由 Gierloff 和 Surek 等^[5-6]通过尸体解剖研究完善了其概念。现在广泛认为,SMAS 层将中面部脂肪组织分为浅层和深层,以筋膜、韧带或肌肉为边界形成独立的脂肪室。中面部浅层脂肪室分为眶下脂肪室、面颊部脂肪室、鼻唇区脂肪室,深层脂肪室分为颊脂肪垫、眼轮匝肌下脂肪室、深内侧面颊脂肪室。浅层脂肪组织在鼻唇沟外上方较厚,内下方较薄。鼻唇沟外侧脂肪位于颊脂肪垫的上部并与下颌脂肪重叠。面部脂肪室相比于 SMAS 肌肉及骨组织层老化快,由于退行性变和重力作用使颊脂肪垫向前下移位而导致鼻唇沟皱褶加深^[7]。(3)SMAS。SMAS 是指在中面部和颈部的皮下脂肪层中,连续的腱膜组织及肌纤维构成的独立组织层,其将皮下脂肪组织分为深浅两层。鼻唇沟区 SMAS 较薄,表面脂肪组织较多,纤维止于真皮层,参与形成鼻唇沟皱褶。SMAS 不经表情肌表面延伸至鼻唇沟,也无法跨越鼻唇沟至唇部^[7]。(4)纤维连接层。鼻唇沟内外侧有不同数量的纤维连接,同时在间隙中包绕着脂肪颗粒。鼻唇沟外

侧纤维稀疏,内侧致密,因此外侧对于皮肤肌肉等牵引力较小,内侧牵引力较大^[8]。(5)肌肉层。参与形成鼻唇沟皱褶的肌肉有眼轮匝肌、颧大肌、颧小肌、笑肌、颊肌、口轮匝肌、提口角肌、降口角肌、提上唇肌、提上唇鼻翼肌等。其中,提上唇鼻翼肌、提上唇肌与颧小肌是鼻唇沟加深的主要肌肉^[2]。颧大肌与眼轮匝肌未直接连接,颧大肌的末端纤维位于提口角肌,提口角肌的终末纤维与降口角肌的终末纤维在口角处相交。在进行面部年轻化过程中,可以通过注射 A 型肉毒毒素来拮抗收缩的肌肉,以起到改善鼻唇沟皱褶的作用。

1.2 鼻唇沟周围的神经 面神经颧支、颊支、下颌缘支及面横动脉、腮腺导管均走行于 SMAS 深面。颊支穿行于颊脂肪垫、咬肌等。颧支穿行于腮腺、咬肌筋膜、颊脂肪垫、颧大肌等,最后与颊支汇合于颧大肌深面。口轮匝肌由面神经的颊支和下颌支所支配;提口角肌由面神经的颊支和颧支支配;颧大肌由面神经的颧部和颊部分支支配,颧小肌、颊肌及笑肌受面神经的颊支支配;降口角肌受面神经的下颌缘支配,并进入肌肉深层;提上唇鼻翼肌受面神经的颊支支配,提上唇肌由面神经的颧部和颊部分支支配^[9]。在进行面部年轻化时,应注意避免损伤走行神经。

1.3 鼻唇沟附近的血管 鼻唇沟区域的血供主要来源于以下 4 种类型:(1)面动脉型。(2)面横动脉型。(3)眶下动脉型。(4)多源型(眶下动脉、面横动脉、面动脉、内眦动脉等)^[10]。当注射填充鼻唇沟时,必须考虑面动脉的走行。面动脉是颈外动脉的分支,其沿下颌骨下缘向上进入面部,迂曲向上行进至距口角外约 1 cm 处,分支成颊动脉、下唇动脉、上唇动脉和内眦动脉。面动脉在鼻唇沟区域主要走行于皮下组织和肌肉层之间的平面,在鼻唇沟上 1/3 处走行较为浅表,在鼻唇沟下 2/3 处走行于肌肉层深面。在进行面部注射治疗时,应注意避开大血管走行区域,避免导致血肿、栓塞等并发症。

1.4 蜗轴 又名口角轴,是汇聚在口角旁一点的来自不同平面的肌肉,围绕着口角互相重叠,形成致密可活动的纤维肌性团。以蜗轴为中心的周围肌肉类似轮轴状有组织且呈放射状排列。在鼻唇沟的形成中蜗轴起着重要的作用^[2,11]。在面部年轻化手术中,可以通过加强蜗轴而改善面部的动静态外观。

1.5 面部支持韧带 面部有很多支持韧带,呈“树状”分布,

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连接真皮和骨膜^[3]。支持韧带和面部的脂肪室紧密相关。脸颊的浅层脂肪室由 SMAS 层分隔成亚单位脂肪室,这些脂肪室交界处也代表筋膜合并的区域,经常会出现韧带^[7]。韧带的松弛老化是面部老化过程中脂肪垫下移的解剖原因,因而面部年轻化的手术可提升韧带改善鼻唇沟皱纹^[12-13]。

1.6 深梨状孔间隙 Rohrich 和 Pessa^[9]、Gierloff 和 Surek 等^[5-6]研究发现,内侧部深处毗邻梨状孔存在呈半月形深梨状孔间隙。该间隙是实施面部年轻化过程中恢复脂肪容量的重要位置。以提上唇肌、降鼻中隔肌作为深梨状孔间隙的上、下侧边界,深内侧面颊脂肪室覆盖于深梨状孔间隙前面。由于衰老导致梨状骨和上颌骨后缩使该间隙增大,在此间隙进行注射填充可以使鼻唇沟变浅^[2,14]。

2 鼻唇沟分型、测量及治疗

鼻唇沟是一个特殊的解剖区域,在行面部年轻化手术前后均需综合评估再进行治疗^[15]。传统方式多以全球审美改善量表(global aesthetic improvement scale, GAIS)和鼻唇沟纹严重程度评定量表(winkle severity rating scale, WSRS)来进行分型^[16]。目前结合鼻唇沟的解剖学和组织学特征,鼻唇沟按以下分型便于治疗。皮肤型(因皮肤老化及重力作用对表皮产生影响)、脂肪垫型(脂肪垫较厚或颧骨丰满使鼻唇沟凹陷)、肌肉型(由于肌肉高强度收缩导致的鼻唇沟皱褶加深)、骨后缩型(先天性中面部后缩等梨状孔周围骨后缩导致上部宽大凹陷,在年轻人多见)、综合型(包含其他几种类型)^[17]。关于鼻唇沟的测量,传统的方式多以平面比例及视觉感官为参考,受无关因素影响较大。新技术如 3D 测量技术精度较高^[18]。通过对比术前、术后重建模型来评估鼻唇沟容积,可以长期测量评价鼻唇沟填充、除皱的术后效果。预计今后的研究将进一步细分并量化不同的鼻唇沟皱褶,如应用 Micro-CT 或 Nano-CT 结合碘染色等方法,从而使面部年轻化可以更精确地操作并取得良好的临床效果^[19]。

2.1 皮肤型 皮肤型鼻唇沟中较轻者可采取填充及激光治疗,对于中重度或中老年的患者,其皮肤松弛、容量减少,有明显与下垂相关的垂直皱褶,面中部脂肪垫下移,需要手术且对面中部进行注射填充。常用的注射填充材料包括透明质酸、膨体聚四氟乙烯(expanded polytetrafluoroethylene, ePTFE)及胶原蛋白等。(1)透明质酸填充。注射填充透明质酸具有操作简便、损伤较小等优势^[20],因此已成为最常用的医学美容治疗手段之一^[21]。现在已有数种透明质酸填充物注射技术,如线性注射、扇形注射、积存注射、分层注射及微量定点提升等。伴有软组织下垂的深层皱褶通常不能通过单一手术完全矫正,可能需要通过皮内注射和皮下注射相结合的方法治疗^[22]。(2)SMAS 技术。通过颧脂肪垫悬吊辅以 SMAS 层折叠或 SMAS 筋膜瓣双重悬吊的方法,提升面颊部并治疗鼻唇沟皱褶^[23]。(3)聚对二氧环己酮(poly P-dioxanone, PPDO)线治疗。PPDO 线是一种微创治疗面部年轻化的新型材料(T Iannitti 等, 2013 年),在人体内可被完全分解成二氧化碳和水而代谢,其对皮肤松弛具有提拉效果,并可以联合透明质酸注射以起到协同提拉作用,使提拉效果更持久^[24]。(4)ePTFE 填充。ePTFE 有稳定的化学性质,安全、可靠,适合作为永久性置入物,可

以应用在面部的下 1/3 处改善鼻唇沟皱褶^[25]。但 ePTFE 的主要缺点是其独特的多孔超微结构易于细菌黏附,从而易引起感染和慢性炎症^[26-27]。(5)胶原蛋白填充。胶原蛋白是细胞外基质的主要成分,生物相容性较好,免疫原性低,强度、弹性适合,具有良好的保水保湿性,但容易被吸收且需做过敏试验^[28]。(6)激光射频。对于重度与极重度鼻唇沟凹陷,往往同时伴有外上方包括脂肪垫的软组织下垂,因此适合激光、射频联合透明质酸注射以改善鼻唇沟。通过发射高频的电磁波使真皮层受热,促进胶原纤维收缩、再生和重组,调整和提升了下垂的颧颊脂肪垫,联合透明质酸填充,可获得明显的效果^[22]。

2.2 脂肪垫型 脂肪垫型的鼻唇沟常出现在年轻人中,由于先天脂肪垫较厚或颧骨突出导致鼻唇皱褶加深,可选择吸脂或外科手术等方式改善。(1)脂肪抽吸法。矫正鼻唇沟内外侧冗余的颊部脂肪,可使用面部吸脂针进行脂肪抽吸来改善因内外侧容积差导致的鼻唇沟皱褶,改善面部轮廓。(2)颧脂肪垫提升。颧脂肪垫悬吊技术结合 SMAS 层折叠术,先在颊部耳前将 SMAS 层折叠,然后将颧脂肪垫在耳前筋膜上用缝线悬吊,使下垂的颧脂肪垫提升。该手术方式恢复较快,维持时间较长,不易损伤面神经^[17]。(3)PPDO 埋线提升联合透明质酸填充可使因衰老而导致韧带松弛的颧脂肪垫和鼻唇沟同时提升,二者可以互补^[24]。

2.3 肌肉型鼻唇沟 由于颧小肌、提上唇鼻翼肌、提上唇肌形成的鼻唇沟皱褶,可注射 A 型肉毒素改善皱褶(S Nanda 和 S Bansal, 2013 年)。如静态时鼻唇沟较明显,鼻唇沟周围组织隆起,且鼻翼外上部有一个突出的区域,适合注射 A 型肉毒素,尤其适用于唇缘与鼻基底部距离较短且常伴有“露龈笑”者。有研究表明(MW Stenekes 和 B van Der Lei, 2012 年),A 型肉毒素联合透明质酸面部注射效果更好。

2.4 下颌后移型鼻唇沟 梨状孔周围骨组织骨头后移,建议以骨移植及填充来改善鼻唇沟形态。此种类型可以采用自体脂肪颗粒注射填充,其生物相容性好,术后恢复较快,可多次注射^[29],但脂肪吸收率较高,6 个月后保留的脂肪较稳定。病情较轻者可选择 ePTFE 和其他可置入材料填充梨形孔周围区域以改善外观^[11,25-26]。

2.5 综合型 通常合并两种及以上类型导致的鼻唇沟皱褶加深及中面部老化需要综合性治疗。采用基于面部软组织支持系统的微量定点提升技术、联合自体脂肪颗粒移植、PPDO 线联合 A 型肉毒素及透明质酸注射等方式治疗^[30-31]。

3 展望

鼻唇沟治疗一直是中面部年轻化的热点问题。正确了解并掌握面部解剖结构和危险区域对于患者的安全至关重要^[32]。医师可通过最新的技术,如超声技术、MRI 技术、计算机三维断层扫描重建等方式来评估患者的鼻唇沟分型^[33],并根据分型进行个体化治疗。采用激光射频、注射、手术与从解剖结构改善鼻唇沟形态的整形手术等多种技术手段相结合,才能使鼻唇沟皱褶得到改善并维持长期持续的治疗效果^[34]。近年来,多种新型材料的涌现,也为鼻唇沟的治疗提供了新的思路 and 工具,亟需整形外科医师在保证患者安全的前提

下,创新地治疗鼻唇沟皱褶。

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