牙周正畸联合治疗的研究进展

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[摘要] 成年人中牙周病患病率高，成年人的正畸比例也逐年增加，因此牙周健康状况与正畸治疗的关系成为临床医生关注的重点，牙周正畸联合治疗的模式逐渐形成。对于严重牙周炎伴病理性牙齿移位的病例，正畸治疗可以提高和稳定常规牙周治疗的疗效。常规牙周治疗可以规避正畸治疗中的牙周风险，保障牙周组织健康，有助于实现正畸治疗的平衡、稳定及美观目标。本文主要从正畸治疗与牙周健康的关系、正畸治疗在牙周病系统治疗中的应用、正畸治疗中的牙周护航三方面来阐述牙周正畸联合治疗在促进牙周健康方面的应用进展。

[关键词] 牙周病；牙周正畸联合治疗；牙周风险；牙周健康
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Research progress on combined orthodontic-periodontal treatment

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[Abstract] The prevalence rate of periodontal diseases is high among adults. The proportion of adults seeking orthodontic treatment increases every year; therefore, the relationship between periodontal health status and orthodontic treatment has become the focus of clinicians. The mode of combined orthodontic-periodontal treatment has gradually formed. For severe periodontitis with pathologic tooth migration, orthodontic treatment can improve and stabilize the effect of conventional periodontal treatment. Conventional periodontal treatment can prevent periodontal tissue risks associated with orthodontic treatment, ensure the health of periodontal tissue, and contribute to the balance, stability, and aesthetics of orthodontic treatment. This article briefly demonstrates the research progress on combined orthodontic-periodontal treatment in promoting periodontal health from three aspects: the relationship between orthodontic treatment and periodontal health, the application of orthodontic treatment in periodontal system treatment, and periodontal escort for orthodontic treatment.

[Key words] periodontal disease; combined orthodontic-periodontal treatment; periodontal tissue risk; periodontal health

牙周病是口腔常见的慢性炎症性疾病，全球发病率为20%~50%[1]，且发病率随年龄增长而升高。牙周病是由菌斑微生物引起的慢性非特异性炎症[2]，早期表现为牙龈红肿及出血，若未及时治疗晚期则进展为牙周组织丧失，不足以抵抗正常咀嚼力，牙齿易发生病理性移位[3]，错位的牙齿影响菌斑控制及正常的咬合关系，进一步加重牙周病的进展，严重者会导致牙松动、脱落、前牙唇

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向移位、牙列间隙等问题，危害口腔及全身健康[4]。牙周病治疗的目标是稳定和阻止病情进展，恢复牙周组织的形态及功能。常规的牙周治疗可以清除菌斑及控制牙周炎，牙周手术可在一定程度增加牙周软硬组织的量，但都无法解决牙齿错位、创伤性咬合等局部刺激因素，使牙周病的治疗效果不稳定[5]。正畸治疗可以矫正错位的牙齿，消除菌斑隐匿区，恢复正常的咬合关系，对于伴有牙齿错位的牙周病患者有着重要的临床意义，有利于增加牙周治疗的稳定性，降低牙周病的复发率[6]。近年来，成年人正畸的人数明显增加[7]，由于口腔或全身因素，未经正畸治疗的成年人普遍存在骨开裂及开窗等牙槽骨缺损的情况[8-10]，且成年人相对于青少年的牙槽骨改建速度较慢，这都增加了正畸牙齿移动的难度及牙周并发症的发生率。牙周治疗可以改善正畸患者的牙周组织情况，规避牙周并发症的风险，对提高正畸牙齿移动的速度及安全性有着重要的意义，有助于实现正畸治疗的平衡、稳定及美观的目标。因此，这使得牙周治疗与正畸治疗的联合更加紧密，协调两者间的关系对牙周医生和正畸医生都是一个新的挑战与机遇。

本文就牙周治疗与正畸治疗的联合应用在促进牙周健康方面进行简要综述，以期增强牙周医生与正畸医生的沟通协作，对成年人牙周病患者的治疗提供牙周-正畸联合方案，促进成年人牙周组织健康与稳定。

1 正畸治疗与牙周健康的关系

1.1 牙周健康是正畸治疗的基础

牙周健康主要表现为牙周软组织无炎症、骨组织无吸收，这对正畸牙移动发挥着重要作用。如果在牙周炎、牙龈增生、牙龈退缩、牙槽骨吸收等病理状态下进行正畸治疗，正畸牙齿移动会加剧牙周组织破坏，导致牙周破坏风险增加。

正畸牙移动的基础是健康的牙周组织发生适应性改建。正畸力经牙周膜传递至牙根周围牙槽骨进而引发一系列连锁反应[11]，细胞因子、神经递质等小分子物质诱发成骨细胞和破骨细胞活化，压力侧牙槽骨吸收，张力侧牙槽骨沉积[12]，牙周纤维也随之改建，最终实现牙齿移动。在牙周组织炎症状态时进行正畸牙移动，菌斑与正畸力两者协同刺激机体释放大量炎症因子，增强破骨细胞活性，容易造成骨密度下降、骨吸收等加速牙周破坏的表现[13]，可能出现“黑三角”、骨开裂或骨开窗等不良反应。

正畸治疗的稳定性受年龄、错𬌗畸形类型、牙周组织状态、咬合应力、佩戴保持器、口腔卫生等多因素的影响[14]，其中牙周组织状态对牙齿的稳定有着重要影响。牙齿的稳定依赖于健康牙周组织的支持，而牙周炎症及牙槽骨高度降低等病理性牙周状态会增加牙齿移位的风险。牙周健康是正畸治疗的前提和基础，因此在进行正畸治疗前应检查牙周组织状况，及时发现并治疗牙周病损，降低正畸治疗中的牙周风险。

1.2 正畸治疗对牙周健康的影响

错𬌗畸形会导致菌斑聚集、咬合创伤及牙周组织缺损[15]，正畸治疗通过纠正错𬌗畸形来消除菌斑滞留区及异常咬合应力，有助于提高牙周健康水平[16]。正畸牵引阻生牙利用牙周膜牵张成骨生物学潜力促进牙周软硬组织增量[17]。有研究[18]表明，正畸压低伸长的牙齿可以改善深牙周袋、露龈笑及深覆𬌗。

正畸矫治装置如托槽、附件等易滞留牙菌斑，带环置于龈下位置过深会破坏上皮附着，这都增加了菌斑控制的难度，易引起牙周组织炎症反应[19]。一项系统评价[11]表明，正畸治疗尤其是固定矫治会通过影响龈下菌群的构成而导致牙龈炎症。研究[20]表明，正畸装置会使口腔中的变异链球菌等致龋菌及牙龈卟啉单胞菌等牙周致病菌的数量增加，但在矫治结束后大部分患者的口腔菌群基本恢复正常水平。在牙周炎症状态下，正畸牙移动会增强细菌诱导的牙周组织破坏[21]。不恰当的正畸矫治力或矫治方案设计可能会对牙周软硬组织产生不良影响，引起牙槽骨吸收、牙龈退缩等一系列牙周风险[22]。过大的正畸力持续作用于牙齿，牙周膜承受较大的应力会引起牙周微循环功能受阻，甚至可能损伤血管结构，影响牙周组织改建进而阻碍牙齿移动[23]。一项系统评价[24]表明，在牙周组织炎症控制良好的情况下，适宜的正畸力不会对牙周组织产生不良影响。因此，正畸治疗必须在牙周情况稳定时进行，治疗过程中要严格控制牙周炎症，对于牙周组织丧失的患牙要把握正畸治疗的原则。

2 正畸治疗在牙周病系统治疗中的应用

2.1 牙周病患者正畸治疗的适应证及原则

对于错𬌗畸形导致的牙周病、牙周病导致的

牙齿病理性移位、牙齿错位导致的原发性或继发性咬合创伤，正畸治疗可以矫正错位的牙齿，关闭或集中牙列间隙为缺失牙的修复提供空间，改善前牙扇形移位[25]，竖直后牙改善深牙周袋，消除咬合创伤，有利于增强牙周健康、颜面美观及正常口颌系统功能[26]。有国内外研究[27-28]表明，牙周病患者进行牙周基础治疗联合正畸治疗相对于单纯的牙周基础治疗能更有效地改善患者的牙周状况及牙齿的咀嚼功能。

成人牙周病患者的正畸治疗主要风险是炎症能否控制，正畸治疗前要仔细评估患者的牙周健康状况，对于口腔卫生差、牙周炎的患者必须先进行牙周基础治疗消除炎症，在牙周炎症控制良好后再开始正畸治疗，一般是在牙周治疗后的2~6个月[29]，在此期间评估牙周组织健康状态及患者的菌斑控制能力。牙周炎症控制良好的临床指标为探诊深度小于4 mm，探诊出血阳性百分比小于25%，牙齿松动度小于Ⅰ度[30]。

除了控制牙周炎症，生物力学因素对牙周病患者正畸治疗的影响也同样重要。正畸牙齿移动需要在适宜的正畸力下进行，适宜的正畸力是指产生最大牙齿移动速率的同时对牙根、牙槽骨和牙龈等的不可逆转损伤为最小的机械力，每颗牙齿的适宜正畸力会有不同，与牙根的长度和牙槽骨的高度相关[31]。相对于牙周健康的牙齿，牙周病患者的牙周组织丧失使承受正畸力的牙周膜表面积减小，牙槽骨高度降低使牙齿的阻抗中心向根方移动，牙冠的少量移动可使牙根对牙槽骨产生较大压力[32]。牙齿移动要在牙槽骨中进行，颊舌侧牙槽骨骨皮质间的厚度是牙齿移动的界限，若突破这一界限则可能造成牙根吸收、牙周组织破坏等风险[33]。因此，对于牙周炎导致牙槽骨吸收的患牙进行正畸治疗时要使用轻力，控制加力的方向，维持良好的根骨关系。

2.2 引导性组织再生（guide tissue regeneration，GTR）联合正畸治疗

GTR是通过在软组织和骨组织之间放置一层屏障膜，抑制快速增殖的牙龈上皮细胞附着于根面，引导牙周膜干细胞优先定植于暴露的根表面，促进牙槽骨、牙周膜及牙骨质的形成，是实现功能性牙周组织再生的主要方式[34-35]。目前，诱导牙周组织再生的方法包括使用屏障效应、骨移植、纳米纤维膜[36]、生物支架[37]等。由于牙周病患者容易并发咬合创伤、牙齿错位等情况，单一使用GTR难以发挥明显效果[38]，因此，临床上常与正畸治疗联合应用治疗骨缺损严重伴错位的患牙。GTR一般在正畸牙齿移动前进行，研究[39]发现：GTR后早期（小于8周）或晚期（大于24周）进行正畸移动，牙齿都会使患牙的临床牙周探诊深度及附着水平改善，而术后早期正畸是在未成熟骨组织中移动牙齿，可以刺激牙周组织重建，提高牙周再生效率，并且正畸移动牙齿朝向移入牙周骨缺损区的方向时牙周状况明显改善。正畸牙齿移动可以为GTR创造良好的条件[40]，所以GTR也可以在正畸牙移动后进行，临床中要根据具体需求选择手术时机。多项临床研究[41-43]发现：引导性牙周组织再生联合正畸治疗牙周炎的有效率显著高于单独使用牙周组织再生术或正畸治疗，治疗后联合治疗组的牙周指标水平、血清炎症因子水平的改善均优于单独治疗组。

3 正畸治疗中的牙周护航

正畸牙齿移动与牙周组织改建密切相关，正畸治疗是通过正畸力作用于牙齿促进牙周组织重塑，使错位的牙移动到牙弓中的正确位置[44]。正畸过程中可能会出现牙龈炎症、牙龈退缩、牙槽骨吸收、骨开裂、骨开窗等牙周组织风险。所以，对于接受正畸治疗的患者，在正畸治疗前、治疗中、治疗后都需要高度关注其牙周健康情况，配合牙周治疗来预防牙周风险和解决牙周问题。

3.1 牙周软组织炎症的风险评估及治疗措施

正畸治疗中矫治器增加了菌斑控制的难度，戴用固定矫治器后大部分的患者会出现暂时性的牙龈炎症[45]。对于非牙周炎和牙周炎控制稳定的患者，正畸治疗对牙周组织的影响很小[46]。实验动物研究[47-48]表明，在没有牙菌斑的情况下，对牙周组织减少的患牙，正畸治疗不会导致牙周炎症及额外的附着丧失。一项临床研究[49]表明，牙周组织减少的侵袭性牙周炎患者在严格的菌斑控制及定期的随访中进行的正畸治疗不会产生额外的附着丧失。在正畸治疗前牙周组织炎症未控制或正畸治疗中合并菌斑微生物感染等情况下，正畸牙移动会破坏牙周组织，长期持续炎症刺激甚至会造成牙根吸收、牙槽骨吸收、附着丧失等不可逆损伤[50]。因此，正畸治疗前及治疗中都要严格控制牙周组织炎症，这就需要配合牙周基础治疗的应用。临床研究[51]表明，在正畸治疗前、治疗

中同时进行牙周基础治疗可以改善牙周探诊深度及附着水平，有利于牙周组织炎症控制。正畸治疗引起的牙龈增生致病因素包括菌斑刺激、药物、激素水平、正畸引起牙周组织重塑、固定正畸矫治器持续释放低浓度的镍离子等[52-54]。在口腔卫生保持良好的情况下，正畸治疗后牙龈增生就会有所改善[55]，所以在正畸过程中及结束后需要严格控制菌斑，若增生的牙龈妨碍治疗操作或治疗后没有好转者可以考虑行牙龈切除术[56]。

3.2　骨开裂、骨开窗的风险评估及治疗措施

骨开裂、骨开窗在天然牙中发生率较高，会增加正畸牙齿移动的风险[57]。所以在进行正畸检查时要注意评估患者的牙周状况，拍摄锥形束计算机断层扫描（cone beam computed tomography，CBCT）观察牙根与牙槽骨的关系[58]，骨皮质厚度小于2 mm就要引起注意[59]。正畸牙根移动突破牙槽骨的边界会发生骨开裂及骨开窗，多发生于骨皮质较薄的前牙区[60]、行扩弓治疗的上颌后牙牙槽骨薄弱区[61]等。骨开裂及骨开窗会导致牙龈退缩、附着丧失、牙根暴露等并发症，影响牙周健康及牙根稳定性，也增加了正畸治疗的难度[57]。因此，正畸治疗时要注意加力的方向，控制牙根的移动方向，避免突破牙槽骨边界。对于牙槽骨较薄的区域可以进行牙周外科手术植入骨再生材料来增加骨量，包括引导性骨组织再生术（guide bone regeneration，GBR）、牙周辅助加速成骨正畸（periodontally accelerated osteogenic orthodontics，PAOO）、位点保存术、牙槽嵴劈开术、牙槽骨牵张成骨术等多种骨增量技术，其中GBR、PAOO、位点保存术辅助正畸牙齿移动的临床应用较多见。GBR是利用屏障膜阻止软组织侵入的骨移植手术[62]，多用于骨壁缺损严重或植骨量大的情况[63]。对于唇腭裂发育畸形及个别牙长期缺失导致的牙槽骨板较薄，正畸牙齿移动到该区域易发生骨开裂、骨开窗等并发症，为避免并发症可以在缺牙区行GBR后再进行正畸牙齿移动[64]。PAOO是将骨皮质切开术与植骨术相结合，达到加速骨改建及骨增量的目的，主要原理是区域加速现象，手术创伤引起局部组织释放炎症因子增加，促进破骨细胞的分化，加速骨改建进程[65]。多项临床研究[66-67]表明，PAOO可以有效治疗骨开裂及骨开窗，改善牙周软硬组织水平。拔牙部位的牙槽骨会随时间延长而逐渐吸收，对于因正畸需要拔牙但拔牙后不能及时关闭间隙者可以行位点保存术，通过在拔牙后即刻于拔牙窝内植入骨移植材料来保存拔牙位点的牙槽骨量[68]。临床上，骨移植材料多样，根据来源可分为自体移植物、同种异体移植物、异种移植物或合成移植物，骨诱导生长因子、多能干细胞及生物支架等组织工程技术也逐渐应用于临床[69]。由于发生骨开裂和骨开窗的牙齿表面仅覆盖薄层的骨膜及牙龈组织，若牙周软组织的宽度或厚度减少不足以覆盖较大的骨缺损区域，较大的软组织张力可能导致骨增量手术失败[63]，因此，在进行骨增量手术前也应评估牙周软组织状况，必要时进行牙周软组织增量。

3.3　牙龈退缩的风险评估及治疗措施

牙龈退缩受多因素影响，目前对于正畸治疗是否会导致牙龈退缩存在争议[70]，一般认为恰当的正畸治疗对牙周组织的损害较小，牙齿在牙槽骨内移动很少发生牙龈退缩[71]，牙齿朝牙槽骨中心移动时会增加唇颊侧骨质厚度，有助于预防牙龈退缩[72]。一项关于正畸治疗后唇侧牙龈退缩发生率的调查研究[73]显示：治疗结束时发生率为7%，治疗后2年的发生率为20%，发生率随患者的年龄与治疗后时间的推移而增加。正畸治疗引起牙龈退缩的因素可能有菌斑刺激、牙龈生物型、牙槽骨厚度、正畸牙齿移动的方向等[74]。对于牙根周围牙槽骨较薄的牙齿，远离牙槽骨中心移动易发生骨开窗或骨开裂，进而引起牙龈退缩。牙龈生物型的评估方法多样，Kan等[75]通过在直视下观察牙周探针插入牙龈边缘时的探针轮廓及透明度来判定牙龈厚度小于1 mm为薄型生物型，薄而脆弱的牙龈组织更易发生牙龈退缩。牙龈健康的基本要求是角化龈的宽度至少为2 mm，附着龈宽度至少为1 mm[76]。对于牙龈厚度不足及宽度小于2 mm的患者建议行牙周软组织增量预防牙龈退缩的发生[77]。在开始正畸治疗之前对牙龈宽度及厚度不足的患者进行预防性牙周软组织增量术更有利于术区移植牙龈组织瓣的生长[78]，来预防牙龈退缩的发生。常见的牙周软组织增量手术包括带蒂瓣移植、游离龈移植（free gingival graft，FGG）和游离结缔组织移植（connective tissue graft，CTG），CTG相对于FGG创口小，术后牙龈颜色美观性好，但需要充足血供保证移植结缔组织的生长，所以常与带蒂瓣移植术联合应用[79]。目前，植入软组织替代品进行软组织增量的美观及安全性良好[80]，但自体组织移植仍是牙周软组织增量的金标准[77]。Cairo等[81]通过系统评价表明，冠向

复位瓣结合CTG预防和治疗牙龈退缩的效果显著。

3.4 牙龈内陷的风险评估及治疗措施

牙龈内陷是指正畸拔牙矫治的患者关闭间隙时，拔牙间隙处牙龈近远中向卷曲的一条探诊深度至少为1 mm或垂直和水平探诊深度至少2 mm的线性内陷[82-83]，发生率约35%[84]。牙龈内陷的致病因素仍未明确，可能因为正畸力使张力侧的牙龈上皮牵拉而变松，挤压压力侧牙龈上皮，使牙龈及结缔组织发生折叠从而发生内陷[85]，或因为牙龈组织缺乏快速重塑的能力，拔牙后颊侧及垂直向骨板吸收，牙龈缺乏骨组织支持容易发生塌陷，尤其好发牙龈厚度较薄者[86]。一项动物实验研究[87]表明，拔牙后到正畸开始关闭间隙的间隔时间缩短有利于降低拔牙位点的骨吸收程度，从而有利于预防牙龈内陷的发生。但有临床研究[88]发现：拔牙后早期或晚期开始进行正畸关闭间隙在预防或改善牙龈内陷的发生率及严重程度方面没有明显差异。目前，相关研究均存在样本量较少的问题，所以对于缩短拔牙后关闭间隙的间隔时间是否可以预防牙龈内陷的发生有待进一步的研究。牙龈内陷会促进局部菌斑滞留，对正畸间隙的关闭及间隙关闭后的复发也存在一定关系，可能为牙周风险的潜在因素，但对长期牙周健康的影响还需进一步的研究[89-90]。因此，对于程度较为严重的牙龈内陷可以行GBR、GTR或牙龈切除术进行治疗[91-92]。

3.5 “黑三角”的风险评估及治疗措施

“黑三角”一般是指牙龈乳头未能完全覆盖邻牙楔状隙而产生的三角形间隙，又称开放性龈楔状隙，受多种因素影响，主要与年龄、牙周状况、牙齿错位拥挤程度、牙冠形态、邻面接触点、牙槽骨高度、相邻牙根间的角度、不良口腔习惯等有关[93-94]。成人正畸治疗后“黑三角”的发生率要高于青少年，约为38%~40%[94-95]。因中切牙牙冠切端宽，邻牙近中接触位置靠近切端，“黑三角”常发生于上下前牙区域。相邻两牙的牙槽嵴顶相对于邻面接触点的距离是影响“黑三角”发生发展的重要因素[96]，Tarnow等[97]的研究发现：当两者间的距离≤5 mm时，龈乳头可以充满楔状隙，牙龈乳头充盈楔状隙的程度随两者间距离增大而减小。牙周炎患者因牙槽骨吸收导致牙槽间隔高度降低可能会导致“黑三角”，因此轻度牙周炎患者可以积极行牙周治疗控制炎症，防止牙槽骨进一步吸收，一定程度可以预防“黑三角”的发生。Kurth等[95]的研究发现：当相邻两中切牙的牙冠形态、牙槽嵴顶至邻面接触点的距离不变时，牙根形成的角度每增加1°，“黑三角”的发生率增加14%~21%。前牙区的“黑三角”会影响美观、发音，且三角区域易储存食物残渣，不利于口腔清洁进而损害牙周健康，临床上一般需要多学科联合治疗来改善“黑三角”。对于严重拥挤错位、切端磨耗或形态异常的牙冠，治疗前需要通过影像学检查观察牙根形态，正畸托槽定位要接近牙体长轴，正畸治疗在排齐牙齿的同时要关注牙根平行度，减小因相邻牙齿牙根间角度导致的“黑三角”[98]。正畸治疗后不同拔牙方式的患者中“黑三角”的发生率为22%~38%，其中拔除下切牙致“黑三角”发生率显著增加[99]，所以对于牙周条件较差的患者在选择拔牙方式时需要考虑“黑三角”的潜在风险。对于牙冠形态或比例异常导致的“黑三角”，正畸邻面去釉可以一定程度协调牙冠形态，增加邻面接触面积使其得到改善。对于牙周炎导致大面积龈乳头缺损时，牙龈赝复体可以简单、经济地达到美观修复的目的。Wahbi等[100]利用粉红色复合树脂成功修复了1例侵袭性牙周炎患者缺失的龈乳头，治疗后美观及发音得到明显改善。软硬组织增量手术可以修复、重建龈乳头及牙槽间隔，缩小邻牙间牙槽嵴顶至邻面接触点的距离来改善“黑三角”。对于牙周状况良好的患者，冠状乳头瓣移植结合CTG术[101-102]及隧道瓣结合CTG术[103-104]都取得了良好的重建龈乳头效果。对于牙槽骨高度降低患者，在进行CTG时将骨移植材料与游离皮瓣联合有助于龈乳头充盈楔状隙[105]。通过应用透明质酸[106]、富血小板纤维蛋白[107]、干细胞疗法[108] 、基因治疗或支架[109]等新兴的组织工程方法可以提高当前软硬组织增量手术在重建龈乳头方面的可预测性。

3.6 扭转牙矫治的风险评估及治疗措施

牙周纤维会随牙齿移动发生形变，正畸结束后形变的纤维有回弹的倾向而使牙齿复发，尤其使扭转、伸长、压低后的牙齿更易导致复发[110]。嵴上纤维环切术（circumferential supracrestal fibrotomy，CSF）通过切断牙槽嵴顶纤维附着消除张力向牙周组织传递，减少治疗后扭转牙的复发，增加牙根周围支持骨量，改善牙周状况[111-112]。传统的CSF是用手术刀于龈沟内环切离断牙槽嵴顶的纤维束，仅适用于牙周健康患者，对活动性牙周病、牙龈附着不全或口腔卫生条件差者都禁用[113]。CSF可以在正畸治疗中或治疗后进行，主

要用于降低扭转牙的复发率[114]，辅助正畸牵引牙齿的萌出和提高临床牙冠长度，避免正畸压低牙齿引起的牙槽骨吸收，增加骨内牙根长度。

4 总结与展望

随着牙周手术的应用和成人正畸矫治的经验积累增加，牙周和正畸学科间的联系更加密切。牙周正畸联合治疗可以提高牙周病的治疗稳定性、拓宽正畸治疗的适应证及降低正畸治疗的并发症风险，这需要牙周医生的规范牙周治疗、正畸医生的合理正畸矫治设计和患者自身的良好菌斑控制，关键在于培养牙周医生与正畸医生的多学科联合的思维，全面评估疾病的可能致病因素及相关牙周风险，增强多学科医生间的沟通与协助，从而有利于复杂疾病的治疗及预后。

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