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全冠修复联合牙合贴面修复治疗牙体缺损疗效及对抗折强度影响*

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摘要 目的:探讨全冠修复联合牙合贴面修复治疗牙体缺损疗效及对抗折强度影响。**方法:**选取我院口腔科2018年6月至2020年6月收治的牙体缺损患者80例,将其随机分为研究组和对照组,每组患者40例,研究组应用全冠修复联合牙合贴面修复治疗,对照组只应用全冠修复治疗,对比两组的治疗效果、美观、固定及咀嚼功能、折裂载荷值以及不良反应情况。**结果:**研究组的治疗总有效率显著高于对照组(95.05% vs. 80.0%, $P < 0.05$);研究组的美观、固定及咀嚼功能明显高于对照组($P < 0.05$);研究组的折裂载荷值明显好于对照组($P < 0.05$);研究组发生不良反应的概率明显低于对照组(5.0% vs. 22.5%, $P < 0.05$)。**结论:**利用全冠修复联合牙合贴面修复治疗牙体缺损效果优于单纯全冠修复,抗折强度较高,美观、固定及咀嚼功能好,安全性好,值得临床应用推广。

关键词:全冠修复;牙合贴面修复;牙体缺损;抗折强度

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Effect of Full Crown Restoration Combined with Occlusal Veneer in the Treatment of Tooth Defect and Its Effect on Fracture Strength*

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ABSTRACT Objective: To investigate the effect of full crown restoration combined with occlusal veneer in the treatment of tooth defect and the influence of fracture strength. **Methods:** A total of 80 patients with tooth defect, who were treated in Second Affiliated Hospital of Nanjing University of Chinese Medicine from June 2018 to June 2020, were selected and randomly divided into study group (n=40) and control group (n=40). The study group was treated with full crown restoration combined with occlusal veneer restoration, while the control group was only treated with full crown restoration. The treatment effect, aesthetics, fixation and chewing function, fracture load value and adverse reactions were compared between the two groups. **Results:** The total effective rate in the study group was significantly higher than that in the control group (95.05% vs. 80.0%, $P < 0.05$). The beauty, fixation and chewing function of the study group were significantly higher than those of the control group ($P < 0.05$). The fracture load value of the study group was much better than that of the control group ($P < 0.05$). The probability of adverse reactions in the study group was significantly lower than that in the control group (5.0% vs. 22.5%, $P < 0.05$). **Conclusion:** The effect of full crown restoration combined with occlusal veneer restoration in the treatment of tooth defect is better than that of simple full crown restoration, with high fracture strength, good aesthetics, good fixation and chewing function, and good safety, which is worthy of clinical application and promotion.

Key words: Full crown restoration; Occlusal veneer restoration; Tooth defect; Fracture strength

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前言

随着人们不良习惯增多以及外伤情况等,牙体缺损的发生率逐渐增多,影响患者牙列完整性、咀嚼效率。如果想要保留患牙,要进行根管治疗^[1-3]。但是大面积牙缺损的患者,单纯的充填修复不能够完全将咀嚼功能和牙体外观恢复。全冠修复能够有效固定患者的修复体,恢复牙齿的形态与功能。但是在患者应用根管治疗之后,由于牙髓营养缺乏,增加牙体组织脆性,并且

牙体组织造成缺损,从而导致牙齿在经受较大咬合力的时候容易出现断裂或者劈裂的情况,影响患者的生活质量。当前临床上对于牙体缺损的治疗一般应用全冠修复技术,但是治疗效果有限,也会导致患者在治疗后出现牙齿断裂的现象。近年来,一些医生应用全冠修复联合牙合贴面修复对于牙体缺损的患者进行治疗修复,临床效果良好^[2-5]。因此本文选取牙体缺损患者80例,将其随机分为研究组和对照组,对照组应用全冠修复联合牙合贴面修复治疗,研究组只应用全冠修复治疗,对比两组

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的治疗效果、美观、固定及咀嚼功能、折裂载荷值以及不良反应情况。

1 资料与方法

1.1 一般资料

选取我院 2018 年 6 月至 2020 年 6 月收治的牙体缺损患者 80 例,所有患者均经口腔 X 线以及临床口腔检查确诊患有不同程度的牙体缺损,均符合《牙体缺损的规范化诊疗》^[6]中对牙体缺损的相关诊断。将其随机分为研究组和对照组,每组 40 例,对照组 40 例,患牙 79 颗;男 23 例,女 17 例;年龄 28~76 岁,平均(36.2±4.5)岁;其中 54 颗为下颌磨牙,25 颗为上颌磨牙。对照组 40 例,患牙 86 颗;男 22 例,女 18 例;年龄 30~78 岁,平均(40.2±3.6)岁;其中 48 颗为下颌磨牙,38 颗为上颌磨牙。经过统计学分析,两组的患牙数量、性别、年龄等一般资料无明显差异($P>0.05$),有对比价值。

1.2 方法

在修复前对所有的患者进行口腔卫生宣教,经过牙周基础治疗或牙周手术治疗,所有病例都经过完善的根管治疗,x 片示根尖和根分叉无阴影,骨吸收不超过根中 1/2。严格按照要求去净牙体腐质和洞缘无基釉,去除倒凹,并尽量保留剩余健康的牙体组织,剩余牙体组织的高宽比大约为 1:1^[7]。然后给予对照组患者全冠修复,给予研究组患者全冠修复联合牙合贴面修复治疗。

全冠修复方法:让患者保持牙颈部做肩台,并在患者牙体颌面预留 1.2 mm 间隙,长轴与边缘部位做 45° 的短斜面,将长度维持在 2~3 mm,依照患者牙体缺损情况制备一个深度为 2 mm 左右的箱装洞。确保患者牙齿各个备面无倒凹、圆钝,在之后进行取模、石膏灌注、全冠制作、试戴、调整位置以及粘连等一系列步骤^[8,9]。

牙合贴面修复方法:为患者预备好牙体,打磨患者的患牙,切端约 0.7 mm,中部约 0.5 mm,颈部为 0.3 mm;之后进行龈缘和排龈,待处理完毕之后沾肾上腺素至颈缘下 1 min 左右;采

用硅橡胶进行印模,用常规方法取牙列咬合关系记录。采用 VITA 比色板比色并记录,进行瓷贴面制作,全瓷贴面制作完成后将瓷贴面进行抛光、试戴,并做适当调整,保证边缘及邻接点密合;满意后使用 2.5%~10% 的氢氟酸蚀刻贴面组织面 2.5 min,彻底冲洗干燥后备用;患牙经酸蚀处理后,使用粘结性复合树脂将备用的全瓷贴面粘贴于患牙外侧,同时进行加压及固光机光照固化处理(40 s);最后检测牙齿咬合关系,完成修复。

抗折性能测试:2 mm 以下的所有牙在 CEJ 根部均形成一层厚度为 0.3 mm 的均匀蜡层。底部方正,与水平面成 30° 角的预埋基层采用自固化塑料。牙齿的蜡包部分埋入基底,要求牙齿长轴垂直于基底顶面的斜面。自固化塑料硬化后,提取样品牙,刮除残留蜡。将硅橡胶光体注入牙周膜,去除溢出部分。埋伏牙固定在电子万能机械试验机上。加载位点为腭尖颊斜面三角嵴的中央,与牙长轴呈 30°,以 1.0 mm/min 匀速静态加载,用计算机记录载荷数据和折裂载荷值。

1.3 观察指标与疗效判定标准

观察指标:两组均随访 1、6、12 个月,采用美国加州牙科协会的评价标准评价。包括治疗效果,咀嚼、固定及美观功能,每项计 100 分,分值越高,恢复越好^[10]。观察并记录两组治疗后不良反应情况。

疗效判定标准^[11,12]:显效:修复后,修复体稳定完整,无不良反应,牙齿的功能恢复比较好;有效:完整性较好,没有明显的不良反应,咀嚼功能并没有完全恢复;无效:修复体出现破损和松动,出现不良反应,咀嚼功能并没有完全恢复。

1.4 统计学方法

应用 SPSS 23.0,计量资料用($\bar{x} \pm s$)表示,采取 t 检验;计数资料用%表示,采取 χ^2 检验。 $P<0.05$ 有统计学意义。

2 结果

2.1 两组疗效对比

研究组治疗的总有效率为 95.05%,显著高于对照组治疗的总有效率(80.0%, $P<0.05$),如表 1。

表 1 两组疗效比较(例,%)

Table 1 Comparison of effect between two groups (n,%)

Groups	n	Marked effect	Effective	Invalid	Total efficiency
Research group	40	17(42.5)	21(52.5)	2(5.0)	38(95.0)*
Control group	40	13(32.5)	19(47.5)	8(20.0)	32(80.0)

Note: compared with control group, * $P<0.05$.

2.2 两组美观、固定及咀嚼功能对比分析

研究组的美观、固定及咀嚼功能明显高于对照组($P<0.05$),如表 2。

2.3 两组折裂载荷值对比分析

研究组的折裂载荷值明显好于对照组($P<0.05$),如表 3。

2.4 两组不良反应对比

研究组发生不良反应的概率为 5.0%,对照组发生不良反应的概率为 22.5%,研究组明显低于对照组($P<0.05$),如表 4。

表 2 两组美观、固定及咀嚼功能对比分析($\bar{x} \pm s$)

Table 2 Comparison of aesthetic, fixation and masticatory function between two groups ($\bar{x} \pm s$)

Groups	n	Beautiful function	Fixed function	Chewing function
Research group	40	95.65±10.65*	87.69±11.15*	86.45±10.55*
Control group	40	82.64±10.55	72.65±8.45	81.65±10.69

表 3 两组折裂载荷值对比分析($\bar{x} \pm s$)Table 3 Comparative analysis of fracture load values between two groups ($\bar{x} \pm s$)

Groups	Piece count	Fracture load value
Research group	8	739.35±47.16*
Control group	8	713.50±86.46

表 4 两组不良反应情况对比(例,%)

Table 4 Comparison of adverse reactions between two groups (n,%)

Groups	n	Severe periapical	Severe food	Mild food	Mild gum	Total
		periodontitis	impaction	impaction	inflammation	
Research group	40	0(0)	0(0)	1(2.5)	1(2.5)	2(5.0)*
Control group	40	1(2.5)	2(5.0)	2(5.0)	4(10.0)	9(22.5)

3 讨论

全冠修复作为临床上医护人员对后牙牙体缺损患者实施治疗期间所使用的一种常规治疗措施,由于需要对大量的牙体组织进行切除^[13],因此很容易导致患者剩余牙体组织强度出现持续下降方面的问题受到影响,导致食物嵌塞、龈缘炎的发生,不利于患者正常生活的开展。同时当全冠边缘接近牙龈下时,对基牙牙周组织有损伤^[14+16]。

近年来,随着各种粘接材料的出现,使得后牙合面瓷贴面的应用成为可能^[17]。高强度热压铸瓷材料是一种三维晶体结构,弯曲强度高达 400 MPa,断裂韧性为 2.75 MPa·m^[18]。在实际的应用中高强度热压铸瓷材料后牙合面瓷贴面要求覆盖基牙的全部牙尖,厚度为 1.5 mm^[19],是一种微创美容牙科的修复方式^[20]。牙合贴面修复是在尽可能保存牙体组织情况下,对牙体缺损或变色等运用全瓷修复体覆盖来使牙体形态复原的修复方法^[21]。全瓷贴面因其外观逼真,生物相容性良好,牙体预备量小等优点而备受医师与患者的青睐。

相关研究显示^[22],牙合贴面瓷贴面固位良好,边缘密合,有良好的临床成功率。本研究结果表明,研究组的治疗总有效率为 95.05%,显著高于对照组的 80.0%,与包凡^[23]的研究类似,评价铸瓷贴面修复牙本质暴露的缺损前牙的临床效果,用铸瓷贴面进行修复,瓷贴面修复后 3 个月、6 个月、1 年和 2 年复查,分析评价其临床疗效。2 年的临床复查结果显示,97% 以上的铸瓷贴面具有良好的边缘适合性,牙周健康,只有个别基牙出现继发龋,患牙周围牙槽骨无吸收,修复效果满意。研究组患者的美观、固定及咀嚼功能明显高于对照组,折裂载荷值明显好于对照组,与 Feng Xinyan^[24]等学者的相关研究类似,该学者在全冠修复基础上应用牙合贴面修复后,结果显示患者功能咀嚼功能评分能够达到 85 分以上;由此可见,全冠修复联合应用全瓷牙合贴面修复可保存牙合关系,提高后牙缺损修复的疗效,分析其原因为修复后的后牙能够承受后牙区的最大咀嚼力,所以修复后的前磨牙必须能抵抗强侧向力^[25,26]。本研究全冠修复联合牙合贴面修复折裂载荷均高于单纯全冠修复,可认为邻牙合缺损的前磨牙仍需覆盖牙尖,以防止咬合过程牙尖折裂的发生^[27,28];研究组发生不良反应的概率为 5.0%,显著低于对照组发生不良反应 22.5%,与江玲^[29]等学者的研究类似,改该学者探讨瓷贴面和烤瓷全冠在口腔美容修复中的效果,结果显示瓷

贴面组患者术后不良反应发生率明显低于烤瓷全冠组。说明从基牙牙周健康保健的角度来讲,全冠修复联合牙合贴面修复要优于全瓷冠修复体^[30,31]。

总而言之,利用全冠修复联合牙合贴面修复治疗牙体缺损效果优于单纯全冠修复,抗折强度较高,美观、固定及咀嚼功能好,安全性好,值得临床应用推广。本研究也存在一定的不足,没有进行复查,同时全冠修复联合牙合贴面修复治疗的应用的较少,后期需要联合多家,扩大样本量进行分析全冠修复联合牙合贴面修复的优点。

参考文献(References)

- [1] Chen Zhi, Chen binwen. Treatment options for tooth restoration after root canal therapy [J]. West China Journal of Stomatology, 2019, 33 (2): 115-120
- [2] Zhu Qiang, Zhu Jiwen. To explore the clinical effect of different types of porcelain veneer and porcelain fused to metal crown in oral aesthetic restoration [J]. China Medical Cosmetology, 2017, 10 (11): 57-60
- [3] Li Ling, Wang Shigang. Clinical effects of different types of porcelain veneers and porcelain fused to metal crowns in oral aesthetic restoration[J]. World clinical medicine, 2017, 11(16): e156
- [4] Kong Yan. To explore the clinical effect of different types of porcelain veneer and porcelain fused to metal crown in oral aesthetic restoration [J]. Chinese medical guide, 2016, 14(19): 156-157
- [5] Yu Haiyue, Ma Dan, Lin Xiaoyu, et al. Clinical study of CAD / CAM high inlay in root canal treatment of large area defect of molar [J]. J Practical Stomatology, 2017, 33(1): 41-44
- [6] Chen Qingsheng, Li Shuguang, Zhu Baomin, et al. Observation on the short and long-term effect of ipsempress II cast porcelain veneer on anterior teeth aesthetic restoration[J]. J Modern Stomatology, 2019, 3: 147-149
- [7] Wu Xixia, Gu Meng. Comparison of the effect of porcelain veneer and porcelain fused to metal crown in oral aesthetic restoration [J]. Chinese Journal of aesthetic medicine, 2018, 18(24): 2086-2088
- [8] Liu Weifeng, Liu Jihua, Yan Huixin, et al. Comparison of clinical application value of porcelain veneer and all ceramic crown in aesthetic restoration of anterior teeth[J]. Naval Medical Journal, 2019, 14(6): 551-553
- [9] Dai Rongfeng, Wang Qinbo. Clinical study of glass fiber post reinforced resin in repairing incisional angle defect of anterior teeth

- [J]. Journal of Clinical Stomatology, 2018, 30(4): 239-241
- [10] Hu Xuzhi, Lu Suwen. Clinical application of nano resin combined with quartz fiber post to repair incisional angle defect of upper anterior teeth[J]. modern practical medicine, 2015, 27(7): 923-924
- [11] Barbara, Veselka, Megan. Micro CT assessment of dental mineralization defects indicative of vitamin D deficiency in two 17th-19th century Dutch communities [J]. American J Physical Anthropology, 2019, 169(1): 122-131
- [12] Seiko, Kubota, Tomoaki. Gingival Neurofibroma With Teardrop-Shaped Defects of the Interdental Alveolar Bone: An Unusual Oral Manifestation of Neurofibromatosis Type 1 [J]. Journal of Craniofacial Surgery, 2019, 30(3): e205-e207
- [13] Banskota B, Banskota AK, Regmi R, et al. The Ponseti method in the treatment of children with idiopathic clubfoot presenting between five and ten years of age [J]. Bone & Joint Journal, 2013, 95-B(12): 1721-1725
- [14] Li Chen Shuang, Zou min, progress in restoration of incisor angle defect of anterior teeth [J]. Chinese Journal of aesthetic medicine, 2019, 20(3): 516-518
- [15] Xiao YH, song Hongquan, Zhang Rui, et al. Comparative study of porcelain veneer and nano resin in repairing incisional angle defect of upper anterior teeth[J]. J Clinical Stomatology, 2018, 30(11): 668-670
- [16] Cao Liang, Jiang Xiaonan, Zhao Ali. Et al. Clinical study on the influence of different pit edge morphology on the adjacent surface caries of resin filled maxillary central incisors [J]. J North Sichuan Medical College, 2017, 22(6): 439-441
- [17] Yu H, Yoshida K, Cheng H, et al. Bonding of different self-adhesive resins to high-strength composite resin block treated with surface conditioning[J]. Journal prosthodontic research, 2019, 63(3): 340-346
- [18] Henriques B, Soares D, Silva FS. Microstructure, hardness, corrosion resistance and porcelain shear bond strength comparison between cast and hot pressed CoCrMo alloy for metal-ceramic dental restorations [J]. J Mechanical Behavior of Biomedical Materials, 2012, 12(none): 83-92
- [19] Pang Xiyao, Zhou Zhou, Xu Tao, et al. Clinical study of zirconia root canal post for restoration of large area defect of anterior teeth [J]. Stomatology, 2017, 37(5): 418-421
- [20] Fatemeh, A, Amir. Fracture resistance of porcelain veneered zirconia crowns with exposed lingual zirconia for anterior teeth after thermal cycling: An in vitro study[J]. Saudi Dental Journal, 2015, 27: 63-69
- [21] 李华, 高丽卿, 杨琴琴, 等. 二氧化锆全瓷冠和金属烤瓷冠在修复前牙牙体缺损患者中的近远期治疗效果对比研究 [J]. 山西医药杂志, 2018, 47(24): 2973-2975
- [22] Zuo Chen Qi, Wei Liping, Lv Jie, et al. Clinical comparative study of ultra-thin veneer and conventional veneer[J]. Oral Disease Prevention Treatment, 2016, 24(9): 528-533
- [23] 包凡, 郭慧, 董菲, 等. 铸瓷贴面修复伴牙本质暴露的前牙牙体缺损疗效观察[J]. 中国美容医学, 2018, 27(5): 95-97
- [24] Feng Xinyan, Gao Chengzhi. Effect of bolt pretreatment on the bond strength of self-adhesive resin cement bonded fiber post [J]. J North Sichuan Medical College, 2016, 20(47): 7083-7089
- [25] 曹婷婷, 葛春慧, 张红艳. 上颌第一前磨牙非龋性牙颈部病变的缺损形态、修复材料及咬合方式对应力的影响 [J]. 口腔疾病防治, 2019, 8: 515-521
- [26] 李建宾, 陈维毅, 姚蔚. 髓腔壁缺损对下颌前磨牙髓腔固位冠修复应力的影响[J]. 太原理工大学学报, 2018, 215(1): 158-163
- [27] Shen Hongfeng. Clinical observation of hat shaped zirconia onlay in repairing posterior teeth defect[J]. J practical clinical medicine, 2015, 19(1): e148
- [28] Zhu Hongling, Geng Wentao, Xie JinFang, et al. Clinical effect evaluation of full crown restoration combined with occlusal veneer in the restoration of posterior teeth defect in the elderly [J]. J Jilin University, 2018, 44(1): 157-161
- [29] 江玲, 王凤琴, 李菊新, 等. 瓷贴面和烤瓷全冠在口腔美容修复中的效果比较[J]. 全科口腔医学电子杂志, 2018, 5(17): 22-25
- [30] Chi Huixia, long Jindong, Xie Fangfang, et al. 3-year clinical observation of all ceramic Onlay Restoration of large area defect posterior teeth [J]. Journal of Guangxi Medical University, 2019, 36(3): 443-446
- [31] 金巨楼, 李韦莹, 刘定坤, 等. 数字化微笑设计在前牙瓷贴面美学修复中的应用及其修复效果分析[J]. 吉林大学学报(医学版), 2019, 45(4): 916-921

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- [22] Kumar J, Alam MM, Johnson KC. Nonpharmacological Interventions for Pain Management in Lung Cancer Patients: A Systematic Review [J]. Indian J Palliat Care, 2020, 26(4): 444-456
- [23] Chang WP, Lin CC. Changes in the sleep-wake rhythm, sleep quality, mood, and quality of life of patients receiving treatment for lung cancer: A longitudinal study[J]. Chronobiol Int, 2017, 34(4): 451-461
- [24] Jiang X, Gao J, Zheng Y. Effectiveness of traditional Chinese medicine music therapy on anxiety and depression emotions of lung cancer patients: A protocol for systematic review and meta-analysis [J]. Medicine (Baltimore), 2021, 100(12): e25040
- [25] Guo C, Huang X. Hospital anxiety and depression scale exhibits good consistency but shorter assessment time than Zung self-rating anxiety/depression scale for evaluating anxiety/depression in non-small cell lung cancer[J]. Medicine (Baltimore), 2021, 100(8): e24428
- [26] 吴林珂, 张琦婉, 吕利杰, 等. 肺癌化疗期患者癌因性疲乏与希望水平的相关性及其它影响因素研究[J]. 护士进修杂志, 2020, 35(2): 97-100
- [27] 朱振华, 刘艺颖, 吕玲, 等. 肺癌患者创伤后应激障碍及睡眠状况对心理健康的影响[J]. 护理学杂志, 2020, 35(8): 81-83
- [28] 顾磊. 肺癌患者化疗期间睡眠障碍的影响因素与护理对策 [J]. 护理实践与研究, 2016, 13(2): 110-112
- [29] 王俊华, 张桂芹, 任维鑫. 肺癌术后患者睡眠状况调查及影响因素分析[J]. 临床肺科杂志, 2015, 20(8): 1365-1366, 1367
- [30] 陈伟丽, 褚卡, 傅淑兰. 肺癌患者癌因性疲乏的调查及其影响因素分析[J]. 中国基层医药, 2020, 27(18): 2211-2214
- [31] 黎银焱, 周燕斌, 黄琬玲, 等. 肺癌患者睡眠与生活质量影响因素回归分析[J]. 中华肿瘤防治杂志, 2011, 18(23): 1874-1877