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氧化锆全瓷修复与金属烤瓷修复在前牙牙冠延长术后冠修复中的应用效果比较*

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摘要 目的: 比较氧化锆全瓷修复与金属烤瓷修复在前牙牙冠延长术后冠修复中的应用效果及安全性。**方法:** 选取 2016 年 7 月~2018 年 7 月我院收治的择期行前牙牙冠延长术后冠修复的患者 80 例(共 97 颗上颌牙),采用随机数字表法将患者分为两组,对照组 40 例(48 颗患牙)采用金属烤瓷修复,观察组 40 例(49 颗患牙)采用氧化锆全瓷修复。比较两组患者的牙体修复效果和牙周修复效果,治疗前后龈沟出血指数(sulcus bleeding index, SBI)、松动度(movable degree, MD)和菌斑指数(plaque index, PI)的变化以及不良反应的发生情况。**结果:** 治疗后,观察组临床治疗总有效率显著高于对照组(87.76% vs. 70.83%, $P < 0.05$);观察组患者的边缘密合度、牙体折损、牙体颜色和牙龈健康状况均显著优于对照组($P < 0.05$);两组患者治疗后的 SBI、MD 和 PI 均较治疗前显著下降,且观察组以上指标显著低于对照组($P < 0.05$)。观察组患者不良反应发生率显著低于对照组($P < 0.05$)。**结论:** 氧化锆全瓷修复用于前牙牙冠延长术后冠修复的临床效果显著优于金属烤瓷修复,且安全性更高。

关键词: 氧化锆全瓷修复; 金属烤瓷修复; 前牙牙冠延长术; 冠修复; 效果

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A Comparative Study on the Effect of Zirconia Porcelain Restoration and Metal Ceramic Restoration on the Crown Restoration of Anterior Teeth after Lengthening*

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ABSTRACT Objective: To compare the effect and safety of zirconia all-ceramic restoration with metal ceramic restoration on the crown restoration of anterior teeth after lengthening. **Methods:** 80 patients (97 maxillary teeth in total) who underwent crown restoration after lengthening of anterior teeth were selected in our hospital from July 2016 to July 2018. The patients were divided into two groups by the random number table method. 40 patients (48 affected teeth) in the control group were repaired with metal porcelain, and 40 patients (49 affected teeth) in the observation group were repaired with zirconia porcelain. The results of dental restoration and periodontal restoration, the changes of sulcus bleeding index (SBI), mobility degree (MD) and plaque index (PI) as well as the occurrence of adverse reactions were compared between the two groups before and after treatment. **Results:** After treatment, the total effective rate in the observation group was significantly higher than that in the control group (87.76% vs. 70.83%, $P < 0.05$). The patients in the observation group were significantly better than those in the control group in terms of marginal closeness, tooth breakage, tooth color and gingival health status ($P < 0.05$). The SBI, MD and PI in the observation group was significantly lower than those of the control group ($P < 0.05$). The incidence of adverse reactions in the observation group was significantly lower than that in the control group ($P < 0.05$). **Conclusion:** Zirconium all-ceramic restoration for anterior crown extension is significantly better than metal-ceramic restoration, which can significantly improve the patients' SBI, MD and PI with higher safety.

Key words: Zirconia porcelain restoration; Metal ceramic restoration; Crown restoration; Anterior teeth lengthening; Effect

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前言

前牙牙体缺损是口腔科常见的疾病之一,主要是由于遭受外界冲击力或龋坏所致,又由于牙体缺损位于龈下,需要保留患牙,且断处的牙龈覆盖较多,不仅影响患者的牙周健康,还影响美观^[1-3]。随着人们生活水平的不断提高,对牙齿美观度的要求也越来越高,对前牙牙体治疗修复的要求也随之提高^[4]。但对于该类患牙如果直接进行全冠修复,会由于牙床过短,生物学宽度未恢复而导致牙周持续发炎、脱落等情况的发生,导致修复失败。临床常采用牙冠延长术,通过切除一定的牙龈和骨组织,增加压槽嵴顶上的健康牙组织,恢复生物学宽度,避免牙周炎症,进而制造牙体再修复的机会^[5-7]。牙冠延长术后往往需要对患牙进行全冠修复,以达到良好的治疗效果及患者对美观度的要求^[8,9]。目前,全瓷修复冠以其优良的硬度、韧性、强度和美观度,已经成为口腔牙体修复中常用的一种材料^[10-12]。为了明确不同修复材料在前牙牙冠延长术后的牙冠修复效果,为临床应用提供参考,本研究选择了 80 例前牙牙体缺损患者作为研究对象,比较了氧化锆全瓷修复与金属烤瓷在修复前牙缺损修复中的效果。

1 资料与方法

1.1 一般资料

选取 2016 年 7 月~2018 年 7 月我院收治的择期行前牙牙冠延长术后冠修复的患者 80 例(共 97 颗上颌牙)。纳入标准:①牙体缺损、破裂或龋坏达到龈下,对日常生活产生影响者;②前牙牙冠短、笑容露出牙龈,要求改善美观者;③前牙变色、缺损需进行全冠修复者;④经根管治疗者;⑤牙周组织健康,牙周袋不超过 3 mm 者。排除标准:①猖獗性龋齿和接受放疗者;②合并干燥综合征并出现口干者;③合并原发性口干症者;④依从性差,不能配合治疗者。

根据入院的顺序,采用随机数字表法将患者分为两组,对照组 40 例(48 颗患牙)采用氧化锆全瓷修复,其中男 21 例,女 19 例;年龄 21~60 岁,平均 38.36 ± 3.15 岁;前牙缺损:Ⅰ类 17 例,Ⅱ类 15 例,Ⅲ类 11 例,Ⅳ类 5 例。观察组 40 例(49 颗患牙),其中男 22 例,女 18 例;年龄 23~58 岁,平均 37.06 ± 3.03 岁;前牙缺损:Ⅰ类 16 例,Ⅱ类 16 例,Ⅲ类 11 例,Ⅳ类 6 例。两组一般资料比较差异均无统计学差异($P > 0.05$),具有可比性。

1.2 方法

对两组患者进行局部麻醉,根据术后牙缘位置来确定切口的位置,并进行骨修整,修剪龈瓣并缝合止血,在切口处放置牙周塞治剂。手术后佩戴临时修复体 2 周,观察手术效果,患者牙龈缘部位平整后进行冠修复。对照组患者采用金属烤瓷修复,观察组患者采用氧化锆全瓷修复,修复方法:预备牙体,排龈,制模,自然光下比色后加工制作修复体,修复体制作完成后给患者进行试戴,若无不适状况,且边缘密合、颜色和形态满意后采用树脂粘固剂进行固定。术后随访 6 个月,由同一组医师对两组患者进行修复效果检查和评定。

1.3 观察指标

① 牙周修复效果。② 前牙缺损修复效果,包括边缘密合度、牙体折损、牙体颜色和牙龈健康状况。边缘密合度:A 吻合良好,牙体与修复体间无缝隙;B 探查时卡探针,但无明显缝隙;C 有明显缝隙;牙体折损:A 无异常;B 少量折损但不影响外观;C 有开裂、崩瓷或脱落;牙体颜色:A 与邻牙无色差,B 有细微差异但不影响美观;C 有明显差异,难以接受;牙龈健康状况:A 健康无萎缩;B 轻微牙龈炎,探诊时有少量出血,C 牙龈红肿,出血。③ 龈沟出血指数 (sulcus bleeding index, SBI)、松动度 (movable degree, MD) 和菌斑指数 (plaque index, PI),其中龈沟出血指数分为 0~5 级,级别越高表示患者的出血越严重。松动度分为 0~3 级,级别越高表示松动越严重。菌斑指数分为 0~3 级,级别越高表示菌斑越严重。④ 不良反应发生情况。

1.4 疗效评定标准

正常:色泽无明显变化,牙槽骨无明显吸收,探针深度不大于 3 mm;轻度:牙龈色泽较深,但无颈缘黑线,探针深度不大于 3 mm,无出血和水肿,牙槽骨无明显吸收;中度:牙龈深红、肿大、牙周探针深度大于 3 mm,牙槽骨吸收不大于根长的 1/3;重度:牙龈红肿、伴出血、溃疡倾向,牙周探针深度大于 3 mm,牙槽骨吸收大于根长的 1/3。

1.5 统计学方法

采用 SPSS16.0 对数据进行统计学分析,计数资料以率(%)表示,组间比较行卡方检验,计量资料以($\bar{x} \pm s$)表示,组间比较行 t 检验, $P < 0.05$ 为有统计学差异。

2 结果

2.1 两组临床治疗效果的比较

治疗后观察组总有效率为 87.76%,显著高于对照组(70.83%, $P < 0.05$),见表 1。

表 1 两组临床治疗效果比较[例(%)]

Table 1 Comparison of the clinical therapeutic effect between two groups[n(%)]

Groups	Case	Offending teeth	Normal	Slight	Moderate	Severe	Total efficiency
Control group	40	48	34	9(18.75)	3(6.25)	2(4.17)	34(70.83)
Observation group	40	49	43	4(8.16)	1(2.04)	1(2.04)	43(87.76)
χ^2							4.242
P							0.039

2.2 两组前牙缺损修复效果的比较

治疗后,观察组患者的边缘密合度、牙体折损、牙体颜色和牙龈健康状况均显著优于对照组($P < 0.05$),见表 2。

2.3 两组治疗前后龈沟出血指数、松动度和菌斑指数的比较

治疗前,两组患者的 SBI、MD 和 PI 比较无统计学差异($P > 0.05$);治疗后,两组 SBI、MD 和 PI 均较治疗前显著下降,且观

察组以上指标均显著低于对照组($P<0.05$),见表 3。

治疗后, 观察组不良反应发生率显著低于对照组 ($P<$

2.4 两组不良反应发生情况的比较

0.05),见表 4。

表 2 两组患者的前牙缺损修复效果比较[例(%)]

Table 2 Comparison of results of anterior tooth defect repair between two groups[n(%)]

Groups	Case	Margin fitness	Tooth wreck	Tooth color	Gum health
Control group (n=40/48)	A	41(85.42)	4287.50)	40(83.33)	38(79.17)
	B	5(10.42)	4(8.33)	7(14.58)	7(14.58)
	C	2(4.17)	2(4.17)	1(2.08)	3(6.25)
Observation group (n=40/49)	A	48(97.96)*	49(100.00)*	48(97.96)*	47(95.92)*
	B	1(2.04)	0(0.00)	1(2.04)	1(2.04)
	C	0(0.00)	0(0.00)	0(0.00)	1(2.04)

Note: Compared with grade A of control group, * $P<0.05$.

表 3 两组患者治疗前后的龈沟出血指数、松动度和菌斑指数比较($\bar{x}\pm s$)

Table 3 Comparison of the SBI, MD and PI between two groups before and after treatment($\bar{x}\pm s$)

Groups	SBI		MD		PI	
	Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment
Control group (n=40/48)	1.86± 0.54	0.87± 0.24*	0.29± 0.07	0.14± 0.04*	1.38± 0.36	0.85± 0.22*
Control group (n=40/49)	1.89± 0.59	0.51± 0.12*	0.27± 0.06	0.09± 0.02*	1.41± 0.38	0.43± 0.12*
t	-0.261	-9.373	1.512	7.810	-0.399	-11.705
P	0.795	<0.001	0.134	<0.001	0.691	<0.001

Note: Compared with before treatment, * $P<0.05$

表 4 两组患者的不良反应的发生情况比较[例(%)]

Table 4 Comparison of incidence of adverse reactions between two groups[n(%)]

Groups	Case	Metal allergy	Gingival inflammation	Pain	Tooth corrosion	The total incidence
Control group	40	2(5.00)	1(2.50)	3(7.50)	2(5.00)	8(20.00)
Observation group	40	0(0.00)	0(0.00)	1(2.50)	0(0.00)	1(2.50)
χ^2						6.135
P						0.029

3 讨论

随着牙科修复技术及修复材料的不断发展,牙体缺损的治疗与修复目前也取得了一定的进步,且患者已不仅仅满足于患牙基本功能的恢复,对美观度也提出了更高的要求,尤其是前牙的美观度^[13-15]。传统金属烤瓷修复材料的通透性较差,可导致牙冠僵硬,边缘密合度差,牙体易折裂,牙体颜色与邻牙差距较大、易引发炎症、过敏等缺点,临床修复效果不尽人意^[16-18]。氧化锆全瓷冠是目前发展形成的一种新型牙体缺损修复材料,具有金属烤瓷冠不具备的很多优势^[19-21]。有研究显示^[22]采用氧化锆全瓷修复牙冠延长术后的患牙,恢复时间短、菌斑附着能力低,临床效果较好。因此,本研究对比分析了二者在前牙牙冠延长术后的冠修复效果。

对于牙冠延长术后的冠修复的治疗效果主要的评价标准为牙周健康、功能良好和美观度是否能达到患者的要求^[23,24]。本

研究结果显示观察组患者的修复效果优于对照组,且边缘密合度较高,无缝隙,牙体的硬度高,折损率低、牙体颜色与邻牙接近,美观度较好,牙龈健康状况良好,口腔健康。这与氧化锆修复材料不含金属材料,颈部的边缘密合度高,修复之后不会出现缝隙,氧化锆本身具有较高的硬度和强度,可耐高温、耐腐蚀,长时间内牙体磨损的情况较少,抗折断能力较强有关^[25,26]。另外,氧化锆全瓷材料的通透性较好,对自然光可进行较好的传播,与天然牙体的色泽相近,无明显的色差,美观度较好。氧化锆还具有较高的生物相容性,对牙周的影响较小,不会引起过敏、牙周发炎等不良反应,可保持良好的牙周健康状态^[27,28]。此外,氧化锆全瓷修复冠的龈沟出血指数、松动度和菌斑指数均显著低于金属烤瓷冠,这与氧化锆具有较好的生物相容性,菌斑附着力低,硬度和强度较高等特点有关^[29]。在不良反应方面,氧化锆全瓷材料修复患者的疼痛、牙体腐蚀、炎症、过敏等总不良反应发生率显著低于金属烤瓷冠,说明氧化锆全瓷修复

材料不仅临床效果较好,不良反应的发生率也较低,安全性较高。这是由于金属烤瓷材料游离出来的金属离子可导致患者出现过敏、炎症等反应,进而引起牙周炎症的发生,不仅影响临床治疗效果,不良反应增多,还会给患者带来痛苦,影响治疗满意度。而氧化锆全瓷修复材料具有良好的生物相容性,对患者牙周的刺激较少,其牙体制备技术精确度较高,采用计算机辅助技术制作修复体可有效防止传统手工制作不均匀、缩孔和杂质较多等问题,可取得较好的边缘密合度,提高临床治疗效果^[30]。

综上所述,氧化锆全瓷修复用于前牙牙冠延长术后冠修复的临床效果显著优于金属烤瓷修复,且安全性更高。

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(上接第 109 页)

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