

[1]吴雨鸿,林居红,张红梅.加显影剂的Portland cement作为根充材料的封闭性研究[J].第三军医大学学报,2013,35(18):1965-1967.

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加显影剂的Portland cement作为根充材料的封闭性

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[本期目录/Table of Contents](#)

[下一篇/Next Article](#)

[上一篇/Previous Article](#)

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统计/STATISTICS

[摘要浏览/Viewed](#) 130

[全文下载/Downloads](#) 74

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Title: Sealing ability of Portland cement as root filling material with different radiopacifying agents: an *in vitro* study

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关键词: [白色波特兰水门汀](#); [无机三氧化聚合物](#); [根管充填材料](#); [封闭性](#); [显影剂](#)

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摘要: 目的 通过染料渗透+透明标本法评价白色波特兰水门汀 (white Portland cement, WPC)、WPC+氧化铋 (Bi₂O₃, BO)、WPC+氧化锆 (ZrO₂, ZO)、无机三氧化聚合物 (mineral trioxide aggregate, MTA) 和灰色波特兰水门汀 (gray Portland cement, GPC) 作为根管充填材料的封闭性能。 方法 选取单根离体前磨牙104颗, 制作根尖倒充填模型, 按随机数字表法将离体牙分成5个实验组 (WPC、WPC+BO、WPC+ZO、MTA、GPC组, n=20) 和2个对照组 (阴性对照组、阳性对照组, n=2)。染料渗透法检测根尖微渗漏情况, 体视显微镜下测量染料自根尖渗入冠方的长度。 结果 阳性对照组染料渗入整个根管, 阴性对照组无染料渗入, WPC、WPC+BO、WPC+ZO、MTA 4组仅有微量染料渗入, 且4组染料渗入深度两两比较差异无统计学意义 (P>0.05), GPC组有较多的染料渗入, 渗入深度与前4组比较差异有统计学意义 (P<0.01)。 结论 WPC、WPC+BO、WPC+ZO与MTA封闭性相当, 且它们的封闭性明显优于GPC; ZO和BO可考虑作为显影剂加入WPC中。

Abstract: Objective To evaluate and compare the *in vitro* sealing ability of white Portland cement (WPC), WPC+ Bi₂O₃(BO), WPC+ ZrO₂ (ZO), mineral trioxide aggregate (MTA) and gray Portland cement (GPC) as root filling materials. Methods One hundred and four premolars with single root canal were instrumented and set as retrograde filling modle. The teeth were randomly divided into 5 groups, WPC, WPC+BO, WPC+ZO, MTA and GPC, with 20 teeth in

each group, and 2 control groups (positive and negative control groups, $n=2$). The teeth were exposed to Indian ink. And the extent of dye penetration was measured with stereomicroscopy. Results The negative controls showed no dye penetration while dye penetration was seen in the entire root canal of positive controls. However, WPC, WPC+BO, WPC+ZO and MTA groups showed slight dye penetration, though there was no significant difference in their extent of dye penetration ($P>0.05$). More dye penetration was found in GPC group, statistically more than the other 4 groups ($P<0.01$). Conclusion Sealing ability of WPC, WPC+BO, and WPC+ZO is the same as that of MTA when used as root filling materials. All of them are better than GPC. ZO and BO might be good alternatives as radiopacifying agents.

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