ACADEMIA ONE
PEER REVIEWED JOURNALS

Open Academia: Journal of Scholarly Research
Volume 3, Issue 01 January, 2025
ISSN (E): 2810-6377
Website: https://academiaone.org/index.php/4

Application Of Modern Filling Materials In Pediatric Dentistry

Makhmudov Gulomjon Alisherovich Samarkand Zarmed University
Ulmasov Azizjon Amindjanovich Volgograd State Medical University
Xolmuminov Nurali Nafasovich Samarkand Zarmed University

ANNOTATION

Pediatric dentistry has seen considerable improvements in materials and treatment options over the past few years. While other dental specialties have experienced tremendous developments in their materials and methods over the past forty years, pediatric dentistry has seemed to evolve much more slowly. Although we have enjoyed success with the treatments of the past, less invasive options involving fewer and more biocompatible chemicals can only benefit our patients and our practice of dentistry. What is good for our patients is good for our profession. This article will focus on the following new developments in pediatric dentistry: less invasive pulpal treatment, the switch from form cresol to MTA, bioactive restorations, and silver diamine fluoride.

INTRODUCTION

I was trained in pediatric dentistry from 2005-2007. At the time, I had a very experienced clinical professor who felt that we needed to perform complete caries excavation and a therapeutic pulpotomy if we were very near the pulp. That thought process had been around for many years – it was just the way it was always done. Now that numerous studies have emerged stating that indirect pulp therapy is more successful than therapeutic pulpotomies,

1 practitioners are comfortable with performing this less invasive procedure in the absence of signs or symptoms of irreversible pulpitis.

When a pulpotomy is indicated, the majority of practitioners that I speak with are using form cresol, a rather controversial medicament. Formocresol has been used for decades in pulp therapy with many studies indicating that it is safe if used the correct way.

2 However, it is a “toxic chemical” with a “bad rap” when looked at through the public’s eye. My thought process is simply this: if we can use a material that provides equal or better outcomes

3 and is less toxic, why shouldn’t we? There are two primary alternatives to formocresol for therapeutic pulpotomies: ferric sulfate and Mineral Trioxide Aggregate (MTA). There are ample studies in the literature that show ferric sulfate has an equal success when compared to form cresol;

However, it has a reputation among many users that it leads to a higher incidence of internal resorption. A lot of practitioners made the switch to ferric sulfate, became frustrated at seeing radiographic failure, and are going back to their tried and true form cresol.

When considering MTA, the number one reason that practitioners are not using it, is COST. Now that there are cost effective MTA options, we should all consider switching. Research shows that MTA has the highest success rate of any material used in pulp therapy. Perhaps the next most important benefit of using MTA in pulpotomies is the fact that it forms the ultimate protective pulpal seal and can be followed with more cosmetic options when compared to stainless steel crowns. Simply put, the enemy of primary tooth pulp therapy is leakage; therefore, stainless steel crowns have long been recommended following pulp therapy. Study after study shows that formocresol pulpotomies have a much higher success rate when followed by stainless steel crowns vs. other restorative options. With the use of MTA, the practitioner can feel more comfortable restoring select teeth with their material of choice. Biodentine by Septodont is an MTA substitute which can be used in therapeutic pulpotomies. NeoMTA by NuSmile is an MTA that is the least expensive MTA on the market. There are many great

ACADEMIA ONE
PEER REVIEWED JOURNALS
Open Academia: Journal of Scholarly Research
Volume 3, Issue 01 January, 2025
ISSN (E): 2810-6377
Website: https://academiaone.org/index.php/4

references available if the practitioners do their due diligence before choosing a material. I urge readers to look at MTA as another option.

Case 1

An 8-year-old patient presented with DO decay in a first primary molar exhibiting symptoms of reversible pulpitis. The tooth was treatment planned for a DO
restoration with Activa Bioactive Restorative (Pulpdent). Upon decay excavation, a pulp exposure occurred necessitating a therapeutic pulpotomy. Due to the patient's age, I felt comfortable proceeding with a therapeutic pulpotomy with Biodentine (Septodont) followed by an esthetic restoration. If the patient had been four to five years of age, I would have restored with a stainless steel crown due to its proven track record of longevity.

Improvements in resin-based composite materials now provide practitioners with "active" materials and bulk fill options that offer increased efficiency and predictability when restoring decayed teeth. It is important to remember that traditional composites are inert, passive materials. The modern day diet – high in acidic drinks and other sugar-laden snacks–presents a challenge that swings the pendulum in favor of recurrent decay. When a practitioner considers restorative options for primary teeth, dietary habits and oral hygiene must be considered.

Glass ionomers and resin modified glass ionomers have long been alternatives to resin-based composites due to their high fluoride release for teeth susceptible to recurrent decay. While GIs and RMGIs have proven benefits, they also lack certain characteristics that are desirable in pediatric restorations – longevity, compressive strength, and fracture resistance. Pulpdent has introduced an alternative with their Activa Bioactive product range. Activa is a urethane-based material that contains no Bisphenol A and no BPA derivatives. It releases and recharges calcium, phosphate and fluoride, which are invaluable for remineralization and preventing recurrent decay. A unique physical property of Activa is the very high fracture resistance resulting from a patented rubberized- urethane molecule inserted into the resin matrix. The compressive strength is comparable to traditional resin-based composites. So think of Activa as a material with bioactive properties greater than GIs and RMGIs, and physical properties comparable to traditional resin-based composites.

References

1. АБДУРАХМАНОВА Н. М. Б., АХМЕДОВ Х. С. Reactive arthritis-a modern view of the problem //Журнал биомедицины и практики. – 2021. – Т. 6. – №. 1.
2. Abdurakhmanova N., Akhmedov K. AB0001 ASSOCIATION OF MDR1 GENE G2677T POLYMORPHISM WITH METHOTREXATE RESISTANCE IN PATIENTS WITH UZBEK RHEUMATOID ARTHRITIS. – 2019.
3. Khalmurad A. et al. Influence of xenobiotics on the course of rheumatoid arthritis //European science review. – 2016. – №. 3-4. – С. 56-59.
1. 4. Олимовна К. И. Н. М. ПРОФИЛАКТИКА И ЛЕЧЕНИЕ ОСЛОЖНЕНИЙ ПОСЛЕОПЕРАЦИОННОГО ШВА РАНЫ
2. ПРОМЕЖНОСТИ // Журнал современных образовательных достижений. – 2023. – Т. 2. – No 1. – С. 113-116.
4. Камарова И. Н., Садикова К. А. СОВРЕМЕННЫЕ АСПЕКТЫ РЕАБИЛИТАЦИИ ЖЕНЩИН С ПОСЛЕРОДОВЫМИ ТРАВМАМИ
3. ПРОМЕЖНОСТИ //Journal of Integrated Education and Research. – 2023. – Т. 2. – №. 1. – С. 9-11.
5. Камарова И. Н. и др. ВОССТАНОВИТЕЛЬНАЯ ФИЗИОТЕРАПИЯ ЖЕНЩИН С ХРОНИЧЕСКИМ ВОСПАЛЕНИЕМ ТАЗОВЫХ ОРГАНОВ
4. //Journal of Integrated Education and Research. – 2023. – Т. 2. – №. 1. – С. 22-23.
5. 7. Камарова И. Н. и др. РАЗРАБОТКА МЕТОДОВ ПРОФИЛАКТИКИ ПОСЛЕРОДОВЫХ ТРАВМ ПРОМЕЖНОСТИ У ЖЕНЩИН

Open Academia: Journal of Scholarly Research
Volume 3, Issue 01 January, 2025
ISSN (E): 2810-6377
Website: https://academiaone.org/index.php/4

6. ПОСЛЕРОДОВОМ ПЕРИОДЕ //Journal of Integrated Education and Research. – 2023. – Т. 2. – №. 1. – С. 19-21.
7. Saidabdullayevn S. M. et al. Interrelationship between life quality and vegetative nervous system in patients with asthma //European science review. – 2017. – №. 5-6. – С. 42-44.
8. Salaeva M. et al. CORRELATION BETWEEN CARDIAC ARRHYTHMIA AND THE LEVEL OF HYPOXEMIA ON THE SEVERITY OF
9. CHRONIC OBSTRUCTIVE PULMONARY DISEASE //European Journal of Interdisciplinary Research and Development. – 2023. – Т. 11. – С. 13-16.
10. Убайдуллаев А. М., Салаева М. С. Роль социальных факторов в формировании параметров качества жизни у больных хронической обструктивной болезнью легких //Туберкулез и болезни легких. – 2009. – Т.86. – №. 6. – С. 30-33.
11. Saidabdullayevn S. M. et al. Interrelationship between life quality and vegetative nervous system in patients with asthma //European science review. – 2017. – №. 5-6. – С. 42-44.
12. Djalilova S., Sadikova S., Salayeva M. Assessment Of The Incidence Of Psycho-Emotional Disorders In The General Somatic Hospital. – 2021.