



PURPOSE/OBJECTIVE

Evaluation of the association between hemostatic agent (FS, SH, CP) and long-term clinical success of primary molar pulpotomies restored with MTA and full-coverage restorations

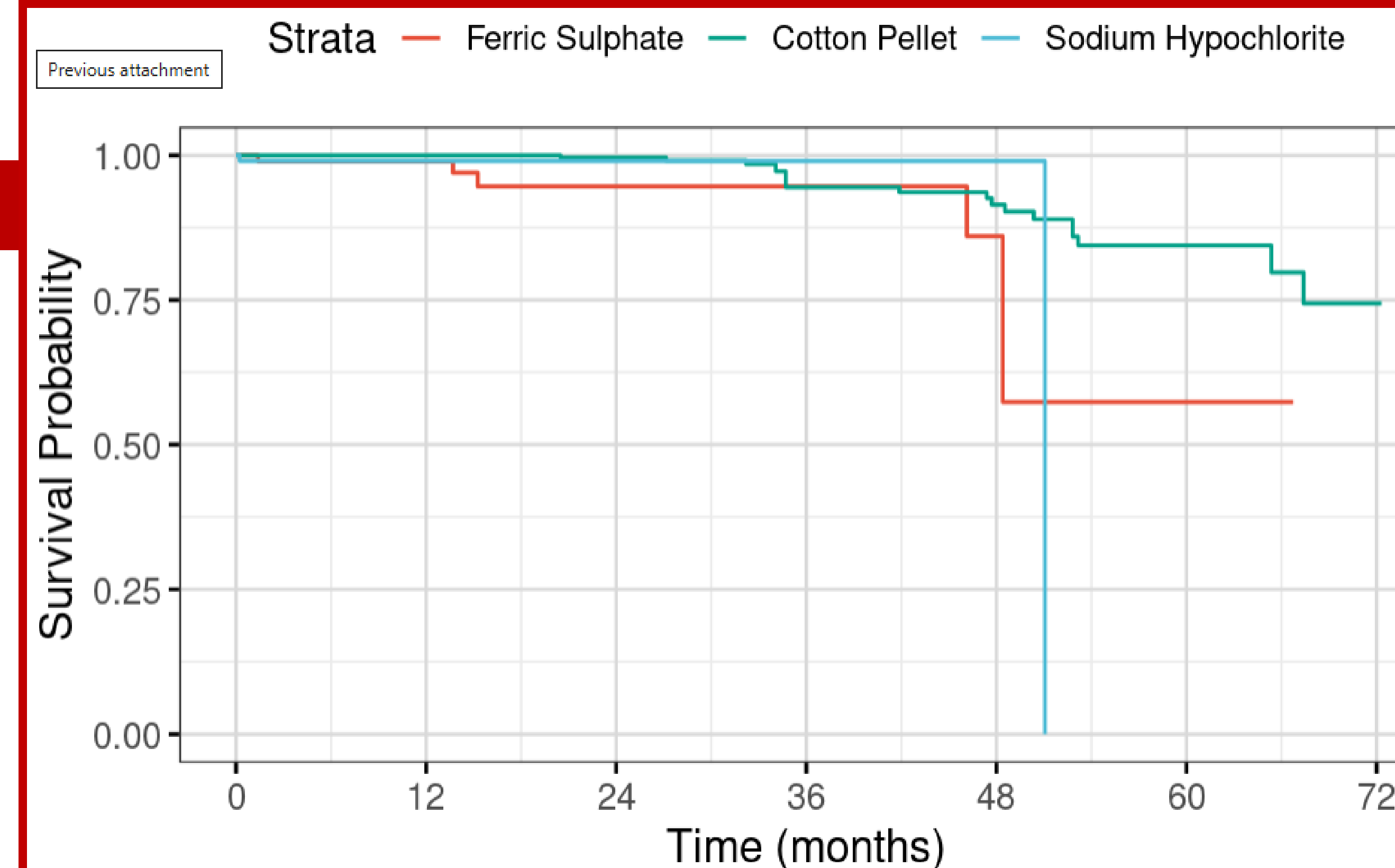
METHODS

- Retrospective chart review using electronic dental records from Nationwide Children's Hospital
- Included primary molars of patients age 0-5, ASA I/II classification under general anesthesia by 3 providers
- Clinical failure rate was defined as extraction prior to natural exfoliation
- Failure rates compared at 12, 18, and >24 months using χ^2 or Fisher's exact tests
- Firth penalized logistic regression used to evaluate association between technique and failure, adjusting for demographic and clinical covariates ($P < .05$)

RESULTS

- A total of 605 primary molars undergoing pulpotomy were evaluated (FS = 399, CP = 100, SH = 106), with each tooth analyzed as an independent unit
- Overall failure rate was 4.6% (28/605; 95% CI, 3.1–6.6%).
- Failure rates were 4.8% (FS), 7.0% (CP), and 1.9% (SH), with **no statistically significant differences among groups** ($P < .05$).
- Multivariate analysis demonstrated no significant association between hemostatic technique and success/failure.

Figure 1. Survival Analysis by technique



Comparable long-term clinical success was observed across all hemostatic techniques (FS, SH, CP); when MTA and full-coverage restorations are used, any technique may be effectively employed.



References

DISCUSSION

- **Hemorrhage control is critical**—controlled bleeding supports vitality; failure may compromise MTA seal and outcomes.
- **Ferric Sulfate (FS)**: forms a metal–protein clot → superficial seal; causes localized coagulation without deep penetration, but does **NOT** fixate tissue, which preserves radicular pulp vitality. & is antimicrobial
- **Sodium Hypochlorite (SH)**: antimicrobial + proteolytic action on collagen, reducing bacterial load and disinfects pulpal environment, which creates ideal environment for pulpal healing and regeneration.
- **Cotton Pellet (CP)**: mechanical compression → clot formation + vasoconstriction; simple and effective, NO antimicrobial action. Bleeding may persist which affects MTA properties & eventually long term outcome
- **High success (~95%) across all groups.** Outcomes are likely driven more by case selection and coronal seal (MTA + full coverage restoration) than hemostatic method.

STUDY STRENGTHS

- Faculty with years of clinical experience performed all procedures
- All treatment completed under GA, followed AAPD vital pulp therapy guidelines

STUDY LIMITATIONS

Retrospective Study

- **Unequal sample distribution**
- Unable to control follow up durations
- No radiographs due to lack of cooperation &/or compliance to recall