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Corresponding Author:

Nancy Solomon, Department of Pediatric and Preventive Dentistry, Chettinad Dental College and Research Institute, Rajiv Gandhi Salai, Kelambakkam, Chengalpattu 603103, Tamil Nadu, India.
E-mail: nancysolomon94@gmail.com

Foreign Object Entrapment in Pulp Space of Primary and Permanent Teeth: A Systematic Review and A Series of Three Cases

Apoorva Goswami¹ , Nancy Solomon² , Darshana Subburam¹ , Shankar Paulindraraj¹ , Trophimus Gnanabagyan Jayakaran¹ , Kalpana Harikrishna¹ 

¹Department of Pediatric and Preventive Dentistry, SRM Dental College, Bharathi Salai, Ramapuram, Chennai, Tamil Nadu, India

²Department of Pediatric and Preventive Dentistry, Chettinad Dental College and Research Institute, Rajiv Gandhi Salai, Kelambakkam, Chengalpattu, Tamil Nadu, India

Abstract

Objectives: To systematically review paediatric case reports documenting foreign body entrapment within the pulp space of primary and permanent teeth in children under 16 years of age and to supplement the review with three additional clinical cases.

Methods: A comprehensive search was performed in PubMed, Cochrane Library, and Google Scholar from database inception to April 2025. The review followed PRISMA 2020 guidelines and was registered in PROSPERO (CRD42024594531). Case reports and case series in English describing foreign objects lodged within the pulp chamber or root canal in children under 16 years were included. Data extraction and quality appraisal were conducted independently using the JBI and CARE guidelines.

Results: Thirty-one studies reporting 37 cases were included. Most patients were males (81%), and the mean age was 10.9 years. A total of 41 teeth were affected, including 14 primary (34.15%) and 27 permanent teeth (65.85%). Twenty different foreign objects were identified, with stapler pins being the most common. Management varied by dentition: extraction was more frequently performed in primary teeth, whereas conservative retrieval using endodontic files and tweezers was preferred in permanent teeth when feasible.

Conclusions: Foreign body entrapment in the pulp space is often associated with untreated caries and self-inserted objects for pain relief. Prompt clinical and radiographic assessment can facilitate early detection and prevent complications. Increased parental awareness and timely dental care are essential to prevent such behaviours.

Keywords: foreign object, foreign object retrieval, permanent tooth, primary tooth, pulp chamber