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Missing isthmus endodontic mishap: A case report

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Introduction: Endodontic therapy aims to completely remove all diseased pulp tissue from the root canal system, clean it, and shape it so that it may be filled with an inert substance, reducing or eliminating the possibility of reinfection. Failure occurs though when endodontic therapy strays from accepted clinical standards for the treatment of persistent apical periodontitis after non-surgical endodontic treated teeth the endodontic root-end surgery is indicated. And to make the procedure predictable, safer, and easier to perform various surgical techniques were introduced.

Over the past several years, there have been significant technological and procedural advancements in the area of endodontics. The manner surgery is carried out may be the one aspect of endodontics that has seen the most advancement. The distance between biological ideas and the capacity to produce consistently positive therapeutic results has shrunk because to the employment of cutting-edge equipment, novel and enhanced materials, and a surgical operating microscope.

A thin, ribbon-shaped passageway between two root canals called an isthmus contains pulp or tissue deriving from pulp. The isthmus is not an independent entity but a component of the canal system. As a result, it has to be cleaned, shaped, and filled completely. The physician should be aware that isthmuses are present in premolars and molars at the 3 mm level from the apex in about 80% to 90% of instances when undertaking apical surgery. (Floratos S et al.2016)

Discussion: The intricate anatomical nature of the root canal is one of the root canal treatment's challenges. Anatomic complexity is made up of many different components, such as the fin and lateral canal, and isthmuses in particular present difficulties for endodontists. No precise technique for cleaning and shaping an isthmus has yet been developed, despite the fact that numerous preparation and irrigation procedures have been presented to get around the anatomical complications. The dental operating microscope, ultrasonics, modern microsurgical equipment, and biocompatible root-end filling materials are some of the technological advancements used in modern microsurgical periradicular surgery, which has produced highly successful treatment outcomes. 29 The increased success rates were attributed to a superior surgical site examination and the exact preparation of root-ends with microinstruments using high magnification and improved illumination. 30-32. In order to create a cavity that can be effectively filled during root end resection surgery; root-end preparation tries to remove filling material, irritants, necrotic tissue, and residues from the canals and the isthmus. The optimal root-end preparation is a class I cavity with walls parallel to and inside the anatomic shape of the root canal space that extends at least 3 mm into the root dentin . 19 The prevalent practice in conventional surgical procedures, the use of rotating burs in a micro-handpiece, is no longer able to provide this therapeutic need. The brand or kind of tip is not clinically significant for an effective ultrasonic preparation, but rather how the tip is used. The secret to successful ultrasonic preparation is to repeatedly apply very little pressure. A softer touch improves cutting efficiency, whereas continuous pressure, as that applied by a handpiece, reduces cutting effectiveness. This is so that ultrasound can operate through vibration rather than pressure. The complexity of the isthmus preparation method itself is one of the causes of the significantly lower success rate in teeth with isthmus presence. In comparison to teeth with an absent isthmus, teeth with an extant isthmus must be more weakened in order to create space for a root canal.

Biography

Waffaa Albusis has completed her bachelor at King saud dental college. She had completed her higher diploma at University of South California school of Riyadh-Alkharj hospital. She was M.D. of Saudi Commission for health speciality Riyadh. Currently she was working as a consultant restorative primary dental care for 10 years resedent in maxillofacial surgery for 2 years resendent in medically compromised clinic present consultant primarycare in PSMMC.

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