

Short Communication**Kilroy spring modification for Canine Dis-impactions utilizing a single archwire***Anand Marya^{1,2}, Ari Triwardhani²**¹Department of Orthodontics, Faculty of Dentistry, University of Puthisastra, Phnom Penh-12211, Cambodia.**²Department of Orthodontics, Faculty of Dental Medicine, Universitas Airlangga, Surabaya-60115, Indonesia.*

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Abstract

The management of impacted canines is a complex task and requires a lot of time to guide them into the arch. In recent years the use of a Kilroy spring has become very popular and usually involves the use of a heavy main archwire and an auxiliary wire to guide the canine. In this case, a modified version of the Kilroy spring was fabricated on the main archwire, thereby reducing the need for a second auxiliary wire and allowing for the easy guidance of the impacted canine into its normal position into the arch.

Keywords: biomechanics, Adult orthodontics, Limited outcome Orthodontics, Short term orthodontics, orthodontic appliance

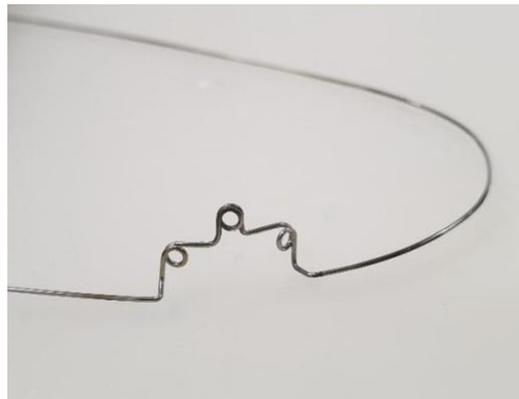
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Introduction

The Kilroy spring has been widely used to manage impacted teeth as it allows for the easy eruption of an impacted tooth into the oral cavity.^[1] The main advantages of using a Kilroy spring with triple helices are vertical traction of the impacted tooth, no impingement on the tissues, ease of engagement with the affected tooth, and universal application. This loop has been analyzed and described by various authors. There are various techniques used for bringing an impacted tooth into occlusion, and often these require complex biomechanics and auxiliary wires in addition to the main arch wires.^[2] The modification described in this manuscript entails using a single wire with a modified Kilroy spring to bring an impacted canine into the arch without the use of any auxiliaries.

Figure 1: Depicts the design of the Modified Kilroy spring with a triple helix incorporated



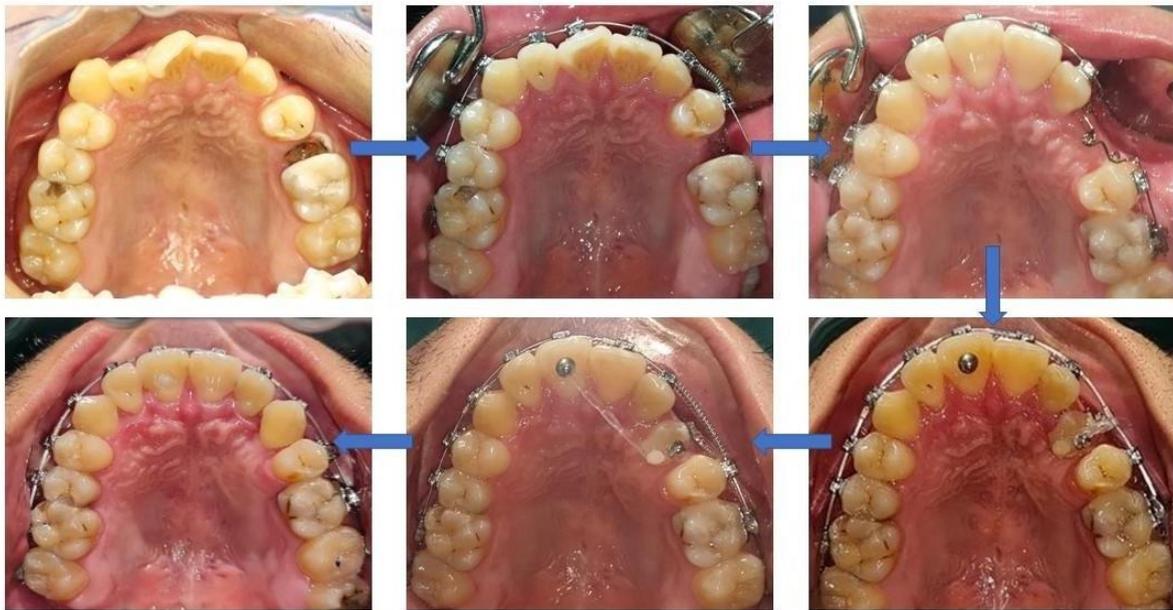
Technique

1. The use of a single stainless-steel wire of .016x.016 mm to fabricate the loop using a Bird beak plier and a loop forming plier.
2. The use of brackets of slot depth 0.026 mm to ensure that the effect on the adjacent teeth is negligible.
3. In this case the impacted tooth was number 23 so the modified loop was placed between tooth numbers 22 and 24 where 25 was already extracted due to decay.
4. The Kilroy spring formation involved the placement of loops with 3 incorporated helices to enhance the load-deflection rate of the wire and make it springy.
5. The middle loop is used to engage the impacted tooth employing a ligature wire and a button bonded onto the impacted tooth.
6. Each follow-up visit, the spring is only pressed, and the ligature tie tightened for activation.
7. Within 5 months, the tooth was visible in the oral cavity and then brought into occlusion and derotated using a combination of couple mechanics and elastics.

Advantages

1. Use of a single wire with a modified Kilroy spring for disimpaction of an impacted maxillary canine.
2. No special armamentarium required.
3. Can be used for anterior as well as posterior teeth.
4. The impacted tooth is securely guided out with the use of a flexible yet rigid wire.

Figure 2: Depicts the maxillary intra-oral occlusal images demonstrating the spring design and activation



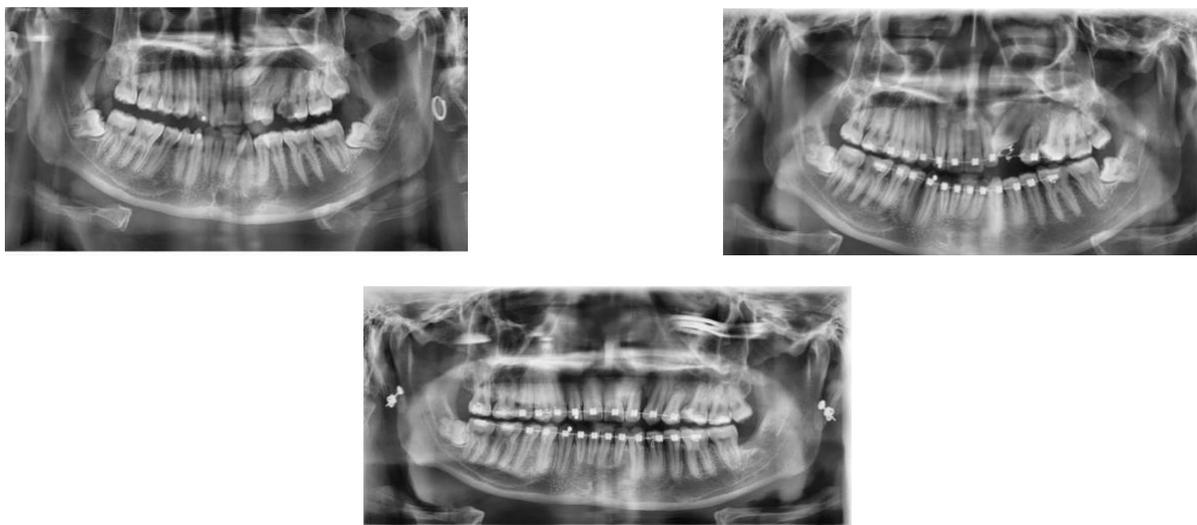
Disadvantages

1. The spring fabrication process is time-consuming as it needs to be accurate.
2. It should fit in the space available else; it may not work correctly.

Conclusion

Based on the above report, it can be seen that this modification is a useful addition to an orthodontist's armamentarium and can allow for the easy guidance of an impacted tooth into its correct position in the dental arch.

Figure 3: Demonstrates the initial and radiographic image with placement of the modified Kilroy spring on a single arch wire.



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The study was self-funded.

Conflict of Interest

The authors have no conflict of interest to declare.

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