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Editorial

A retrospective evaluation of the treatment of palatally impacted upper canine teeth in two district general hospitals: Short Communication

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In the absence of early diagnosis and successful interceptive management of palatal canines, surgical exposure and orthodontic alignment is the treatment of choice.

Aim to determine whether there is any difference in treatment duration or quality using a sectional arch-wire (FR) or a 'piggy-back' wire (FF) to orthodontically align an ectopic canine, following surgical exposure (Figure1). Currently, the full fixed appliance with 'piggy-back' (FF) is the most commonly used; therefore, this is determined to be the control.

A retrospective cohort study. All subjects with palatally displaced canines referred to the orthodontic departments in York and Scarborough Teaching Hospital NHS Foundation Trust from January 2007 to December 2017, who have completed their orthodontic treatment.

Sample size calculation: power set at 0.9 (90%) ($\beta = 0.10$) and we have chosen a 5% significance level ($\alpha = 0.05$) to ensure good sensitivity. By setting the treatment length average difference at 6 months (the known clinically significance detectable root resorption from literature), the standard deviation as 0.3, and autocorrelation is assumed to be 0.5. Current literature also suggests that the average total treatment time for full fixed appliance is approximately 20 months. There is no estimate published for the sectional appliance. By allowing the failure to complete rate as 15%, the sample size required for each group would be less than 100.

Interim-Results

T-test used to compare for duration (0.108), number of visits (0.312) and % change in PAR score (0.131), between treatment with sectional archwire FR and treatment with full fixed FF appliances. This showed little significance difference between FF and FR treatment at this stage in data collection.

The degree of impaction of the ectopic canine as per Kurol and Ericson. Use g1/2 v g123. 1 g1 and 18 g4 treated by FF. 2 g1 and 6 g4 treated by FR. Comparing like with like, of the grade one, FF took 23 m and 82.5% and FR 26.7m and 86.36%. Grade 4 FF took 30m and FR 25. With FF 82.8% and FR 78.82%.

The results at this stage suggest no statistical significance between the two appliances, however further data collection and analysis is required.

Orthodontic extrusion of impacted maxillary canines requires careful biomechanical planning and the use of physiologic force. The aim of this study was to evaluate the time needed for orthodontic extrusion of impactions of different severities, using a device that can predictably apply forces under 0.6 N. Methods: Twenty-two patients who were consecutively treated were selected retrospectively, and a total of 30 impacted canines were studied. Indexes of impaction were used to measure severity on pretreatment panoramic radiographs. Statistical analysis was used to detect interactions between treatment time, complexity of impaction, age, and sex. Results: Treatment time was highly dependent on the patient's age; the shortest treatment time was observed in 11- to 12-year old patients. On the other hand, the severity of impaction had no effect on treatment time. Conclusions: Applying physiologic force with the proposed device resulted in a short treatment time, which depended on the patient's age more than the impaction complexity. Few complications were associated with use of this device. Future prospective studies are needed to replicate these findings and confirm the recommended use of this device.

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