

ABSTRACT

Aim: To compare and evaluate the treatment duration and the rate of canine retraction using piezocision and corticotomy in subjects undergoing orthodontic treatment with first bicuspid extraction in a split mouth study.

Materials and Methods: Twenty patients were selected for the prospective study, after exclusion 8 patients reported satisfying all the inclusion criteria patients with Class II Division 1 Malocclusion with an overjet of >5mm and age range between 18- 35 years with no history of active periodontal disease and any systemic disease or under any long term medication. Maxillary arch was split between right and left sides and on one side, piezocision was performed and on the other side corticotomy was performed mesial and distal to the canine root and individual canine retraction was started post extraction of first bicuspid Orthodontic treatment was started with Roth 0.022x0.028 slot brackets. Piezocision and corticotomy were performed on both the experimental sides and after the completion of alignment till 0.017x0.025 SS wire, individual canine retraction was started using 9mm NiTi closed coil springs with a force of 150 gms. Space closure was assessed every month with the help of the study models and measured with the help of digital vernier caliper. Anchor loss during the space closure was assessed by using jigs in the lateral cephalograms. Inter-canine, inter-molar width, canine angulation, canine rotation was assessed with the help of 3-Dimensional virtual models

and superimposition of pre and post retraction study models was performed and the changes were assessed.

Results: The rate of tooth movement was increased in both the experimental groups with no statistical significance between both the groups. Peak rates of tooth movement occurred in the first month after the piezocision procedure and during the second month after the corticotomy procedure and gradually decreased towards the 3-4 month of the study. Inter canine width, canine tipping/angulation and canine rotation increased during post treatment in both the experimental groups and the anchor loss on both the sides was not statistically significant.

Conclusion: Piezocision and corticotomy effectively accelerated the rate of tooth movement but was accompanied with varying degrees of canine tipping and rotation when assessed in the 3 dimensional study models.

Key Words: **PIEZOCISION, CORTICOTOMY, REGIONAL ACCELERATORY PHENOMENON, ACCELERATED ORTHODONTICS, CANINE RETRACTION, RATE OF TOOTH MOVEMENT, CANINE TIPPING, CANINE ROTATION, ANCHORAGE LOSS.**