

Magic of Multiple Loops- Still Prevailing

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INTRODUCTION

Before the advent of Nickel Titanium, Stainless steel archwires were the mainstay. Certain physical properties such as range, resilience, force are of prime concern because the properties of stainless steel doesn't satisfy all these factors. These factors that will guide the operator in deciding when and how to employ loops. The several loop designs have specific application and when properly employed produce effective responses.¹⁻⁴

HISTORY

Dr.R.H Strang introduced loops into the edgewise appliance earlier in 1920's. Although vertical loops increased the length of wire in the interbracket span, they could not be activated in the occlusogingival plane. Steiner examined this limitation as well as positive aspects of force potential of vertical loops in 1932. In 1960 Stoner introduced a horizontal loop, formed in such a manner that it allowed a greater control over the direction of force and made it possible to obtain the benefit of loop activity in all three planes.²

CLINICAL APPLICATION OF LOOPS

Loops help in rapid leveling and alignment of severely malposed teeth, they also help in maintaining the proper arch length through molar stops. The arch form is also conserved with the use of multiloop archwire. There is also generation and closure of minor spaces simultaneously with leveling and alignment. Initiation of bite opening in the early stages of treatment is also an advantage of multiloop archwires.

Sidewise there are some disadvantages like they cause discomfort to the patients and there is difficulty in maintaining the oral hygiene. Loops also increases the chairside time for its fabrication and ligation.

Various loops used in multiple loop leveling and alignment wire



FIG.1



FIG.2



FIG.3

Types of Loop (Fig.1,2,3)

Open vertical loop-

Closed vertical loop-

T- loop with or without helices-

Twin helical loop-

Omega loop-

Box loop-

Boot loop-

Molar Stop-

Function

To generate space during leveling alignment

To close space during leveling alignment

For horizontal and vertical movement

Shorten arch length

Causing bodily root thrust

For 3 dimensional control

Engage elastics

maintaining arch length

CLINICAL CASES

Case 1.



Fig:4. Pretreatment



Fig:5. Partially engaged Box Loop.



Fig:6. After 6 weeks Box loop fully engaged – canine derotated

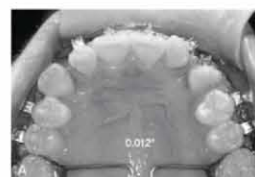


Fig:7(a,b). In these figures the case 1. is compared with another case which is treated with the Damon system in which three consecutive wires are to be used for the derotation of a tooth i.e 012, 018, 016/025

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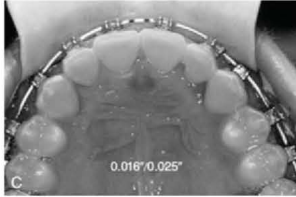


Fig.8(c). Finally the tooth is fully derotated with the third wire. The same kind of result is achieved by a single 014 stainless steel archwire with multiple loops.

Case 2.



Fig.9. Pretreatment



Fig.10.After 6 weeks- Bite opening and Levelling done.

Case.3



Fig.11. Pretreatment.



Fig.12.After 6 weeks- Buccally placed canines aligned and bite opened

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