Original Article

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Step Up "M" wire for Traction of Impacted Mandibular Premolars

Abstract:

Mandibular second premolars are the most commonly impacted teeth after maxillary canines and maxillary and mandibular third molars. Impacted teeth require very light amount of extrusive forces so as to erupt them into the dental arch. Many techniques and appliance designs such as sling shot mechanics[1], cantilevers[2], cross arch mechanics[3] etc. have been proposed for traction of impacted mandibular premolars. The chief factors to be considered are:

- *Use of a light, continuous force to move the impacted teeth.*
- *Reduction of side effects.*

This article describes a wire designed for eruption of impacted mandibular premolars in accordance with the above factors.

Appliance Design

SUM wire (Step Up “M” wire) is fabricated with 0.018" x 0.025" or 0.019" x 0.025" inch stainless steel wire so as to provide sufficient rigidity. First a step out bend usually 1-2mm is given in the arch wire and then a step up bend usually 5-6mm Finally “V” shape notch is made in the horizontal section of the arch wire parallel to the main wire to prevent slippage of elastic thread or ligature wire (Fig 1). Wire is configured in such a way so that it doesn’t interferes with opposing teeth in occlusion or otherwise. Whole wire at the end resembles "M" shape (Fig 2).

Clinical Application

In the case shown below impacted mandibular left second premolar was aligned in the dental arch using SUM wire (Fig. 3-5). The step bend was covered with plastic tubing to prevent any soft tissue injury. As in the present case the ligature pigtail is in close proximity to the main arch wire that even if we use a nickel titanium auxiliary wire it will exert very little or no force on impacted teeth. Therefore SUM wire allows adequate amount of force to be applied with the help of elastic thread/ligature wire.

This wire is particularly useful in those cases were adequate force cannot be generated due to closeness of attachment and the main wire and hence can also serve purpose in cases of other impacted teeth. An additional advantage is that position of V-shaped notch can be altered according to the need of direction of force.

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References

1. Becker, A.: The Orthodontic Treatment of Impacted Teeth, Martin Dunitz, London, 1998, pp. 49, 157-58.
2. Patel, S.; Cacciafesta, V; and Bosch, C.: Alignment of impacted canines with cantilevers and box loops, J Clin Orthod 1999:33; 82-85.
3. Sinha, P.K.; Nanda, R.S.: Management of maxillary impacted canines using mandibular anchorage, Am J Orthod Dentofac Orthop 1999:115;254-57.

FIGURES

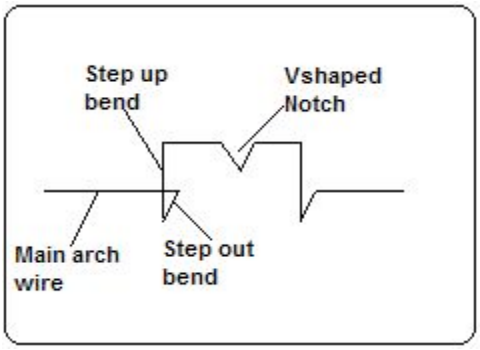

Fig 1. Fabrication of SUM arch wire

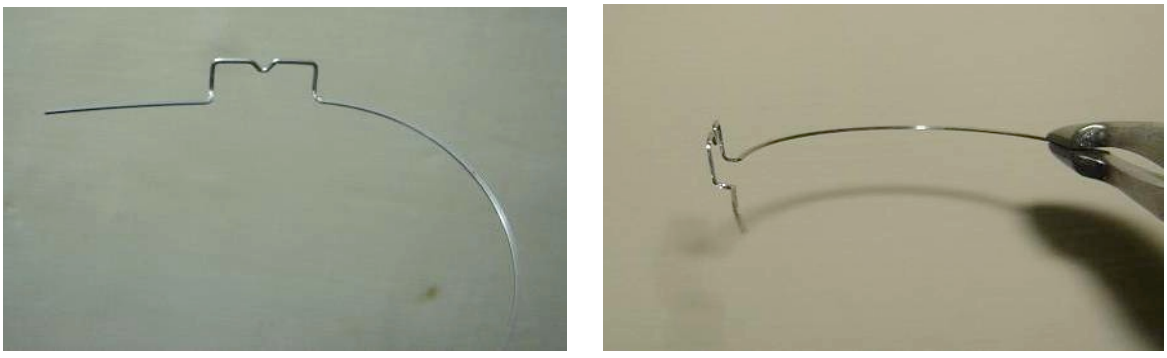

Fig 2 A-B. SUM arch wire (different views)

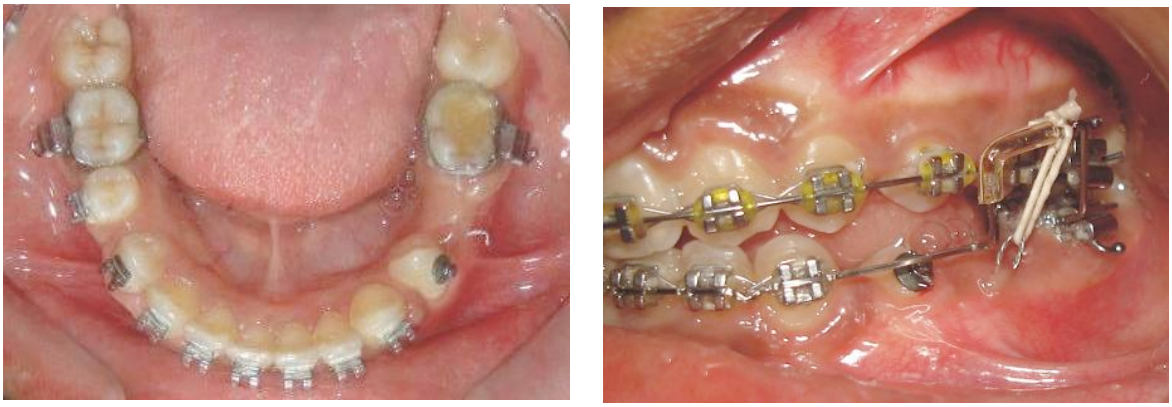

Fig 3 A. Closed Eruption Technique: Ligature wire pig tail from bonded attachment on impacted mandibular premolar is seen
B. SUM wire ligated and elastic thread tied to pig tail and retained in the V shaped notch.

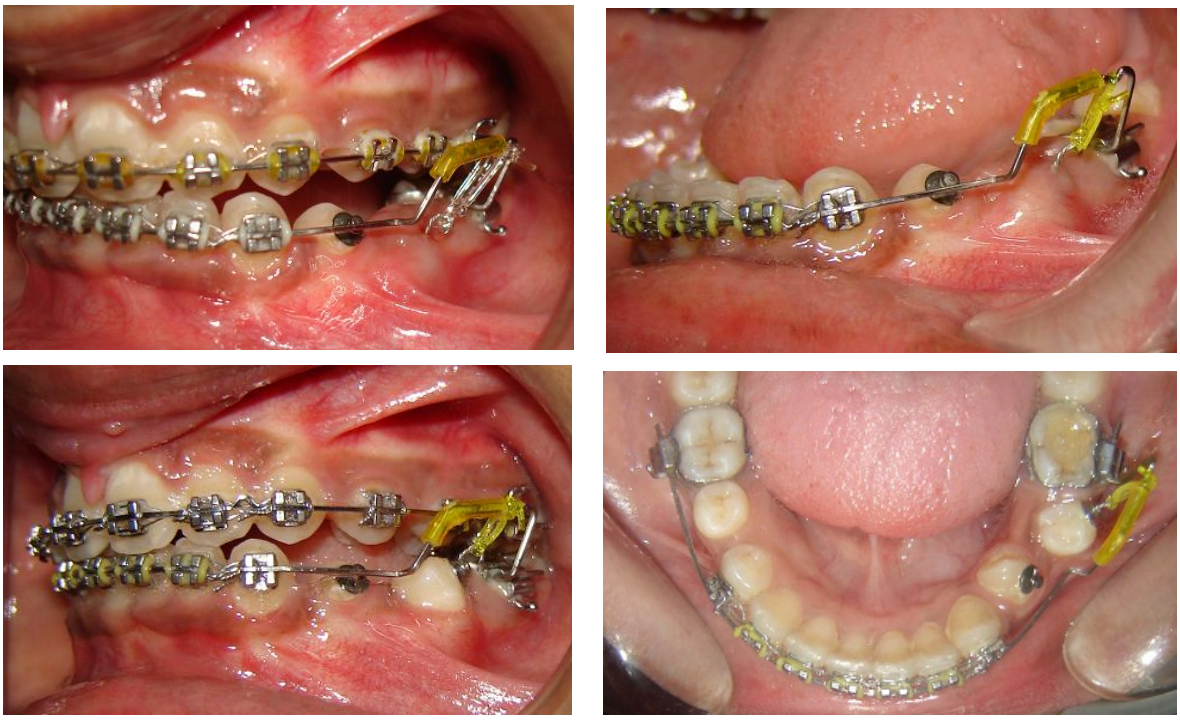

Fig 4 A-D. Note the reduction in the length of elastic thread as the tooth erupts in the dental arch

Fig 5 A-C. Impacted mandibular left second premolar aligned in the dental arch