



# Customized Elastics Fabricated from Foley's Catheter for Traction in Maxillofacial Trauma

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## Abstract

### Keywords

- ▶ elastic band
- ▶ maxillomandibular fixation
- ▶ intermaxillary fixation
- ▶ traction
- ▶ Foley's catheter
- ▶ fracture

Like in orthopaedics, many maxillofacial fracture cases require elastic traction to control the muscle spasms, pain and aid in reduction of the fractured segments to achieve acceptable occlusion before the definitive management. In trauma and emergency hospital setup, sometimes conventional stock elastic bands are not readily available for the traction (non-rigid maxillo-mandibular fixation). In such cases, customized elastic bands, made from Foley's catheter, can be a better alternative. The current technique is hassle free and has ease of customization as per individual case due to easy availability of Foley's catheter in hospital setup.

## Introduction

Like in orthopaedics,<sup>1</sup> many maxillofacial fracture cases require elastic traction to control the muscle spasms, pain and aid in reduction of the fractured segments to achieve acceptable occlusion before the definitive management. Elastic traction given during maxillofacial injury is called as nonrigid maxillomandibular fixation (MMF).

Stock elastic bands like orthodontic chain elastics or orthodontic elastic bands are commonly used for nonrigid MMF as they are easily available in dental clinics.<sup>2</sup> However, in trauma and emergency hospital setup, conventional stock elastic bands are not readily available. In addition, conventional elastics are made up of weak elastic material, hence not suitable in old case where heavy traction is required. In

such cases, customized elastic bands made from Foley's catheter can be a better alternative.

## Technique

In the present technique, elastic bands were fabricated from the central portion of Foley's catheter. The catheter (20 Fr) was cut such that the width of the bands was 1 mm (▶ **Fig. 1**). Additionally, different size catheters cut out in different widths can be used to provide varied elastic traction. We suggest 1-mm width band from 20-Fr catheters for routine (fresh) trauma cases.

After placement of stable arch bars or MMF screws on both jaws, we placed the customized elastics (1 mm width, 20 Fr) in a case of anterior mandible fracture with deranged occlusion. Acceptable occlusion was achieved within 12 hours (▶ **Fig. 2**).

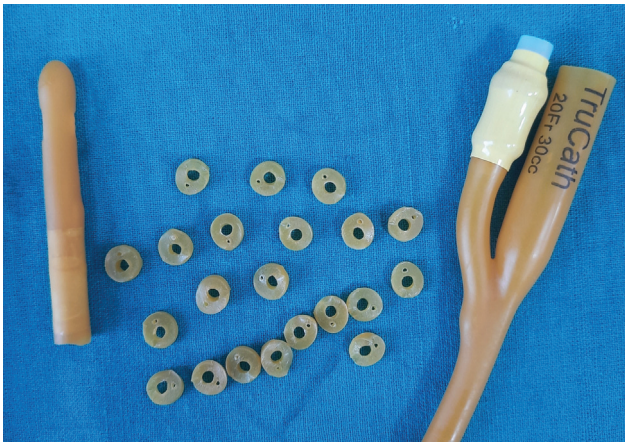
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**Fig. 1** Customized 1-mm width elastic bands cut out from central part of Foley's catheter (20 Fr).



**Fig. 2** Acceptable occlusion achieved with customized elastic bands in parasymphysis fracture of mandible.

The present technique is hassle free, does not require special expertise, and can be customized as per individual case requirement. Use of such customized elastics can be extrapolated to old fracture cases where heavy and prolonged traction forces are required to achieve proper reduction. In our opinion, these bands can withstand without rupture during the heavy traction forces.

## Discussion

The present technique has multiple advantages as follows:

- Foley's catheter is easily available in hospital setup.
- The bands dimension can be easily customizable as per case requirements.
- This technique does not require special skills or expertise to master.
- These bands are easy to apply (loop-to-loop manner).
- Time-efficient.
- Requires less number of elastic bands.

Disadvantages of using Foley's catheter customized elastics:

- Replacing of elastic by patient's is difficult as size of band hole relatively small.
- Risk of supraeruption of teeth in long-duration MMF.

Authors have a long experience in using such elastics for traction in routine practice and recommend for various conditions like short-term MMF during postoperative period, conservative condylar fracture management, and maxillofacial rehabilitative procedures. However, further observational study of larger sample size is recommended to interpret the ideal dimension of elastic bands as per individual case.

### Patient Consent

Written informed consent was obtained from the patient for publication of this article and accompanying images.

### Authors' Contribution

J.K. and B.L. participated in data collection and wrote the manuscript. J.K., B.L., A.J. R., and D.K.V. participated in the study design and helped to draft the manuscript. J.K., B.L., A.J.R., D.K.V., R.A., P.S. read and approved the final manuscript

### Conflict of Interest

None declared.

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