

Buttons and Elastics for the Conservative Treatment of the Fractured Mandible

J. L. BURKE B.CH.D. F.D.S. R.C.S.

D. A. MITCHELL M.B. F.D.S.R.C.P.S. F.R.C.S. (MAXFAC.)

Oral and Facial Specialties, Pinderfields General Hospital, Pinderfields General Hospital, Aberford Road, Wakefield, West Yorkshire

Introduction

A simple effective technique illustrating a potential role for the orthodontist in the management of facial trauma is described. Maxillomandibular elastic traction is a well-established treatment for minimally-displaced or undisplaced fractures of the body, angle, and condyle of the mandible. The placement of fixation, archbars, eyelets, etc can use considerable, valuable theatre time. Alternatives have therefore been suggested (Magennis and Craven, 1990) such as orthodontic chain elastic (Smith, 1993). The use of bonded buttons has been used as an alternative successfully in this way over the last 2 years.

Our local protocol for management of condylar fractures requires a 1 week period of elastic inter-maxillary traction, to buttons bonded onto the buccal segment teeth. This method has decreased the morbidity of treatment when compared to fixation using archbars, eyelets, or transalveolar screws placed under general anaesthesia and is also much less costly. It, obviously, does not replace open reduction and internal fixation for those fractures which are displaced.

Methods

This is a simple outpatient technique for minimally displaced or undisplaced mandibular fractures. The time required for the placement of the buttons and elastics is approximately 20–30 minutes, this time period being highly dependent on operator efficiency and patient compliance. Often the premolar teeth are used for this purpose, although the occlusion, the presence/absence of teeth, periodontal health, and proximity of the teeth to the fracture line must be considered. The procedure can be accomplished using light or self-cure composite adhesive with the assistance of a dental nurse in the outpatient clinic.

Discussion

The use of buttons and elastics, when compared to, for example, arch bar placement is a much simpler and less time-consuming option. Arch bar placement often requires a general anaesthetic, which brings with it the (small, but nevertheless present) risk of mortality. There are also significant theatre and personnel costs.

A typical bondable button costs approximately 13 pence; eight buttons are normally used, and one or two packets of orthodontic elastics, which makes this method of treatment by far the cheaper option.



FIG. 1 Buttons and elastics in place.

As with all techniques, however, there are disadvantages. For example, poor patient compliance is a factor. A patient who has lost or snapped his elastics may have difficulty replacing them himself, difficulty attending the outpatient department, or may not understand the importance of continual wear of the 'appliance' and thus may not seek advice until his next clinic appointment. There have been suggestions that this line of treatment can lead to the extrusion of teeth to which the buttons are bonded. However, it has been found that muscle splinting around the fracture minimizes opening power and, hence, the likelihood of extrusion is reduced. Using the maximum number of teeth also helps distribute the force of the elastics. Occasionally, the buttons detach from the tooth surface, thus necessitating replacement. Although this problem is reduced, if the procedure is carried out in an environment with good moisture control.

This technique has the additional advantage that there is no need to put the patient through a second procedure for archbar removal. Many surgeons still use arch bars for the placement of elastic traction, but archbar removal is a very unpleasant and uncomfortable experience for both the operator and the patient.

Conclusions

Therefore, in summary, this technique is proving to be an effective, efficient and low-cost method of treating undisplaced, or minimally-displaced fractures of the mandible.

References

Magennis, P. and Craven, P. (1990)

Modification of orthodontic brackets for use in intermaxillary fixation,
British Journal of Oral and Maxillofacial Surgery, **28**, 136–137.

Smith, A. T. (1993)

The use of orthodontic chain elastic for temporary intermaxillary fixation,
British Journal of Oral and Maxillofacial Surgery, **31**, 250–251.