

Visual Diagnosis in Emergency Medicine

EMERGENT SEPARATION OF ARCH BARS

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INTRODUCTION

You are called to attend to an 18-year-old risk-taking adolescent who has just crashed his skateboard. The teen has been injured by a blow to his unprotected head. Unfortunately, the teen has been rendered unconscious and airway intervention is indicated. You open the lips of the injured teen only to discover that his jaws have been wired together from a previous traumatic event.

This scenario could also play out in an individual who develops vomiting after having arch bars that stabilized the jaw fractures. What will you do?

There are plenty of articles regarding the placement of arch bars, infections from mandibular fixation after trauma, etc. (1–4). Mandible fractures occur from numerous mechanisms, including assaults, falls, penetrating injuries, and motor vehicle collisions (5). The purpose of this report is to describe how arch bars and wires are placed and to delineate which wires to cut in case the mouth needs to be opened emergently.

FIXATION TECHNIQUE

Figure 1 shows how the arch bars are placed. The teeth are used to anchor the arch bars to the teeth of the maxilla and the mandible. This involves wires that are circumferentially placed around the teeth and attached

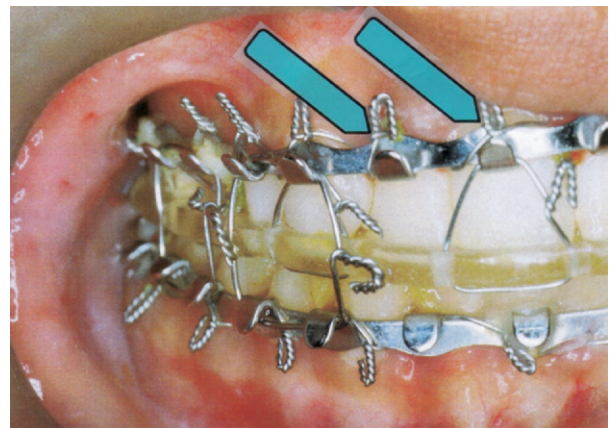


Figure 1. Arch bars in place (arrows).

to the arch bars. The arch bars always run in a horizontal fashion (transverse in anatomic position). These wires are not to be cut because they stabilize the maxilla or the mandible to itself and do not involve mouth opening.

The next step in immobilizing the mandible and maxilla together is the use of fixation wires to anchor the arch bars together (Figure 2). There are generally four wires that run in a vertical fashion (sagittal in anatomic position), and these are the wires to cut in an emergent situation. This will allow the mouth to open.

It is generally standard procedure by surgeons to give a pair of wire cutters to the patient. The patient and family are instructed in their use in the case of an emergency. Unfortunately, they may panic, and therefore emergency physicians should be informed and prepared to cut the wires in an emergent situation. The first figure shows a normally wired set of arch bars. The second figure shows how the fixation wires are to be cut. When these vertical wires are cut, the jaws will open normally, allowing access to the airway, or allowing the patient to vomit. The surgeon who placed

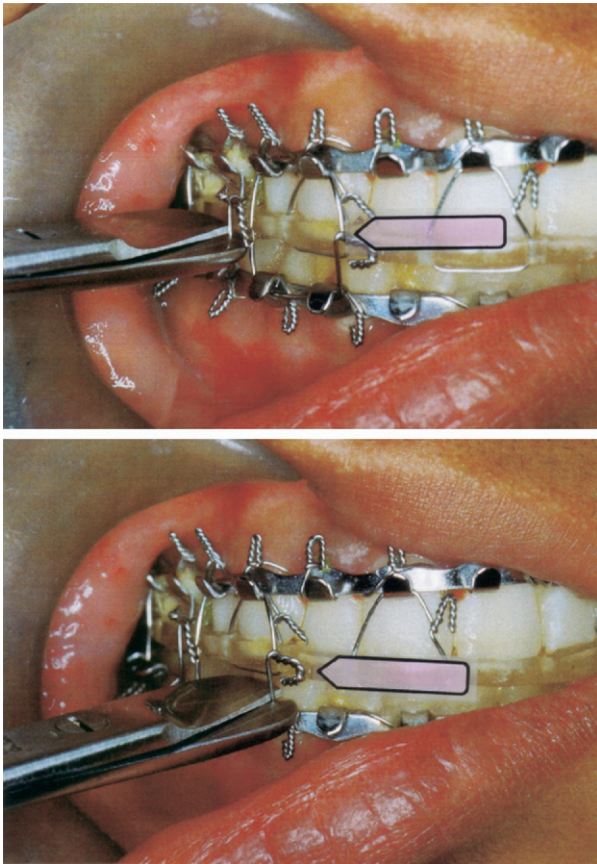


Figure 2. Fixation wires (arrows).

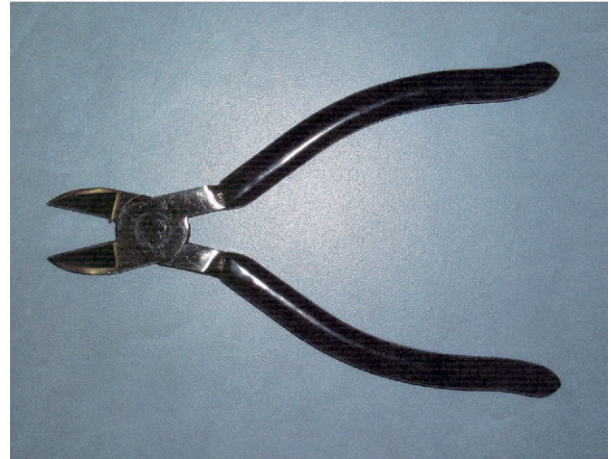


Figure 3. Wire cutters.

the arch bars can then replace the cut fixation wires once the emergent situation has resolved.

The pre-hospital provider usually will have wire cutters easily accessible, including the pair the patient took home. The emergency physician, however, may not have this luxury and in that case one must improvise. Often these tools are kept in oral surgery trays or orthopedic trays. Figure 3 shows a pair of wire cutters that are available at local hardware stores. Emergency departments should have wire cutters kept in an easily accessible location.

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