

AMERICAN WORLD DENTISTRY

November 13-14, 2017 San Antonio, USA

A designed device arch bar applicator for arch bar placement (Mandibulo-maxillary fixation) in oral and maxillofacial surgery

Azin Mirzadeh

Kerman University of Medical Science, Iran

Intermaxillary (Mandibulo-maxillary fixation, MMF) is regarded as the crucial step in the management of maxillofacial trauma since it secures the interrelationship of the occlusal surfaces, which is the absolute essential step in reduction of fragments in both jaws. In essence, mostly metallic framework is attached to the teeth to provide support and anchor points for fixation of the jaws with interconnecting elastics or wires between the dental arches. Many surgeons agree that the gold standard in MMF is the use of arch bars. Arch bar is one the basic tools used in jaw surgeries, which is extensively used all over the world. This tool is used in all the esthetic surgeries of the jaws and in the majority of surgeries for the fractures of the bones in the mid-face and lower face and no substitute has been introduced for it. The arch bar is placed in each jaw separately; it helps maintain the integrity of the jaw arch and the two jaws are fixed to each other. Arch bar is a flexible metallic piece with some hooks incorporated in its structure. This tool has initially been formed into the jaw shape and is attached to each jaw with the use of wires by surgeon's hand. The wire is circled around the tooth and is passed from the above and under the arch bar and is fixed to the jaw arch by appliances. Despite all the efforts, there is still no proper substitute for an arch bar. Therefore, an attempt to accelerate the process of placing an arch bar is one of the goals of maxillofacial surgeries all over the world. Based on a search carried out in reference books and valid articles, no mechanical method has been introduced to date to decrease the time necessary to place an arch bar. All the attempts made by the surgeons to this end have relied on improving the personal technical dexterity. There are some problems with manual placement of an arch bar. The high possibility of unfavorable cutting of the wire during twisting it, especially when this is carried out by inexperienced surgeons so that the wire should be untwisted and twisted again. Considering the various problems for fixation of the arch bar in patient by surgeon, a device is designed to minimize human errors during arch bar placement and twisting wires. This device consists of a chargeable motor, with a capacity for sterilization and rotating clockwise and counterclockwise, use in the anterior and posterior regions of the oral cavity.

Biography

Azin Mirzadeh has completed her Doctoral degree in Dentistry from University of Medical Science and Health Services School of Dentistry, Kerman-Iran. She has six publications in fields of Oral Pathology, Periodontology and Endodontics. She was a Member of scientific committee in Dental Disease Research Center in Kerman-Iran. She got Honor and Award as a patent in field of Oral Surgery, with the title of a device arch bar applicator for arch bar placement in oral and maxillofacial surgery. She has a Professional Membership in Iranian General Dentist Association (IGDA).

azin.mirzadeh64@gmail.com

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