

A VERSATILE SPLINT FOR FRACTURED MANDIBLE IN INFANTS

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تم علاج ست حالات لكسور الفك السفلي في أطفال أقل من سنة واحدة من العمر. استعملت جبيرة بلاستيكية مستمدة من مسلك هوائي (بورتكس) وقد تم وصف كيفية الحصول على الجبيرة بالتفصيل حيث استخدمت الأسلاك المعدنية اللازمة حول الفك السفلي لتثبيت طرفي الجبيرة على جانبي الكسر. أظهرت الدراسة كفاءة هذه الطريقة المستحدثة لعلاج كسور الفك السفلي للأطفال دون السنة الأولى من العمر.

Jawfractures in children form a small percentage of the total jaw fractures which occur in the population. The principles involved in the treatment of facial trauma are the same, whatever the age of the patient. However, for children, the techniques used are necessarily modified by certain anatomical, physiological, and psychological factors especially related to childhood. The aim of this paper is to describe the use of a versatile splint for fixation of displaced fractures of the mandible in children, who are less than one year of age.

Introduction

Unfavorable fractures of the anterior region of the mandible in children who are less than one year of age are difficult to manage, due to anatomic and feeding factors.¹ A variety of methods have been used in the past and none had proved to be ideal.²

A universally applicable Gunning splint for the treatment of mandibular body fractures was used in children aged less than five years.³ On the other hand, conventional methods for the management of mandibular fractures were applied by others. In one such report, it was stated that sixteen out of twenty-nine patients were treated without intermaxillary fixation.⁴

In another report on thirty-four mandibular fractures in children, aged two to fifteen years, a fabricated splint, stent or occlusal wafer was used for fixation in patients aged less than four years.⁵ In another study⁶ vacuum acrylic splint was used as a method of fixation in seventy-seven patients below the age of five years.

The methods described in the past were often time consuming. Some also required special laboratory procedures and, sometimes, an extra ses-

sion of anaesthesia. These extra steps, caused inconvenience for both the patient and the surgeon.

The purpose of this article is to introduce the use of a versatile method of fractured mandible fixation for children less than one year old.

Technique

This technique has been utilized in six patients. Their ages ranged from nine to twelve months, with a mean of 11.6 months. Three of them were females and three were males. The fractures were in the region of the symphysis and parasymphysis except one who had a dento-alveolar fracture of the lower anterior segment.

All of the fractures were due to falls except one which was caused by a domestic accident (Table 1). All cases were treated by closed reduction under general anaesthesia using a splint secured with circummandibular wiring. No intermaxillary fixation was required. On four occasions two circummandibular wires were applied, and in the other two cases three circummandibular wires were used.

The splint was prepared from oropharyngeal airway* [Fig. 1]. The proper size was chosen to fit the curvature of the mandibular arch. The guard was cut off, then the airway was split longitudinally

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Table 1. Age, sex, site of fracture, days of hospitalization and immobilization.

Case No.	Age	Sex	Location	Etiology	Length of Hospitalization	Length of Immobilization
1.	1 yr	F	Symphysis	Fall	2 days	23 days
2.	10mo.	F	Dentoalveolar (lower anterior segment)	Fall	2 days	19 days
3.	9 mo.	M	Left parasymphysis	Fall	3 days	24 days
4.	1 yr	F	Bilateral Parasymphysis	Domesitc Accident	1 day	21 days
5.	1 yr	M	Symphysis	Fall	5 days	20 days
6.	1 yr	M	Parasymphysis	Fall	4 days	20 days

Immobilization treatment was by splint and aircummandibular wiring.

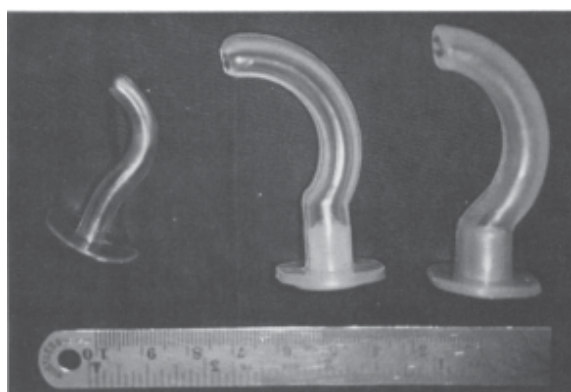


Figure 1. The oropharyngeal airway - three different sizes.



Figure 4a. Displaced symphyseal fracture in a 7-month-old infant.

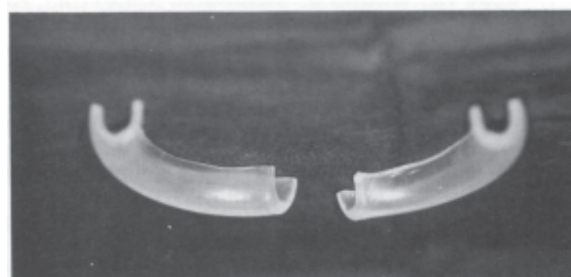


Figure 2. The guard is cut-off, and the airway split longitudinally.

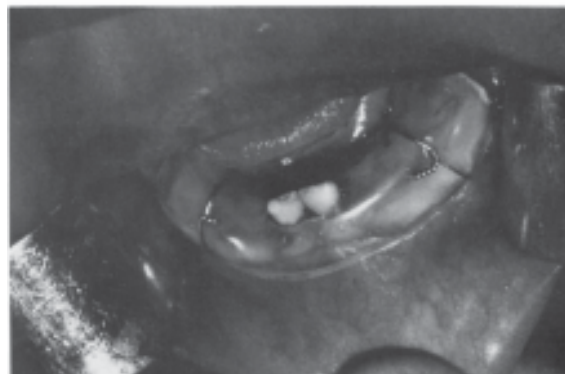


Figure 4b. The fracture after reduction and immobilization by the splint. Two circummandibular wires shown in the picture.

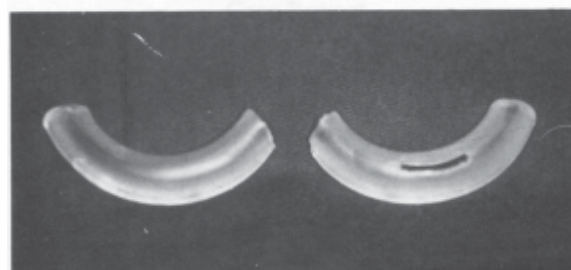


Figure 3. The splint finally prepared by fenestration to accommodate the teeth.

leaving a longer lingual lip [Fig. 2]. The prepared splint was fenestrated to accommodate the teeth on the arch [Fig. 3].

The splint was rounded at the edges, the fracture reduced, and the splint was seated on the mandibular arch and fastened in place using circum-



Figure 5a. Displaced parasymphiseal fracture in an 8-month-old infant.

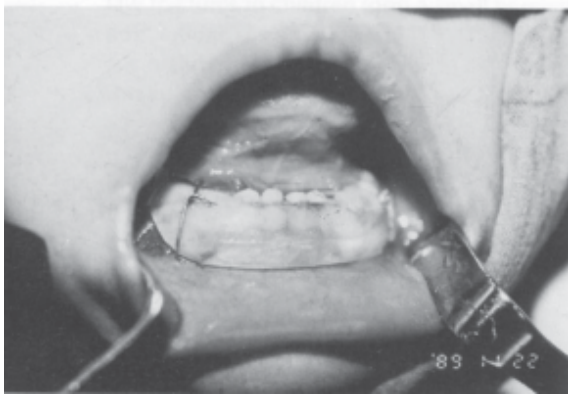


Figure 5b. The fracture after reduction and immobilization by the splint. Two circummandibular wires are shown.

dibular wires. Wires were so placed to include the fractured line in between to effect maximum stability.

Results

All patients showed proper alignment of the fractured bone ends postoperatively [Figs. 4a-b, 5a-b], which were maintained for the healing period.

The immobilization period ranged from 19-24 days with a mean of 21.16 days without any complications (Table 1 J).

It was interesting to note that the average hospitalization in this study was 2.83 days. Only one child was kept for five days because his haemoglobin level had to be raised before anaesthesia.

Follow-up period of more than one year showed good bone healing and normal occlusion.

Discussion

Oropharyngeal airways were never used before as splints for mandibular fractures. The airway tubing has obvious advantages of being soft, biologically compatible, easy to handle, adaptable by carving into required shapes and is available in different sizes. The technique is easy to carry out and does not require any special instrumentation, or laboratory procedures, or extra sessions of anaesthesia.

The stability obtained with this type of splint is excellent and, since it is one jaw fixation, the splint does not interfere with feeding and swallowing which are of great importance for the infants and their parents.

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