Management of Difficult Cases of Fracture Mandible in Adults

Thesis

Submitted for partial fulfillment of the Master degree
in General Surgery

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2010

Acknowledgement

First and foremost, thanks to **ALLAH,** the most gracious, the most merciful.

I would like to express my sincere gratitude to **Prof. Dr. Safwat Abdelkader Salem,** *Professor of general and plastic surgery, faculty of medicine, Cairo University,* who honored me by his supervision and continuous help. I can not thank him for his valuable encouragement and continuous guidance.

I am so much obliged to **Dr. Moheb Samir Kamel,** *lecturer of general and plastic surgery, faculty of medicine, Cairo University* for his continuous guidance and valuable advises throughout this work. I am much grateful for his great help and support throughout this work.

Special thanks to all teaching staff, and my colleagues in department of surgery for their continuous and endless encouragement and respect.

Dedication

To my family, especially my parents, for their encouragement, patience, and assistance over the years. I am forever indebted to my parents, who have always kept me in their prayers.

And to my brothers, my sisters and to my beloved wife.

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List of Abbreviations

AO	Arbeitsgemeinschaft für Osteosynthesefragen
ASIF	Association for the Study of Internal Fixation
DC	Dynamic compression
IMF	Intermaxillary fixation
LRP	Locking reconstruction plate
MDCT	Multidetector computed tomography
MMF	Maxillomandibular fixation
MPR	Multiplaner radiograph
ORIF	Open reduction and Internal fixation
ORN	Osteoradionecrosis
PTOM	Posttraumatic osteomyelitis
RIF	Rigid internal fixation
Rpm	Rate per minute
TMJ	Temporomandibular joint
V3	The third division (mandibular nerve) of the fifth cranial nerve

INTRODUCTION

Maxillofacial injuries occupy an important place in our practice. Fracture mandible is one of common entities of maxillofacial injuries which will be focused on.

Few injuries are as challenging as those of the face, surgeons who undertake treatment of facial injuries have a duel responsibility; repair of aesthetic defect (restoration of the primary appearance) and restoration of function. A third goal is to minimize the period of disability. (**Manson PN, 2006)**

Mandibular fractures is the second most common facial fractures. There has been significant increase in the number of cases in the last years, misidentification and inadequate treatment can lead to permanent aesthetic and/or functional deformity. **(Patrocinio et al., 2005)**

Mandibular fractures can occur with external trauma, motor vehicle accidents, falls, fist fight, missile injuries and sporting accidents, Motor vehicle collisions are the most common cause of mandible fractures. **(Fischer et al., 2001)**

The primary consideration in the treatment of fractures of mandible is to restore the function and efficiency of the jaw and the occlusion of the dentition, the methods of treatment may vary with the age and the general health of the patient, the training of surgeon, the facilities

and circumstances for treatment, and the condition under which the patient is to be treated. **(Laskin et al., 2000).**

Aim of Work

Among our practice in the management of fracture mandible, certain difficult cases came up which did need certain planning and special handling.

In this work we will try to define what is difficult and what are types of difficulties, and to settle for purpose of plan of treatment.

Review of Literature

ANATOMY OF THE MANDIBLE

Embryology of mandible

The pharyngeal arches begin to develop early in the fourth week as ***neural crest cells*** migrate into the future head and neck regions.The first pair of pharyngeal arches, the primordium of the jaws, appears as surface elevations lateral to the developing pharynx. **(Moore, 2007).**

By the end of the fourth week, four pairs of pharyngeal arches are visible externally (Fig.1). The fifth and sixth arches are rudimentary and are not visible on the surface of the embryo. The pharyngeal arches are separated from each other by the pharyngeal grooves. Like the pharyngeal arches, the grooves are numbered in a craniocaudal sequence. **(Moore, 2007).**

The first pharyngeal arch (mandibular arch) separates into two prominences:

- The maxillary prominence gives rise to the maxilla, zygomatic bone, and a portion of the vomer.
- The mandibular prominence forms the mandible. The proximal mandibular prominence also forms the squamous temporal bone. **(Moore, 2007).**

The mandible forms in dense fibromembranous tissue lateral to the inferior alveolar nerve and its incisive branch and also in the lower parts of Meckel`s cartilage. **(Langman, 2009).**

Meckel cartilage, the cartilage of this arch, develops in this arch, forming a primitive support. Later, Meckel cartilage regresses and forms two of the bony ossicles, the incus and malleus of the middle ear dorsally, whereas ventrally the cartilage becomes incorporated into the mandibular symphysis. However, it should be noted that most of the mandible develops by intramembranous bone formation rather than by endochondral formation on Meckel cartilage. **(Hiatt et al., 2010).**

Bony union of the two halves of the mandible occurs in the 2nd year of life. **(Ellis, 2006).**

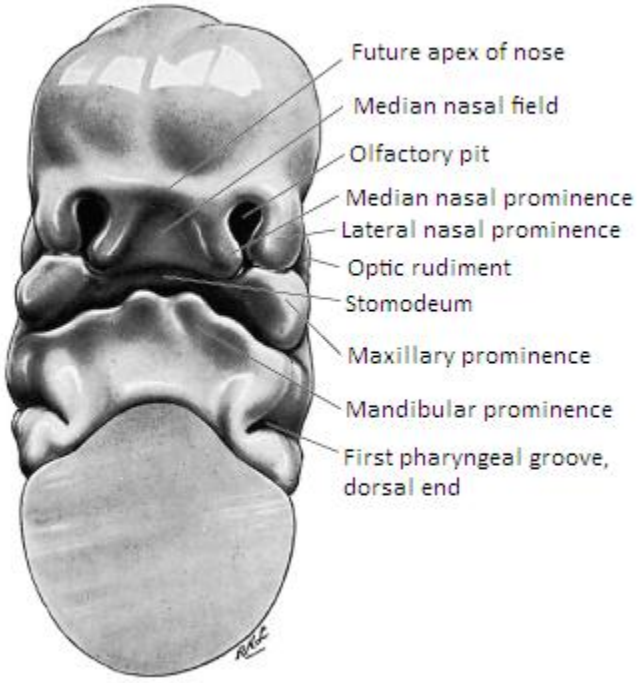

Fig.(1) *The head of a human embryo in the sixth week: ventral aspect.* ***(Standring, 2005).***