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Review Article

Revisited the conventional manoeuver of Hippocrates in method in temporal-mandible joint dislocation

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ABSTRACT

The human temporo-mandibular joint a synovial joint is unique as it goes through a range of movements necessary for masticatory functions. Being strategically positioned between the mandible and the temporal bone, in dislocations of this joint the individual presents with a painful open mouth. Though preferred, manual reduction under local anaesthesia can be undertaken in acute dislocations. Various techniques have been advocated in global literature The oldest technique is the "Hippocratic maneuver", that has stood the test of time. The three step procedure can be undertaken in the outpatient setup even under sedation and local anesthesia. Naval surgeon William Paul Crillon Barton, introduced the usage of bandages to hold the repositioned mandible. Lewisg modified the procedure by carrying out the three step procedure of Hippocrates in a sitting position.

Keywords: Barton bandage, Hippocrates, Open bite, Temporo-mandibular joint dislocation

INTRODUCTION

The Mammalian temporo-mandibular joint (TMJ), is a synovial joint facilitating a set of complex movements required for mastication. It is strategically interposed between the mandible and the temporal bone, i.e., having the mandibular condyle inferiorly and the mandibular fossa superiorly. The temporo-mandibular joint, dentition and the ligamento-muscular soft tissue, the triad has a vital role in the functions of breathing, masticating and speaking.[1] Unique movements are observed at this joint, namely mandibular elevation, depression, lateral deviation (to right and left sides), protrusion and retrusion. Every movement is carried out by synergistic action of more than one muscle that works in tandem to facilitate that movement while maintaining the condylar position within the mandibular fossa. The action of talking and chewing utilize a combination of movements of the jaw in different directions.[2]

Infact the "position of rest "of this joint is with the mouth "slightly open, the lips apposed but the dentition not in approximation. Quite in contrast to the "closed-pack "position, where the teeth are tightly clenched.[3] The dislocation of the temporo-mandibular joint can be partial when termed as subluxation or complete i.e., Luxation, bilateral or unilateral, acute and chronic protracted or chronic recurrent. Anterior dislocation is common (Figure 1). The medial, lateral, superior, into the middle cranial fossa and the posterior into the ear canal are rare and are mostly secondary to trauma.

REVIEW

In the Hippocratic epoch there are in detail descriptions on the fractures and dislocations of the human bones and joints. The magnum opus "Corpus Hippocratic, elaborates on post-traumatic deformities and therapeutic modalities conservative or otherwise (Figure 2). The other noteworthy treatises were, 'On the Instruments of reduction", "On articulations", "On fractures", On injuries of the head and "On the nature of the bones." There is articulation of either mandibular condyles with the glenoid or mandibular fossae. Imbalance in the neuromuscular function of the muscles of mastication or structural deficit of the articular eminence manifests as dislocation of this temporo-mandibular articulation. Interventions are twofold, the conservative approach or the active manipulations of the joint. The former being administration of oral or intravenous/ intramuscular analgesics for symptomatic relief of pain. Active intervention is the age-old manoeuvre of Hippocrates and its modifications thereof. This simple manual reduction technique was in fact advocated about 2500 years ago by Hippocrates and his pupils.[4]

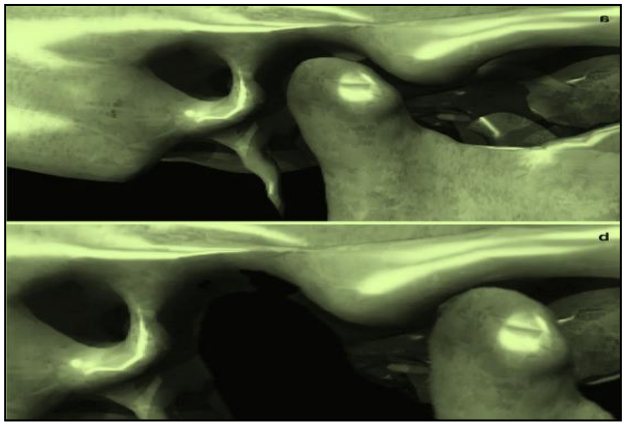

Figure 1: The anterior dislocation of the temporo-mandibular (commonest).

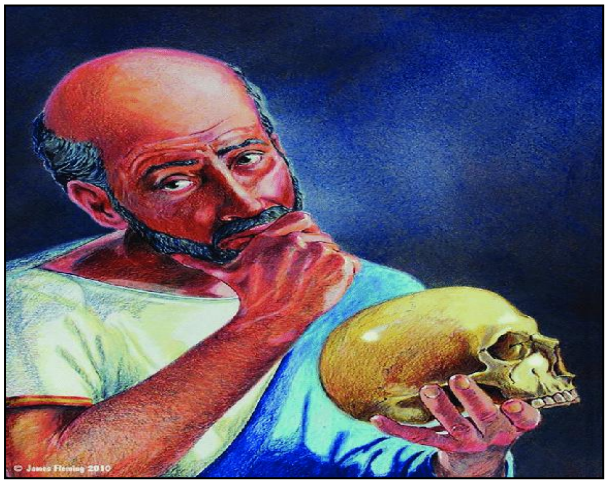

Figure 2: Hippocrates studying the anatomy of a human skull.[1]

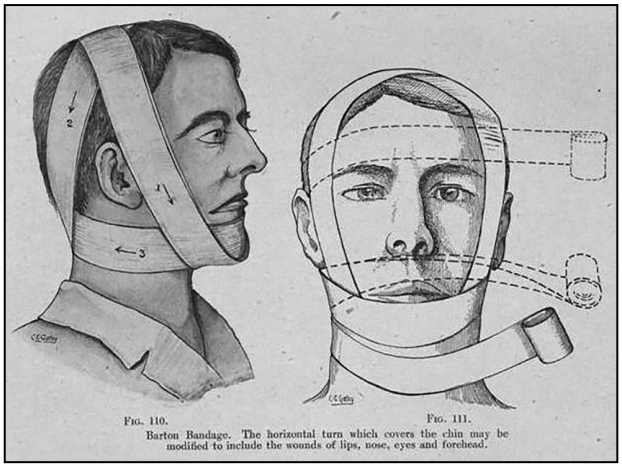

Figure 3: The Barton bandage, centre for the history of medicine.[1]

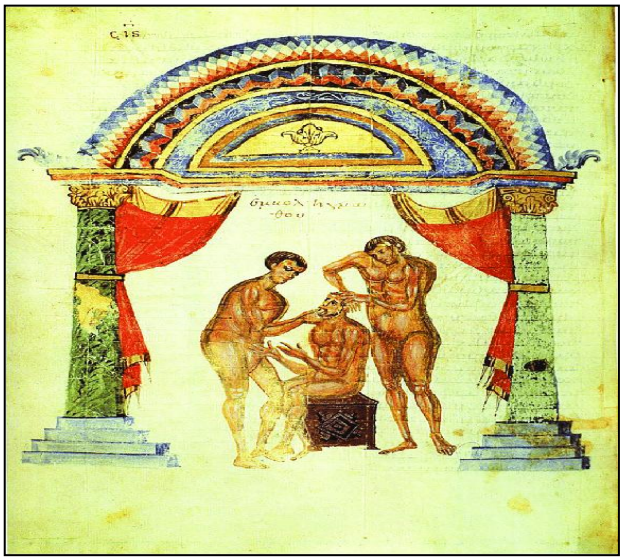

Figure 4: Illumination modelled on a drawing in an ancient manuscript. Setting of the lower jaw.

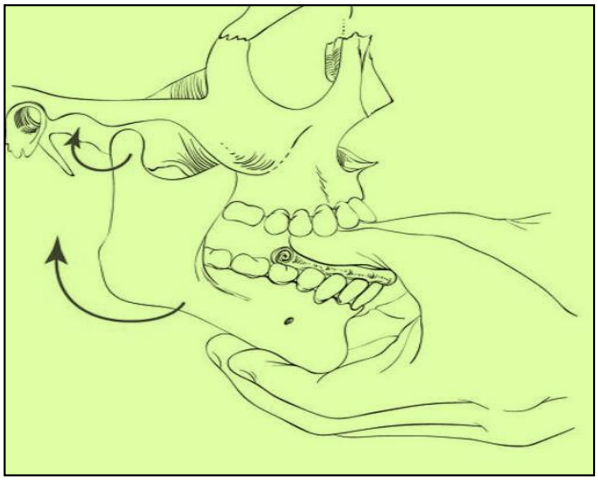

Figure 5: Hippocratic bimanual intraoral technique.

The unique technique of reduction of mandibular dislocation (MD) was the hallmark of the school of Hippocrates. Dislocation of the mandibular joint is an unusual entity with presentation in the otorhinlaryngology, surgical, plastic, dental and maxillofacial and anaesthesia pain clinics.[5]

In Corpus Hippocraticum (5th-4th century BC), in the treatise "Mochlicon" the precise mechanics of mandibular dislocation is described. The malady is attributed to relaxation of tendon as well as atrophy of muscle and it may be unilateral or bilateral and primarily is a consequence of yawning . It is infact a medical emergency that necessitates intervention as early as possible. The bilateral entity is observed to be more painful. Intervention thereby undertaken is as elucidated, in the words of Hippocrates "The patient is placed in a lying or sitting position, while an assistant must hold the head tightly in a steady position. The physician grabs the mandible with his two arms from inside and outside the oral cavity (Nowadays, the external oblique line and the area under the mandible), from both sides, left and right, performing three manipulations simultaneously"

"He lifts up the mandible, pushes it backwards while closing the oral cavity, all at once". [4] Analgesics are to be prescribed (Opioids / NSAIDS). The mandible should be retained in its normal position with the aid of bandages (Nowadays the Barton bandage)". The manoeuver is still popular. Hippocrates infact advocated the concept of bandages for the fixation of the mandible, though the international nomenclature attributed it to William Paul Crillon Barton, a naval surgeon, of the 18th century (Figure 3).

The Lewisg modification of 1981 is performing the three steps of Hippocrates in a sitting position.[6,8] Quite a controversial issue as this had already been suggested in the Hippocratic era.[4] Pictorial representations in the manual of Appolonius of Citium of Cyprus (1st century BC) document the intricacies of this intervention (Figure 4).[9] Though the Hippocratic ideology of the joint laxity consequent to weakening of masticatory muscles in proximity, the "open lock sign" had quite a popularity in medical jargon . Historical literature emphasises what physicians of the present era document as "the mandible is postured forward, i.e., an open bite". Moreover, medical philosophers of the Hippocratic period, loyal to the ancient Greek tradition of accurate anatomic orientation, described precisely the mandibular dislocation as "the mandible leaving its place". Thus, a bone is shifted from its normal position of articulation, not the joint itself.[4]

Thus, as a joint cannot be moved, the terminology of present-day interventionists "temporo-mandibular joint dislocation" is in fact an incorrect anatomic expression that needs to be avoided.[5-7,10] Hippocratic bimanual intraoral technique is undertaken under sedation, (2 and 9) (Figure 5). Pain, during and after the procedure is treated with opioids. (nowadays tramadol). In the Hippocratic era, herbal drugs based on meconium probably the Papaver Somniferous plant, were the narcotics and analgesics.[12] Thessaly's endemic plant, i.e., mandragoras was a sedative and narcotic drug during surgical interventions.[13] The multitude of Hippocratic interventional techniques shall remain for a long time to come but the management of maxillofacial injuries in the Hippocratic era is underestimated and usually ignored when historians trace the origin of modern methodology.

Ancient novel interventional modalities were captioned after modern physicians who were considered to be the innovators, while the actual pioneers were ignored. Recent advances in medicine have further established the Hippocratic concept for the reduction of mandibular dislocation.[14]

CONCLUSION

The Hippocratic three step manoeuver is an inexpensive, quick, safe non-surgical modality that can be undertaken in the outpatient clinic under light sedation and analgesia, in subjects of temporo-mandibular dislocation.

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