Original Article

Tempero-Mandibular Joint Ankylosis in Children: Management in ABUTH, Kaduna, Nigeria

L'ankylose de l'articulation tempero-mandibulaire chez les enfants: La Gestion à ABUTH, Kaduna, Nigeria

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Abstract

Background: An analysis of 45 cases of Tempero-mandibular joint ankylosis in Nigerian children seen and managed over a ten- year period is presented.

Patients and Method: The clinical presentation and management of 45 children with ankylosis of the mandible over a ten- year period (1991-2000) were retrospectively reviewed. The data were analysed for age, gender, pattern of ankylosis, etiology, clinical features, management and complications.

Results: There were 45 patients aged 3-14 years, with a mean age of 6.9yrs ±2.8. The age group most affected was the 5-9yrs group (64.4%) Table1. More males (36.8%) than females (3.8%) were affected in the age group 10 14yrs. Cancrum oris constituted the highest etiological factor for ankylosis followed by trauma. More girls than boys suffered ankylosis from cancrum oris, while more boys than girls had ankylosis from trauma. Complications of surgical treatment were re-ankylosis and reduced interincisal opening.

Conclusion: Early detection and management of infection from cancrum oris as well as prevention of trauma is suggested to reduce the incidence of the condition.

Keywords: Temporo-mamdibular joint ankylosis, cancrum-oris, facial deformity

Resume

Arrière-plan: Nous présentons une analyse de 45 cas d'ankylose de l'articulation tempero-mandibulaire chez des enfants nigérians soignés pendant une période de dix ans. ***Patients et méthodes:*** Nous avons analysé rétrospectivement la gestion et la présentation clinique de 45 enfants atteints d'ankylose de la mandibule pendant une période de dix années (1991 - 2000). Les données ont été analysées en fonction de l'âge, du sexe, du modèle d'ankylose, de l'étiologie, des caractéristiques cliniques, de la gestion et des complications. ***Résultats:*** Il y avait 45 patients âgés de 3 à 14 ans, avec un âge moyen de 6,9 ans ±2,8. La tranche d'âge la plus touchée était celle de 5 à 9 ans (64,4%) Figure 1. Il y avait plus de mâles (36,8%) que de femelles (3,8%) dans la tranche d'âge de 10 à 14 ans. Le facteur le plus fréquent de l'ankylose était le cancrum oris suivi du traumatisme. Plus de filles que de garçons souffraient de l'ankylose due au cancrum oris, tandis que plus de garçons que de filles avaient l'ankylose due au traumatisme. Les complications du traitement chirurgical étaient la récidive et la réduction de l'ouverture interincisale. ***Conclusion:*** Nous pensons que le dépistage précoce et la gestion de l'infection due au cancrum oris de même que la prévention du traumatisme sont autant de moyens pouvant réduire l'incidence de la maladie. ***Mots-clés:*** Ankylose de l'articulation tempero-mandibulaire, cancrum-oris, difformité faciale.

Introduction

Tempero-mandibular joint (TMJ) ankylosis has enormous psychological impact. It incapacitates the child in terms of speech impairment, inability to masticate food, facial deformity, poor oral hygiene, gross dental caries and inability to open the mouth properly[1,2]. TMJ ankylosis also impacts social stigmatization that can affect the child's psychological development even after the defect has been corrected. Limitation of opening mouth can be caused by bony or fibrous ankylosis of the TMJ and can adversely affect the growth and development of the jaws and teeth in a child[2]. The management of Tempero-mandibular joint ankylosis is mainly surgical and can be very challenging especially in developing countries. We reviewed the management of TMJ ankylosis in children at the Ahmadu Bello University Teaching Hospital, in Northern Nigeria, and this forms the basis of this communication.

Patients and Methods

The clinical presentation and management of 45 children with ankylosis of the mandible over a ten-year period (1991-2000) were retrospectively

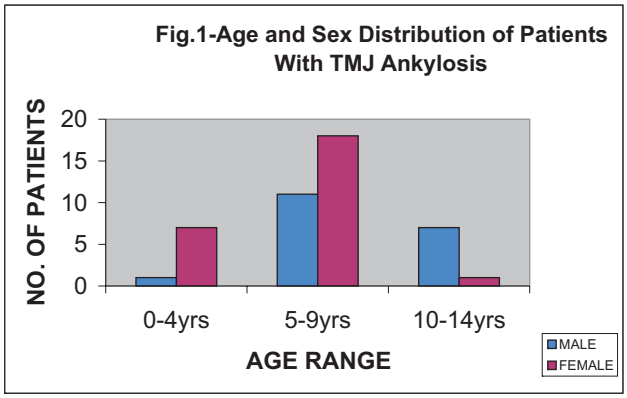
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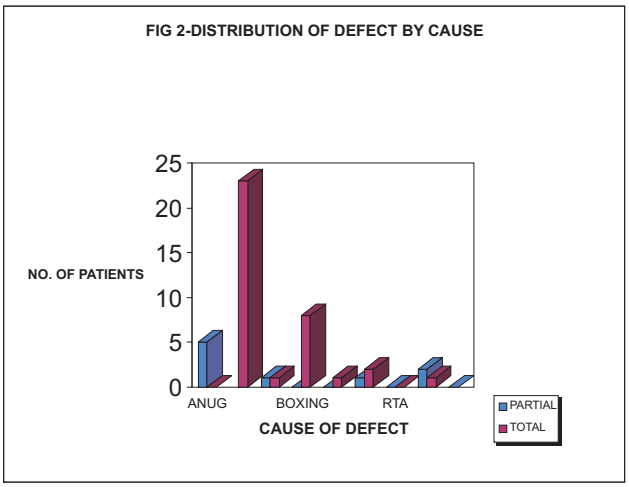
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reviewed. All the patients were managed at the Maxillo-Facial Unit of Ahmadu Bello University Teaching Hospital, a tertiary referral centre in Kaduna, Northern Nigeria. The parameters extracted from the records included age, gender, duration of illness before presentation, type of ankylosis, site, aetiology, disability, radiological features, complications, method of anaesthesia, type of corrective surgery and its complications. These data were analysed using SPSS 10.0.

Results

There were 45 patients; their ages ranged from 3 years to14 years (mean age: 6.9 ± 2.8 years). Twenty six (57.8%) were girls and 19 (42.2%) were boys (F:M = 1.4:1). Twenty nine (64.4%) of the patients were in the 5-year age group; in the 10-14 year age group, 36.8% of the patients were males while 3.8% were females (Table1).





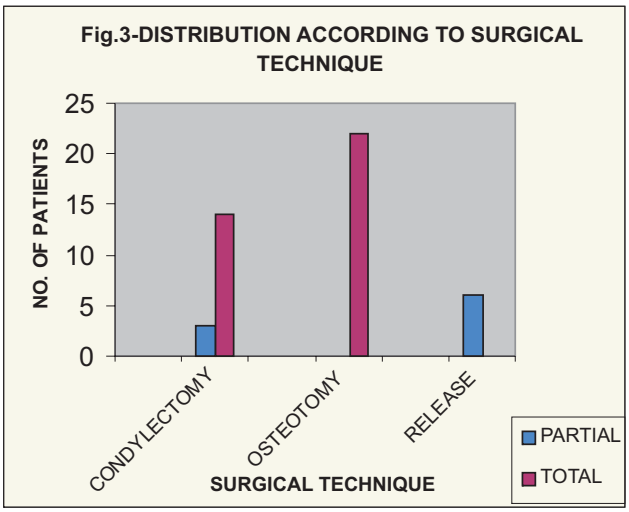




Fig. 4(a): Post cancrum oris total ankylosis in a 9- year old girl.

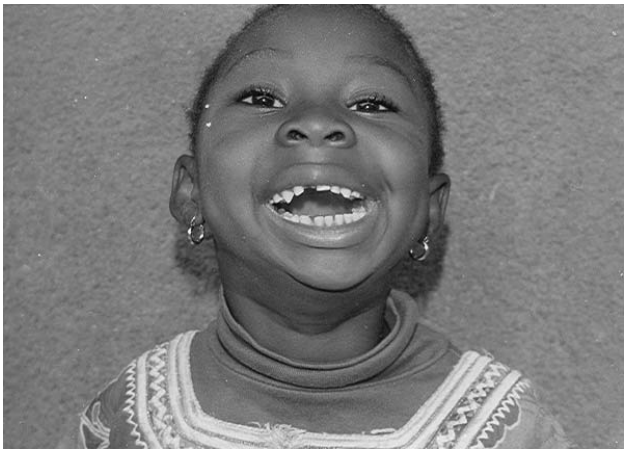


Fig. 4(b): Partial ankylosis in a 4 year old girl caused by forceful use of spoon to open the mouth during convulsions.

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Table 1: Distribution of Defect by cause of Defects

Type	Infection ANUG	Infection Cancrum Oris	Trauma Boxing	Trauma by fall from Height	Trauma from Forceps Delivery	Trauma from High velocity injuries	Trauma from RTA	Trauma from spoon injuries during convulsion	Total
Partial Ankylosis	5(55.6%)	1(11.1%)	0(0.0%)	0(0.0%)	0(0.0%)	0(0.0%)	0(0.0%)	2(22.2%)	9(20.0%)
Total Ankylosis	0(0.0%)	23(63.9%)	1(2.8%)	1(2.8%)	1(2.8%)	1)2.8%)	2(5.6%)	0(0.0%)	36(80.0%)

Table 2: Type of defect by their sites on the mandible

Type	Body	Condylar	Vertical Ramus
Partial Ankylosis	6(11.1%)	1(11.1%)	2(22.2%)
Total Ankylosis	12(33.3%)	13(36.1%)	11(30.6%)

Thirty six (86%) patients had total ankylosis, but in 9 (20%)) the ankylosis was partial (P value = 0.00) (Fig.1). Infection from cancrum oris was responsible for total ankylosis in 23 (63.9%) patients, and partial ankylosis in one (11.1%). Other causes of TMJ ankylosis included trauma in one (2.8%), falls from heights eight (22.2%), forceps delivery two (11.1%), high velocity missiles one (2.8%) and road traffic accident in two (5.6%). Two patients (22.2%) had partial ankylosis as a result of injuries from forceful insertion of a spoon into the mouth during convulsions.

The body of the mandible was involved in 18 (40.1%) patients; the mandibular condyle in 14 (31.1%) and the vertical ramus of the mandible in 13 (28.8%). Nineteen (37.8%) patients had ankylosis on the left side, 13 (31.1%) on the right side, while 13 (31.1%) had bilateral lesion. Thirty four (75.6%) patients presented with inability to open the mouth, seven (15.6%) with facial defect while four (8.9%) had associated micrognathia.

The various methods used to intubate the tracheal during anaesthesia included blind nasal intubation in 18 (40.0%) patients, fibreoptic laryngoscopy and intubation in three (6.7%), direct vision naso-tracheal intubation 19 (42.2%), tracheotomy two (4.4%) and trans-tracheal jet ventilation (TTJV) in three (6.7%).

The surgical techniques used comprised the release of fibrosis for fibrous ankylosis in six (13.3%) patients, condylectomy with wedge excision of bone and insertion of fascia or muscle in 17 (37.8%), and a modified angle ostectomy in 22 (48.9%) patients.

Recurrent ankylosis was the main complication in 10 (22.2%) patients. Seven (15.54%) and three (6.66%) patients developed recurrent ankylosis following condylectomy and angle osteotomy, respectively.

Discussion

Most 34 (75.6%) of our patients presented with inability to open mouth. This is consistent with the findings of Durrani[1]. Difficulty in mastication, inability to speak properly, very poor oral hygiene, gross dental caries and generalized gingivitis are other forms of presentation in literature[1,2]. TMJ ankylosis affected 29 (64.4%) children in the 5-9 years age group, mostly due to cancrum oris infection resulting from poor oral hygiene.

TMJ ankylosis in children is cause-specific[3], and the causes are well documented with trauma and infection as the leading causes[3-5]. Cancrum oris was the main cause of TMJ ankylosis in the girls, compared with falls from heights in the boys as in this the report by Adekeye[2]. More males were affected within the ages of 10 and 14 years. This is the age group when trauma from falls from highest especially during the mango season is commonest in our locality. It is intriguing to note that most of the partial TMJ ankylosis was of infective origin (gingivitis) and that total ankylosis was mostly due to infection from cancrum oris and trauma in this study.

The management of TMJ ankylosis poses some anaesthetic and operative challenges[6]. Complete or partial limitation of mouth-opening makes endo-tracheal intubation during anaesthesia difficult. The various ways to overcome this difficulty include awake intubation under sedation, local anaesthesia, blind nasal intubation, use of the laryngeal mask airway, fibre optic laryngoscopy, retrograde intubation via the cricothyroid membrane, transtracheal jet ventilation

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and elective tracheostomy[7,8]. In the present series, patients were intubated either by blind nasal, fibre

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African Journal of Paediatric Surgery 2006; 3 (1): **19 - 23**