TRAUMA AS A MOST FREQUENT CAUSE OF TMJ ANKYLOSIS

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ABSTRACT

The purpose of this study conducted at Khyber College of Dentistry hospital from January 2008 to December 2009 was to find out the most frequent cause of TMJ ankylosis. The data of 87 patients with TMJ ankylosis due to trauma were included. Recurrent TMJ ankylosis and ankylosis due to infection, MMF and degenerative joint diseases were excluded from the study. Out of eighty seven patients 64% were male. The patients were in the age group of 6-10 years. Fall (82.8%) was the most common cause of TMJ ankylosis. Unilateral involvement was 74.4%.

It was concluded that trauma (fall) was the major cause of tempomandibular joint ankylosis in this sample. Disc interpositional arthroplasty showed good results when treating TMJ ankylosis due to fall.

Key words: *Temporomandibular joint ankylosis, Road traffic accident (RTA) Maxillomandibular fixation (MMF), Gap arthroplasty, Disc interposioning.*

INTRODUCTION

Ankylosis is the stiffening or immobility and fixation of joint. TMJ ankylosis involves the fusion of the condyle to the base of skull. It is chronic painless limitation of TMJ. Mandibular condylar fractures have been documented as a leading cause of TMJ ankylosis.[1]

Since mandibular condyle is the growth centre of growing child, any disturbance in this region provokes changes in the developing mandible.TMJ ankylosis, as one of the most common complications secondary to condylar fractures can create malocclusion, difficulty in speech, severe facial disfigurement and aggravating psychological stress.[2]

Post traumatic TMJ ankylosis may have several causative factors. Among these, disc displacement may be one of the most prevalent. The displacement of disc causes absence of barrier that normally hinders the establishment of bony bridge triggered by post traumatic responses. On the basis of this concept various modified interposition arthroplasties using disc itself or synthetic material has been advocated for surgical management of TMJ Ankylosis. [3]

It also appears that condyle is highly vascular during 1st year of life and crushing injury could result in considerable extravasation of blood, avascular necrosis, pathological ossification and TMJ Ankylosis. So in children injury may adversely affect growth and development of jaws and occlusion resulting in mandibular micrognathia, class II malocclusion, anterior open bite and excessive overjet.[4]

TMJ ankylosis is almost completely associated with trauma by 13-100%.[5] Fall constitute the most frequent cause of condylar fractures in children and resultant complication as TMJ ankylosis. Other causes are RTA, interpersonal violence, birth trauma etc. Local infection and systemic diseases can account for other causes of TMJ ankylosis.[6] Guven concluded that the reason for TMJ ankylosis in children was probably due to inadequate or late treatment of TMJ fractures.[7]

Sawhney(1986) has classified TMJ ankylosis in children, and identified four types. Type 1 (Fibrous adhesion around joint), Type 2 (Bony fusion especially on the outer edge of joint), Type 3 (Bony Bridge between mandible and temporal bone) and Type 4 (Joint is replaced by the bone).[8]

METHODOLOGY

The data for this study was compiled from 87 indoor and outdoor patients aged between 2-16 years, of TMJ ankylosis visiting the Orthodontic and Oral and Maxillofacial Surgery department, Khyber College of Den-

Correspondence address: [1]Dr Nida Murad, Resident Oral and Maxillofacial Surgery, Khyber College of Dentistry, Peshawar. House # 64, Street 5, Sector K-5, Phase 3, Hayatabad Peshawar. E-mail:murad_21_4@hotmail.com. Ph #.03339992581

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tistry, Peshawar from January 2008 to December 2009. Patient age groups, gender, etiology and treatment options available for TMJ ankylosis were recorded on specially designed Proforma. All the patients diagnosed with TMJ ankylosis due to trauma were included in this study. Recurrent TMJ ankylosis and ankylosis due to infections, maxillomandibular fixation (MMF) and degenerative diseases were excluded from this study. Data were analyzed using descriptive statistics. Frequencies and percentages of all variable with mean were calculated and reported.

The Oral and Maxillofacial Surgical Unit of Khyber College of Dentistry is tertiary care center for the Khyber Pukhtunkhwa province of Pakistan. Department of Orthodontics provides skilled treatment to various complicated cases.

RESULTS

Males were affected more than females i.e; 63.2% and 35.6% respectively. The male to female ratio was 4:1.93 (Fig 1). The peak incidence of TMJ ankylosis was found high among 6-10 years (Fig 2). The most common etiology for TMJ ankylosis was fall in 82.8% patients (Fig 3).

Unilateral TMJ ankylosis was more than bilateral TMJ ankylosis. Right side TMJ ankylosis was found more than on the left side (Table 1).

Limited mouth opening was found as most frequent complication followed by facial asym-metry (Fig 4). Majority of patients were Sawhney type II n=72 (82.7%) followed by type III n=10; 11.49% (Fig 5).

Majority of the patients (n=82) were treated with interpositional disc arthroplasty, whereas 3 patients were treated conservatively with active exercise and frequent follow up. Coronoidectomy was also performed in 2 patients (Fig 6).

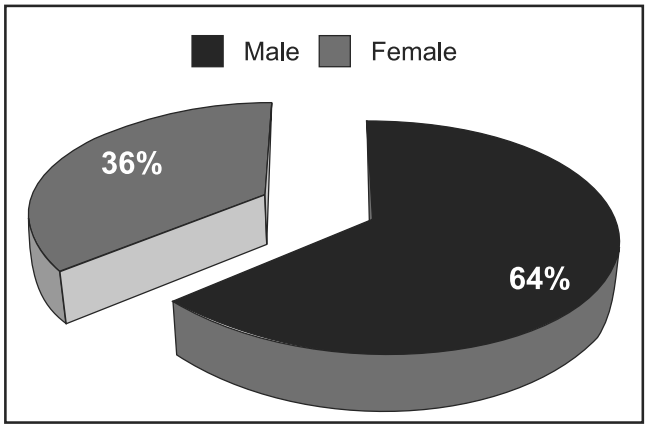

Fig 1: Gender of patient (N=87)

TABLE 1: INVOLVEMENT OF TMJ ANKYLOSIS

TMJ ankylosis	Patients N	Percentage %
Unilateral TMJ ankylosis	63	74.4
Right side	33	52.3
Left side	30	47.6
Bilateral TMJ ankylosis	24	25.6
Total	87	100

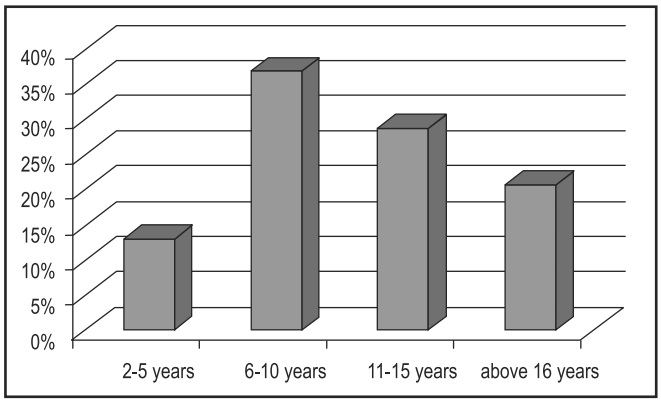

Fig 2: Age in years (N=87)

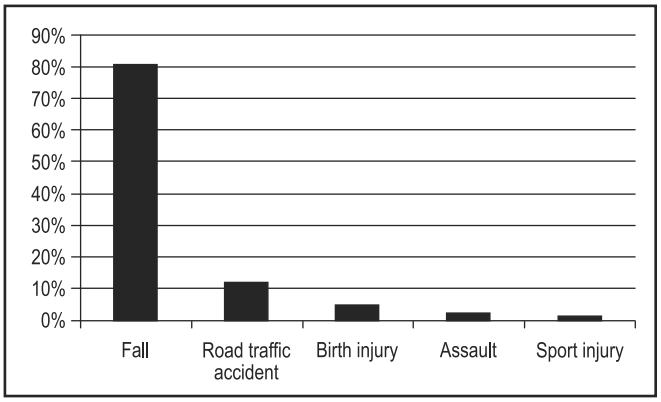

Fig 3: Etiology of TMJ ankylosis (N=87)

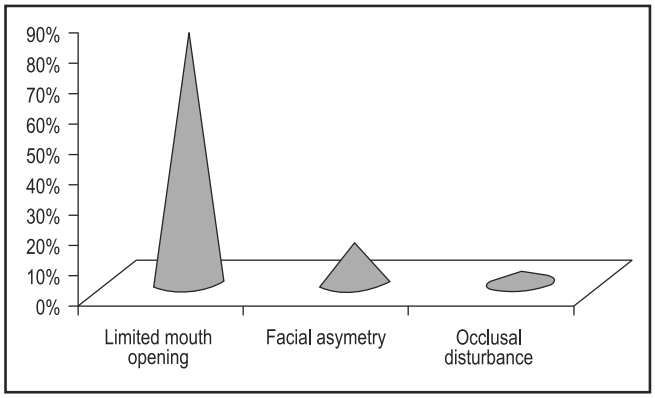

Fig 4: Complications of TMJ ankylosis (N=87)

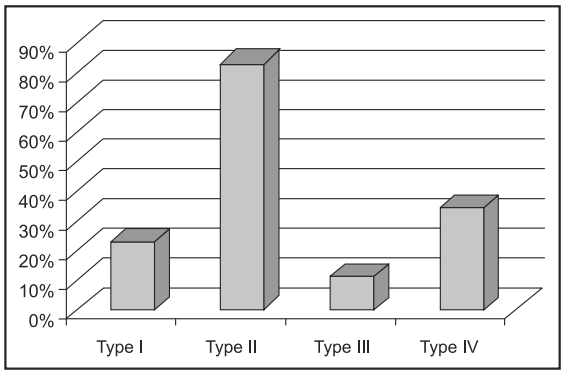

Fig 5: Sawhney classification of TMJ ankylosis (N=87)

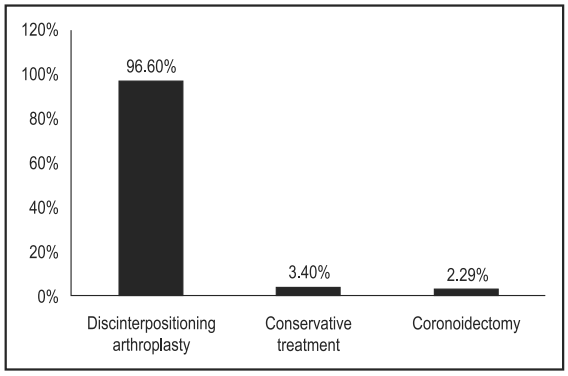

Fig 6: Treatment of TMJ ankylosis (N=87)

DISCUSSION

TMJ ankylosis is a structural disease which produces functional and esthetic disability in the form of limited mouth opening and facial deformity.[9, 10]

Mansaur [11]and kazanjian[12] reported that males are more prone to develop TMJ ankylosis. In the present study the male to female ratio was found to be 4:1.93 as males are subjected to outdoor activities.

Khanna et al [13]have stated that TMJ ankylosis is commonly seen in children and young adults. Trauma is the commonest cause of TMJ ankylosis. Irram [14] stated that the most prevalent age group presenting with TMJ ankylosis is 11-20years. Belmiro[15] also found the high incidence of TMJ ankylosis was during childhood. In this study the age of patients with TMJ ankylosis ranged from 6-10 years. Khanna[16] and Riveh[17] reported, that trauma (fall) was the most common cause of TMJ ankylosis. Overall the most common cause of ankylosis according to Garcia[18]was fall, accounting for 91.7% of the cases. In the present study fall (82.8%) constituted as major predisposing factor.

Irram[14] and Belmiro[15] repoted the unilateral TMJ ankylosis was more common than bilateral. In this study the unilateral TMJ ankylosis (74.4%) was found more than the bilateral (25.6%). Hong[19] and Monganello[20] preferred surgery through interpositional disc arthroplasty as the best treatment option in growing children. Hong[19] also stressed upon ipsilateral corono idectomy as the coronoid process tends to grow in a long-standing ankylosis causing inadequate intra-operative interincisal opening. In this study 2% patients went through the coronoidectomy along with arthroplasty to produce adequate interincisional opening.

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