INTRODUCTION

Maxillofacial injuries are less common in children, however condylar fractures are reported by many authors as common site of injury.\(^1\),\(^2\) Facial fractures in children comprise less than 15% of all the fractures.\(^3\),\(^4\) Their incidence increases as children begin their school.\(^5\) Boys are more prone to maxillofacial fractures than girls. Male to female ratio ranges from 3.5:1.\(^6\)

Fall constitutes the most frequent cause of condylar fractures in children.\(^7\),\(^8\),\(^9\) Other causes include road traffic accidents (RTA), Bicycles, Sports injuries and child abuse.\(^10\) Condylar fractures in children are often undiagnosed and so the true incidence is likely to be higher than that reported in literature.\(^11\) Traumatic injuries of the temporomandibular joint (TMJ) are often overlooked as they can apparently occur with relatively little pain, few clinical signs and insufficient reaction by a child to alert an adult to the seriousness of the injury. Therefore, it is an essential part of pediatric facial traumatology.\(^12\)

If condylar fractures occur in children prior to the completion of growth and if they are not properly managed then they can result in growth disturbances and asymmetry. It may also result in various temporomandibular joint (TMJ) disorders such as TMJ ankylosis, dysfunction, malocclusion, chronic dislocation and pain on the injured side.\(^13\) TMJ Ankylosis is a common condition in developing countries. High condylar (intra-capsular) and dislocated fractures of condyle fre-
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RESULTS

During the study period, 57 patients reported to the Department of Oral and Maxillofacial Surgery, with isolated condylar fracture. Among 57 patients 35 (61%) were male and 22 (39%) were female. The male to female ratio was 1.6:1 (Fig 1).

The age of the patients ranged from 2 years to 16 years with the mean age of 14.25 years $\pm 3.14$. The peak incidence of condylar fracture was found at the age of 6-10 years i.e., in 26 cases (45.6%). The incidence of condylar fracture showed decrease with increasing age of the child i.e., $n= 8$ (14.0%) (Table 1). The causes of condylar fractures in the order of frequency were as, falls 42 (73.7%), birth trauma 8 (14.0%) and road traffic accidents 7 (12.3%).

TABLE 1: AGE GROUPS OF PATIENTS WITH CONDYLAR FRACTURE

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Number of Patients</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td>1 to 5 years</td>
<td>10</td>
<td>17.5%</td>
</tr>
<tr>
<td>6 to 10 years</td>
<td>26</td>
<td>45.6%</td>
</tr>
<tr>
<td>11 to 15 years</td>
<td>13</td>
<td>22.8%</td>
</tr>
<tr>
<td>16 years</td>
<td>8</td>
<td>14%</td>
</tr>
<tr>
<td>Total</td>
<td>57</td>
<td>100%</td>
</tr>
</tbody>
</table>

METHODOLOGY

This study was carried out on a total of 57 patients to determine etiology, age, gender, site distribution and complications of condylar fractures in children. For this purpose the records of properly diagnosed and treated patients were taken from the oral and maxillofacial department of Khyber College of Dentistry, Peshawar from January 2008 to October 2009. All patients with the condylar fracture and below 16 years of age were included in this study. Patients with condylar fracture and associated maxillofacial fractures like, Lefort Maxillary fractures, Zygomatic Complex fractures, Nasal bone fractures, panfacial trauma and Mandibular symphysis, body and angle fractures were excluded. The Oral and Maxillofacial Surgical Unit of Khyber College of Dentistry is a tertiary care center in the region of Khyber Pakhtunkhwa. This unit receives patients from entire region and also from far flung areas like Federally Administered Tribal Area (FATA) and Afghanistan.

Fig 1: Gender distribution of patients

Fig 2: Treatment options for condylar fractures

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Thereafter results in TMJ Ankylosis. Various treatment options are used including non surgical and surgical. It includes conservative treatment approach, Maxillomandibular fixation (MMF), and removal of displaced condylar segment surgically.
accidents (RTA) 7 (12.2%) (Table 2). Unilateral condylar fractures were more common than bilateral condylar fractures i.e. 41 (71.9%) and 16 (28.1%) respectively.

DISCUSSION

Condylar injuries and fractures have gained special attention in Pediatric Dentistry because of high incidence in relation to adults. They are caused due to falls, RTAs, sports injuries and interpersonal violence.\(^1\) Although the fracture of condyle is regarded as safety mechanism as the impact of force is dissipated at the head of condyle and do not reach the cranium, but the complications like restricted mouth opening, occlusal disturbance, growth abnormality, asymmetry of face, breathing problem, mal-alignments of teeth, emotional stress, and psychological problems have given boost to the importance of condylar injuries during childhood. In children the proportion of condylar fracture is higher up to 50%.\(^3,4\)

According to the present study, males were predominantly affected with condylar fracture as compared to females. A probable reason was that boys are more boisterous than girls and spend more time outdoors. Al Abosi et al\(^6\) showed the male to female ratio of 3.5:1.

Fall was the leading cause of condylar fractures in children (73.7%). Adekeye\(^5\) and Ahmad \(^19\) has also reported fall as a leading cause of condylar fractures in children.

This study showed the incidence was higher between the age of 6-10 years (45.6%) as they are exposed to unsafe playing environment. When they begin schooling, RTA, sports injuries and interpersonal violence resulted for condylar fractures in children. Morgan\(^7\) and Amaratunga\(^20\) signify this age to be highly susceptible to condylar injuries.

The present study showed that 71.9% of patients had unilateral condylar fractures while, 28.1% had bilateral fractures. The study is consistent with the international studies when it comes to site distribution of condylar fracture i.e., 80% of the condylar fractures were unilateral while only 20% were bilateral.\(^21,22\)

Various treatment options like conservative approach. Open reduction and close follow up were suggested to restore the functional occlusion and facial symmetry in children. Non-surgical management was the mainstay of treatment of condylar injuries. All children with minimal displacement of fractured condylar process were advised to use soft diet, analgesics, and occlusion was disregarded in this group of patients. If pain and malocclusion was persistent then maxillomandibular fixation (MMF) for 7 to 10 days was another treatment option which was done in 49.2% of patients. Amaratunga\(^20\), Stroble,\(^23\) has also emphasized conservative treatment approach especially in children of growing age.

Limited mouth opening and deviation of jaw was found in 16 patients (28.1%) after 1-2 years with a history of trauma to the condylar region. TMJ ankylosis was the most common complication seen in 8 cases (36.36%). Of the total 8 patients with TMJ ankylosis 6 (75%) developed unilateral and 2 (25%) developed bilateral ankylosis. Gap arthroplasty with disc interpositioning was instituted in all the patients with established TMJ ankylosis. Irrum et al\(^24\), Roychaudry et al\(^25\) have also preferred gap arthroplasty with disc interpositioning to restore function and esthetics in children. All the patients were advised to strictly follow the follow up schedule to monitor the developing sequelae of condylar fractures in growing children.

**TABLE 2: CAUSES OF CONDYLAR FRACTURE**

<table>
<thead>
<tr>
<th>Causes</th>
<th>Number of Patients</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>42</td>
<td>73.7%</td>
</tr>
<tr>
<td>RTA</td>
<td>7</td>
<td>12.2%</td>
</tr>
<tr>
<td>Birth Trauma</td>
<td>10</td>
<td>14%</td>
</tr>
<tr>
<td>Total</td>
<td>57</td>
<td>100%</td>
</tr>
</tbody>
</table>

**TABLE 3. COMPLICATIONS OF CONDYLAR FRACTURES**

<table>
<thead>
<tr>
<th>Complications</th>
<th>Number of Patients</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>TMJ ankylosis</td>
<td>8</td>
<td>36.36%</td>
</tr>
<tr>
<td>Restricted mouth opening</td>
<td>3</td>
<td>13.63%</td>
</tr>
<tr>
<td>Deviation of the jaw</td>
<td>4</td>
<td>18.18%</td>
</tr>
<tr>
<td>Malocclusion</td>
<td>2</td>
<td>9.09%</td>
</tr>
<tr>
<td>Joint pain</td>
<td>5</td>
<td>22.72%</td>
</tr>
<tr>
<td>Total</td>
<td>22</td>
<td>100%</td>
</tr>
</tbody>
</table>
Acknowledgement

The authors are very thankful to the staff of the Department of Oral and Maxillofacial Surgery of Khyber College of Dentistry, Peshawar for their co-operation regarding the completion of this study.

REFERENCES