

Demographic and Clinical Characters of the Patient of Condylar Fracture Treated under the Department of Oral and Maxillofacial Surgery in a Tertiary Level Hospital

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Abstract:

Introduction: Mandible is the only mobile bone of the facial skeleton which plays an important role in mastication, speech and deglutition. Being a prominent bone of the facial skeleton, it is one of the most common facial bone to be fractured. Fracture in the mandible causes severe loss of function and disfigurement. **Objective:** The aim of this paper was to investigate the demographic and clinical characteristics of the patients of condyle fracture treated under the oral and maxillofacial department of a tertiary level hospital of Bangladesh. **Methods:** This retrospective cross-sectional descriptive type of study was conducted at the Department of Oral and Maxillofacial Surgery in Dhaka Dental College and Hospital, Dhaka, Bangladesh during June, 20 23 to December, 2023. A consecutive sampling technique was used and a series of 120 cases of condyle fracture aged 17-65 years of both sex were retrospectively enrolled in this study. The data were analyzed using Statistical Package for Social Sciences (SPSS), version-23.0. **Results:** A series of 120 cases of condyle fracture patients were enrolled in this study. Among the patients, the most frequent age group was 30-39 years which includes 62(51.25%) patients. The mean age of the patients was 41.10±10.21 years. A significant gender disparity was observed, with 87(72.5%) of the patients being male. Most of the patients were service holder 63(52.5%). The major cause of injury of the patients was road traffic accident 75(62.5%). Among the study patients, 111(92.5%) had third molar teeth present. Of them, the most frequent 75(67.56%) patients had erupted third molar condition and 36(32.43%) patients had impacted third molar condition. According to distribution of type of impacted teeth, 21(50%) cases, had oriented vertically and followed by mesioangular 11(25%), disto-angular 4(10.7%), and horizontal 6(14.3%). According to distribution of condylar fracture, the most frequent 73 (6.25%) patients had non-displaced injuries. followed by displaced 36(30%) and dislocated 11(8.75%). **Conclusion:** This study investigated that road accident is the principal factor of condylar fracture and third molar teeth and its position has a significant impact on condylar fracture and at the same time the male are the more prone to condylar fracture than the female in Bangladesh.

Key words: Demographic, Clinical, Condylar, Fracture, Impacted, Erupted,

I. INTRODUCTION

Mandible is the only mobile bone of the facial skeleton which plays an important role in mastication, speech and deglutition. Being a prominent bone of the facial skeleton, it is one of the most common facial bone to be fractured. Fracture in the mandible causes severe loss of function and disfigurement [1]. Mandibular fractures follow a pattern, common to many injuries, in that young males are predominantly affected [2]. The incidence of mandible fracture is effected by several factor including the patients age, sex and socio-economic as well as the etiology. The direction & type of force is important in mandible fracture. Fracture mandible may result from direct violence, indirect violence and excessive lateral muscular constriction. Fracture displacement at condyle is

influenced pterygoid muscle. Fracture in this region have been classified as intracapsular or high capsular fracture and extra capsular or low or sub-condylar fracture. The causes of fracture of the mandible are chiefly road traffic accidents, inter personal violence, falls, and sports injuries and industrial trauma. Road traffic accident is the leading cause of mandibular fracture in third world countries, while interpersonal violence is the leading cause in developed countries [3]. The study conducted in Bangladesh reported that the major causes of mandible fractures were road traffic accident (58.4%), other causes falls (13.6%), work related (12.8%), sports related (4.8%), assault (0.8%), altercation (8.0%) and pathological fracture (1.6%). Mandible fractures occur at various locations like body, angle, condyle, coronoid, and ramus and dent alveolar region. Among the mandibular fractures body accounts 30.2%, angle 18.5%, condyle 11.2%, symphysis 25.3%, ramus 1.9% and dentoalveolar 9.8% fracture [4]. Mandibular fracture patterns depend on multiple factors, including direction and amount of force, presence of soft tissue bulk and bio-mechanical characteristics of the mandible such as bone density and mass or anatomic structures creating weak area [5]. However, there are very few studies and limited data regarding the demographic and clinical characteristics of condyle fracture patients in Bangladesh context. Therefore, the researcher has designed this study. This study aimed to investigate the demographic and clinical characteristics of the patients of condyle fracture treated under the oral and maxillofacial department of a tertiary level hospital of Bangladesh.

II. MATERIALS AND METHODS

This retrospective cross-sectional descriptive type of study was conducted at the Department of Oral and Maxillofacial Surgery in Dhaka Dental College and Hospital, Dhaka, Bangladesh during June, 20 23 to December, 2023. A consecutive sampling technique was used and a series of 120 cases of condyle fracture aged 17-65 years of both sex were retrospectively enrolled in this study. A pre-structured questionnaire was used to collect the data of this study. The data were collected from the case record form of the hospital registry. The collected data were methodically organized for computer entry. The data were analyzed using Statistical Package for Social Sciences (SPSS), version-23.0. Descriptive statistical analysis were performed and the results were presented in tables and charts as percentage and frequency. The inclusion and exclusion criteria of this study were as follows:

Inclusion Criteria:

1. Patients having mandibular condyle fracture with or without third molar.
2. Age limit of the patients were 17 years to 65 years of both sex.
3. Cooperative patients.

Exclusion criteria:

1. Patients who refused to be included in this study.
2. Having pathological condylar fracture.
3. Non-cooperative and psychic patient.
4. Edentulous patient.

III. RESULTS

Table-1: Demographic characteristic of study patient (N=120).

Age	Frequency	Percentage
<30	15	12.5
30-39	62	51.25
40-49	22	18.75
50-59	16	13.75
>60	5	3.75
Mean age (years)	41.10±10.21	
Sex		
Male	87	72.5
Female	33	27.5
Total	120	100
Occupation		
Service holder	63	52.5
Business	20	16.3
House Wife	25	21.3
others	12	10
Total	120	100

Table-1 shows the demographic characteristic of condylar fracture. The most frequent age group was 30-39 years which includes 62(51.25%) patients followed by 40-49 years, 22(18.75%). The mean age of the patients was calculated 41.10 ± 10.21 years. A significant gender disparity was observed, with 87(72.5%) of the patients being male, followed by female 33(27.5%). Most of the patients were service holder 63(52.5%), followed by house wife 25(21.3%), businessman 20(16.3%) and others profession 12(10%).

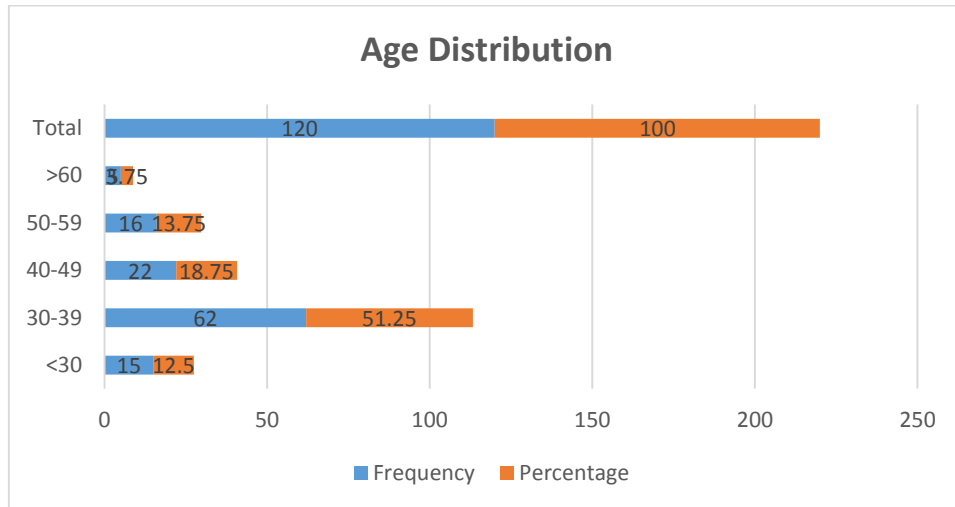


Fig-1: Age distribution of the study patients (n=120).

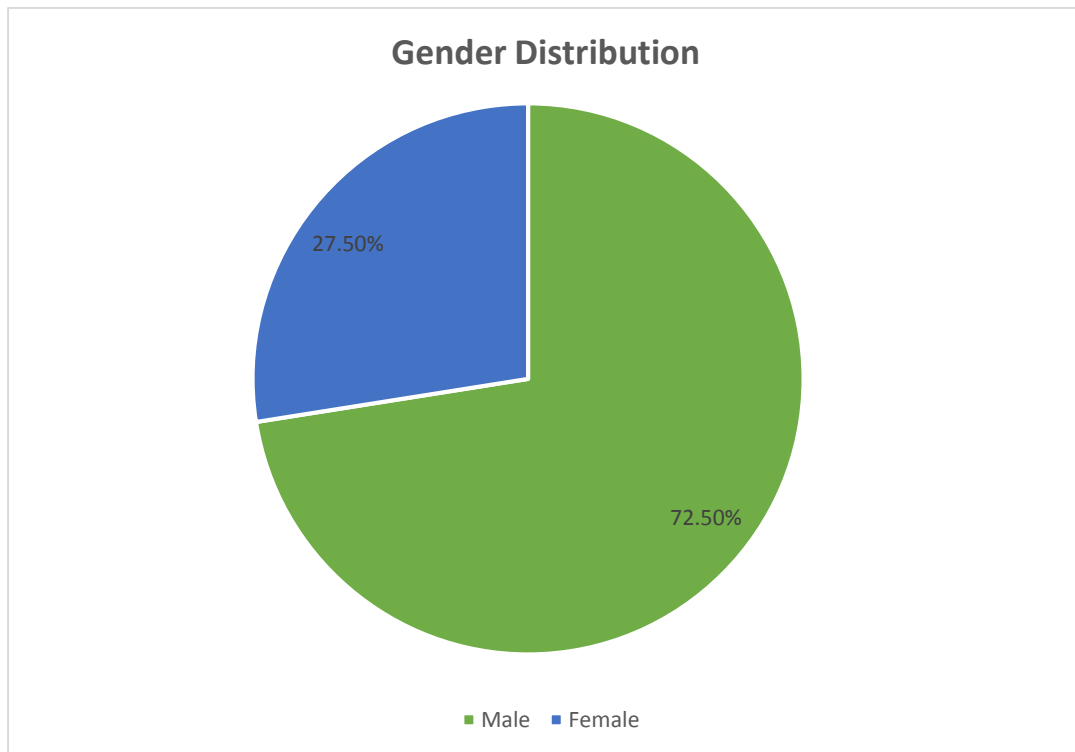


Fig-2: Gender distribution of the study patients (n=120).

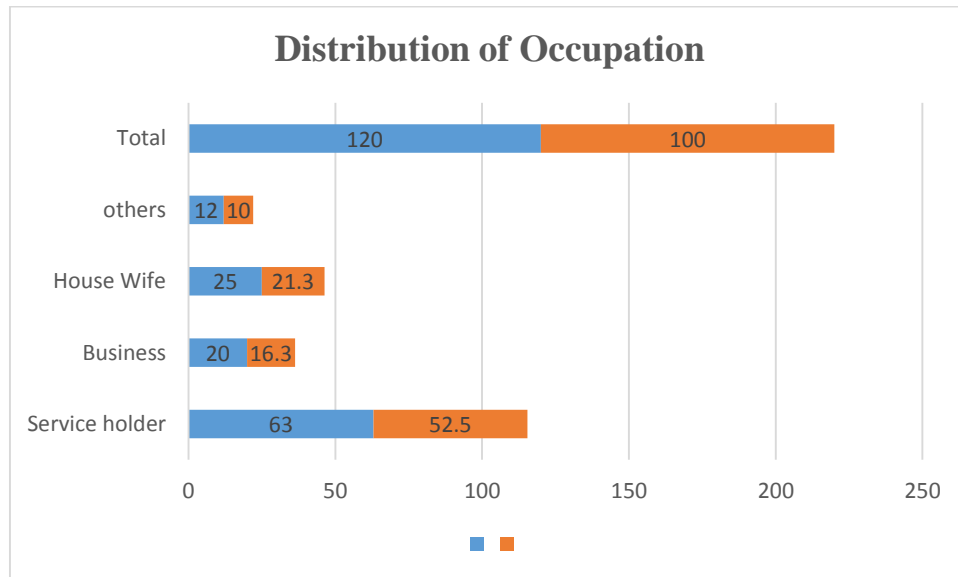


Fig-3: Distribution of occupation of the study patients (n=120).

Table-2: Distribution of the study subjects by the cause of injury (N=120).

Cause of injury	Frequency	Percentage
RTA	75	62.5
Assault	30	25
Fall from height	7	6.25
Sport	5	3.75
Industrial	3	2.5
Total	120	100

Table-2 Shows the distribution of study subjects' causes of injury. The majority of the study patients' cause of injury was by RTA, 75(62.5%) followed by assault, 30(25%), fall from height,7(6.25%), sport,5(3.75%), and industrial, 3(2.5%).

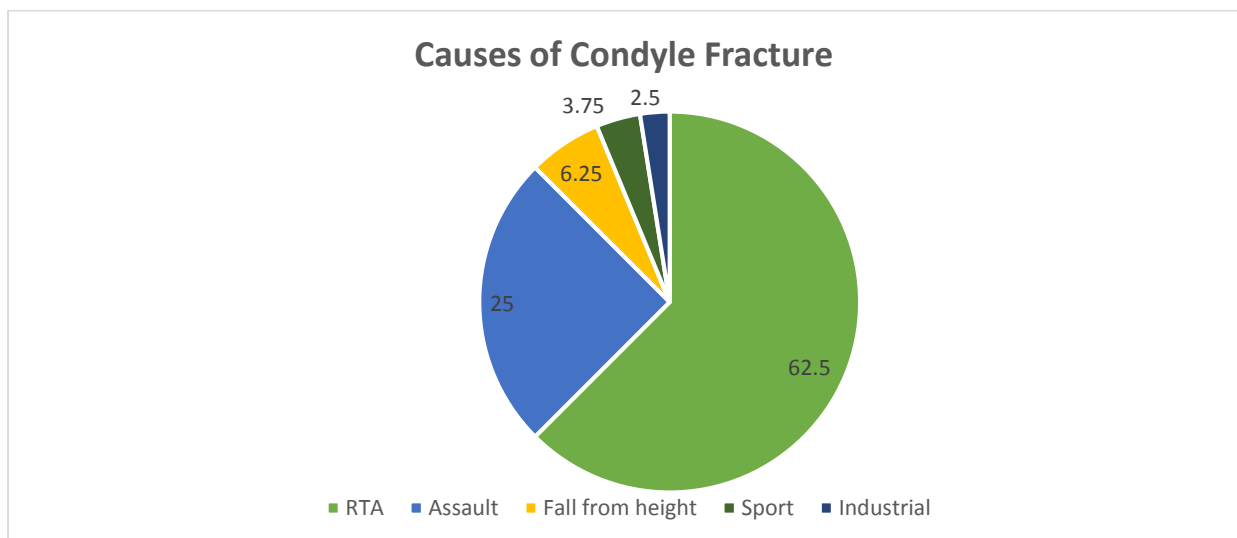


Fig-4: Causes of condyle fracture of the study patients (n=120).

Table- 3: Distribution of the status of third molar teeth of the study patients (N=120).

Status of third molar	Frequency	Percentage
Present	111	92.5
Absent	19	7.5
Total	120	100

Table-3 presents the status of the third molar teeth of the study subjects. Among the study patients,111(92.5%) had third molar teeth and 19(7.5%) had no third molar teeth.

Table-4: Condition of third molar teeth of the study patients (n=111).

Condition of Third molar	Frequency	Percentage
Impacted	36	32.43
Erupted	75	67.56
Total	111	100

Table-4 describes the condition of third molar teeth. Among 111 study subjects with third molars, the most frequent 75(67.56%) patients had erupted third molar condition and 36(32.43%) patients had impacted third molar condition.

Table-5: Distribution of type of impacted teeth observed among the study patients (n=36).

Type of impacted teeth	Frequency	Percentage
Vertical	16	44.44
Mesio-angular	10	27.77
Disto – angular	4	11.11
Horizontal	6	16.66
Total	36	100

Table-5 presents the type of impacted teeth. The most common type was observed in 21(50%) of the cases, where the teeth were oriented vertically but failed to erupt fully, followed by mesioangular 11(25%), disto-angular 4(10.7%), and horizontal 6(14.3%).

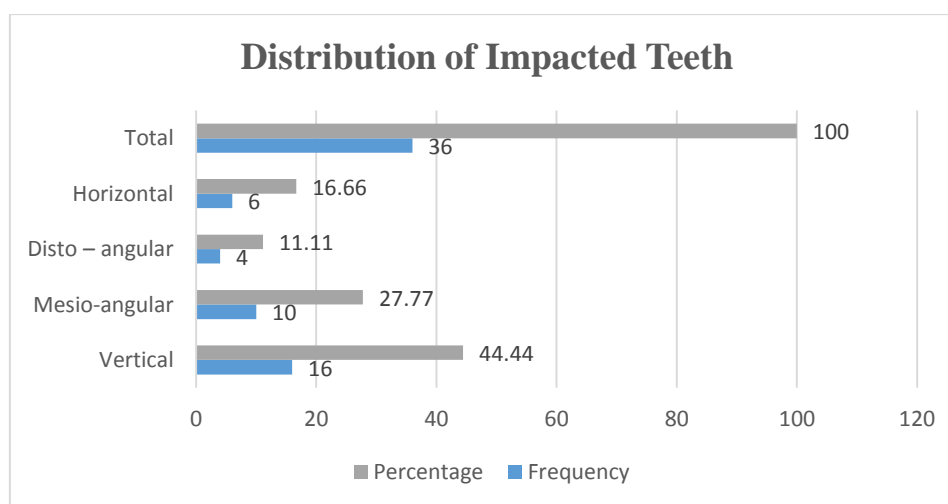


Fig-5: Distribution of impacted teeth of the study patients (n=36).

Table- 6: Distribution of observed condyle fracture among the study patients (n=120).

Status of condyle Fracture	Frequency	Percentage
Non displaced	73	61.25
Displaced	36	30
Dislocated	11	8.75
Total	120	100

Table-6 presents the status of condyle fracture of the study subjects. The most frequent 73 (61.25%) patients had non-displaced injuries. followed by displaced 36(30%) and dislocated 11(8.75%).

IV. DISCUSSION

Condylar region of the mandible is one of the most common susceptible sites to fracture. This study sets out to determine the demographic and clinical characteristics of the patients of condyle fracture. This present study employed 120 cases with mandibular condylar fracture. This study aimed to determine the demographic and

clinical characteristics of the patients of condyle fracture. Among the study patients, this study observed the most frequent age group was 30-39 years which includes 62(51.25%) patients. Among the patients, A significant gender disparity was observed, with 87(72.5%) of the patients being male because the male have to move outside more than their counter part female. This present study also observed most of the patients were service holder 63(52.5%), followed by house wife 25(21.3%), businessman 20(16.3%) and others profession 12(10%). By profession service holders are most prevalent because they have to travel to attend their office regularly. This present study further observed the majority of the study patients' cause of injury was road traffic accident 75(62.5%) followed by assault, 30(25%), fall from height, 7(6.25%), sport 5(3.75%), and industrial, 3(2.5%). The highest prevalent in road accident was found because road accidents in our country are very frequent. Almost similar observation was found in another study conducted in Dhaka city. In that study a total number of 26 patients were included and among the patients the majority were male (88.5%) and age belongs to 21 to 30 years (38.5%). road traffic accident (46.2%) was the main cause of condylar fracture [6]. In our study, we found that, 111(92.5%) had third molar teeth. Among 111 patients with third molars, the most frequent 75(67.56%) patients had erupted third molar condition and 36(32.43%) patients had impacted third molar condition and the most common type of third molar teeth were oriented 21(50%), followed by mesioangular 11(25%), disto-angular 4(10.7%), and horizontal 6(14.3%). Another study found 67.34% patients had third molar present which is comparably less than our observation of third molar teeth in our study [7]. This variation is may be cause due to limited sample size of that study. Another study found third molar position horizontal 8%, vertical 11.2%, and mesioangular 29.7%, disto-angular 1.7% in the distribution of impacted third molar position. This distribution of third molar impacted position is in the lineage of our study to some extent [8]. In our study, we finally observed that the most frequent 73 (6.25%) patients had non-displaced injuries. followed by displaced 36(30%) and dislocated 11(8.75%). These findings of our study are persistence with some other studies [9-15]. From the above discussion, this present study concludes that the safe means of movement and third molar position has a significant impact on condylar fracture.

LIMITATIONS OF THE STUDY

This was a single center study conducted over a short period of time with a purposive sample size. So, this study findings may not reflect the whole country.

V. CONCLUSION

This study investigated that road accident is the principal factor of condylar fracture and third molar teeth and its position has a significant impact on condylar fracture and at the same time the male are the more prone to condylar fracture than the female in Bangladesh.

VI. RECOMMENDATION

A multi-center study is recommended across the country over a long study period with a statistically calculated sample size to justify the findings of this study.

Conflict of interest: None declared

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