Abstract
The retrospective clinic study was conducted from May, 2006 to November, 2010, at the Clinic for Maxillofacial Surgery in Skopje, Macedonia. In our study there were 12 patients registered (9 male and 3 female) with a fracture of the lower jaw, caused by sports injuries. The aim of this study is to determine occurrence of fractures of the lower jaw in terms of gender, age, the type of the fracture and the number of days that patient stayed in the hospital. For processing the results we used Statistica for Windows 7.0. Results show us dominance of male in the second decade of their lives. Most of the fractures are located in the angle of the lower jaw.

Key words: fracture, mandible, sports injury, trauma, incidence.

Introduction
Mandible is the bone that is directly and most frequently exposed to the action of external forces and influences that leads to its fracture, which in turn is most common fracture in the area of the face. Because of their severe consequences, traumas that occur in mandibular (lower jaw) area become of great interest to surgeons who treat them. Because of their specificity and complexity, these fractures differ from traumas that occur in another location. Specificity of the fractures in the facial jaw area comes from its anatomo-topography, physiology and its complex function.

Aim of the study
The aim of this retrospective study is to determine the incidence of occurrence of fractures of the mandible incurred due to a sports injury, occurrence of fractures of the lower jaw in terms of gender, age, the type of the fracture and the number of days that patient stayed in the hospital. All of them are treated at the clinic for Maxillofacial surgery in Skopje, Macedonia for the period of 4 years, from May, 2006 to November, 2010.

Material and methods
This was a retrospective clinic study which was made for a period of 4 years, from May, 2006 to November, 2010, where were involved 12 patients who were admitted and treated for mandible fractures related with sports injury at the clinic for Maxillofacial surgery in Skopje, Macedonia. Data relating with gender, age, the type of fracture, type of sport and number of days that patient stayed in the hospital were collected.

Results
Between January, 2004 and June, 2011, 432 patients were hospitalized at the clinic for maxillofacial surgery in Skopje, Macedonia with mandible fractures. Among them, 12 patients were with fractures caused by sports injury, or 2.78%. At figure no.1 is presented sex distribution, the group comprises 9 male (75%) and 3 female (25%) patients with age ranges between 11 and 28 years old and the mean age was 17,67 years.
In this clinic study we have male predominance which was noticed in the 2nd decade (8 patients, 6 male and 2 female) and 4 patients (3 male and 1 female) in the 3th decade, figure no.2.

The major etiology of sport related mandible fractures in our retrospective clinic study was basketball with 58.33%, followed by karate with 25% and boxing with 16.67% (figure no.3).

On figure no. 4 we present the male and female ratio in the etiology of sport related mandible fractures.
The most common anatomic region where the fractures were diagnostic was in collum mandible with 4 patients, followed by angulus mandible with 3 patients, 2 patients with corpus and processus condylaris mandible and 1 fracture was diagnosed on capitis mandible. (figure no. 5)

![Figure no. 5 Anatomic site – wise distribution of mandible fractures](image)

At figure no. 6 was presented the period of hospitalization for each type of mandible fractures. The average hospitalization period was 5.4 days.

![Figure no. 6 Hospitalization period for each type of mandible fractures](image)

**Discussion**

Mandible fracture is the most frequent diagnose which is registered at the clinic for Maxillofacial surgery all over the world. (1,11,13) Mandible fractures are on the second place after the fracture of the nasal bones, which are diagnosed and treated from general and plastic surgeon and otorhinolaryngologists. (21,23,26) Greatest number of injuries in the face-jaw complex, which includes the lower jaw occur from traffic accidents, fights and sports related injuries. (22) Greatest number of patients are males who are in the third decade of their life. (22) Patients with fractures of the lower jaw have the next clinical signs and symptoms: pain, swallow on the face due to the rich net of blood vessels, lymph nodes, subcutaneous fat tissue, muscles and connective tissue. (29) This is followed by change of the color of the skin and the oral mucosa, hematomas, deformity of the face caused by the swallow and the location of the fractures. (29) Crepititation between bone fragments is the clinical sign which is followed by strong pain and this depends on muscle activity. Other signs which are present are trismus, paresis or paresthesia of lower mandible nerve, intraoral bleedings, open fractures, hypersalivation and foetor ex ore. (30)

Sports related injuries like a reason for a mandible fractures, in our retrospective clinic study are presented with 3%. (5) According to Ph.Dr. Vaskov (30), from the research which he made at the period of 1998 to 2003, sports related fractures are presented with 2%. According to a research made in Freiburg, Germany (13), sports related mandible fracture are presented with 10%, and according to data from WHO (World Health Organisation), sports related mandible fractures are presented with 4%. (19,24)
The most frequent localization of mandible fractures which are connected with sports injuries are angulus and column mandible, followed by corpus mandible. From data base of WHO, sports injuries first lead to fractures in the corpus region, next is column mandible, and the last is angulus mandible.\(^{(19,24)}\)

In terms of diagnostics of mandible fractures\(^{(8)}\), it is recommended to follow the diagnostic protocol suggested by American College of Surgeons (ACS)\(^{(3)}\), which is the program from Advanced Trauma Life Support.\(^{(7,12,27)}\)

Chayra and colleagues\(^{(9)}\) made a research in which they concluded that using the panoramic rtg picture helps in diagnosing the mandible fracture in 92% of the patients.\(^{(6,11,13,20,25)}\)

Patients with different types of fractures spent different time in hospital. Anyway, the average hospitalization period was 5.4 days.

In terms of treatment of mandible fractures, the most effective ways are closed and open reduction.\(^{(2,6,10,18,21)}\)

**Conclusion**

The presence of mandible fractures in terms of gender was with male predomination with 3:1 male : female ratio. In terms of age, the second decade was the most recent period when the fractures were diagnosed and most of the patients were male. Next period when mandible fractures were recent was third decade, same with predominance of male. In terms of type of mandible fractures the most recent localizations were processus condylaris, angulus and collum mandible. Patients with fracture of the angulus and corpus of the mandible spend longer time in hospital compared with collum and capitis of the mandible.

Anyway, for prevention of occurring mandible fracture during a sports game, it is recommended that players should have specially made mouth protection. This will further lead to less fractures of the mandible.\(^{(14,17)}\)

**References:**


13. Facial fractures; MICHELE M. CARR, DDS, MD; ARNIS FREIBERG, MD, FRCSC; RAYMOND D. MARTIN, MD, FRCS; Canadian Family Physician VOL 40: March 1994.


28. TEXTBOOK OF GENERAL AND ORAL SURGERY 2003, Elsevier Science Limited. All rights reserved. David Wray, MD, BDS, MB, ChB, FDSRCPs, FDSRCs; David Stenhouse, DDS, BDS, FDS, RCPS; David Lee, BSc, MB, ChB, FRCS; Andrew Clark, BSc, MB, ChB, MRCs.


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