MALPRACTISE IN A CHILD WITH MANDIBULAR FRACTURE: A CASE REPORT

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ABSTRACT
This study aims to discuss malpractise case report and treatment principles for pediatric mandibular fractures. In our study an 11-year-old girl was referred to our clinic with facial asymmetry who were treated with titan mech for mandibular fracture when she was 4 years old. Titan mech was to be left in her mouth for seven years. Under local anesthesia, titan mech and screws were removed by intra-oral approach. Furthermore, distraction osteogenesis was planned for the treatment of facial asymmetry. As a result of this paper, we recommend that screws and plates should be removed as soon as healing period is over and especially in pediatric cases, doctors must have a greater responsibility about therapy period.

Introduction
Pediatric fractures are rare when compared with fractures in the adult population and is estimated to occur in 5% of all maxillofacial traumas (12). Boys are more commonly affected than girls and the majority of injuries occur between 6 and 12 years of age. Most pediatric fractures result from motor vehicle accidents, falls, and blunt trauma (10). Despite these opinion, Erol and his colleagues in analysis of demographic distribution and treatment in 2901 patients (25-year experience) reported that 0-10 year age group children tended to be more frequent in the summer and traffic accidents were the most common etiological factor in Southeast Anatolia region (2). Approximately 40% of all pediatric fractures involve the mandible (10). The basic treatment principles would differ from the adult population. Because of the mixed dentition, unerupted teeth, ongoing growth are the problems that affect treatment (8,13). Management of pediatric mandibular fractures is predicated upon an understanding of the developmental anatomy of the lower jaw (14). These patients present with their own unique treatment requirements. Most fractures have been treated conservatively by dental splints and rubber elastics. An occlusal splint with circummandibular wires is another treatment chosen for mandibular fractures in children (11). Closed reduction techniques with maxillomandibular fixation (MMF) in very young children can pose several concerns, including cooperation, compliance, and adequate nutritional intake. Rigid internal fixation of unstable mandibular fractures using miniplates and screws circumvents the need for MMF and allows immediate jaw mobilization (1,14,15). Also the use of resorbable plates and screws for fixation of pediatric facial fractures is both well tolerated and effective (1).

As we know metals are used in many medical implants and prostheses because of their strength and durability. However, the success or failure of the implant is largely dependent on the design of the implant, surgical expertise, and corrosion resistance (5). Severe corrosion results in the release of toxic ions such as nickel and compromises the structural integrity of the
device resulting in deleterious clinical effects such as inflammation and the formation of fibrous capsules. Degrading materials also release wear debris, which are usually micrometer-sized particles that can be phagocytosed by monocytic cells. Both metal ions and particles released into the tissue may also be cytotoxic, carcinogenic, and result in increased metal sensitivity in patients (9).

Case report
A 11-year-old girl was referred to our clinic with facial asymmetry and metallic construction in mouth and infection in the mandibular premolar region. From her medical history, we have learned that she was operated for mandibular fracture in another medical center and titan mech was placed when she was four years old.

Clinical and radiological examination showed a obvious facial asymmetry. During the intraoral examination a titan mech was detected in the right vestibule fornix with suppuration. Approximately 6-12 months ago two pieces of the screws holding titan mech were displaced into the mouth and the patient pulled out these screws by herself. In the light of current clinical and radiological symptoms, it was decided to remove titan mech and screws under local anesthesia and titan mech and two pieces of screws were removed by an intraoral approach prior to the scheduled surgery (Fig. 1). Rickets frontal analysis was done for skeletal asymmetry. As a result of this analysis, Posterio-Anterior cranigraphy showed 4mm deviation on the right side (Fig. 2). The patient was followed up for postoperative period because the patient’s growth was continuing and occlusal relation was stable. Furthermore distraction osteogenesis was planned for the treatment of facial asymmetry.

Results and Discussion
The treatment of the fractured pediatric mandible represents a therapeutic challenge to surgeon. Treatment is complicated by
the dynamic nature of developing mandible, the presence of unerupted teeth, and dental instability. In the majority of cases of minimally displaced or greenstick fractures in pediatric patients, conservative management, possibly with a brief period of intermaxillary fixation, is appropriate. When surgical management is indicated, drop wires, occlusal splints, interdental wiring, and monocortical plates and screw are all possible treatment chosen (2,11,14).

Open reduction and osteosynthesis of the pediatric fracture with titanium plates and screws is thought to have a negative effect on skeletal growth and unerupted teeth and involves two-stage surgery because of the need of plate removal after complete healing (4,7). The use of absorbable plates and screws are less likely to disturb facial skeletal growth but is still associated with risk of damaging unerupted teeth even when using monocortical screws (3,4). Because of these obvious risks closed reduction is in some cases advocated and knowledge of methods to accomplish this is necessary (4).

In a study pediatric mandibular fracture were treatment was performed with the use of orthodontic brackets, an arch bar and steel and rubber ligatures instead of using absorbable plates and screws in order to minimize the risk of complications (4). However Nicolas and his colleagues have not seen any growth disturbance caused by miniplate-osteosynthesis as the osteosynthesis-plates were generally removed after a period of 6 months in their study (6).

In this malpractice case, we determined that the previous treatment option preferred was incorrect. Moreover, the patient was not carefully followed up after the operation. In our opinion, treatment protocol and postoperative follow ups in pediatric cases with mandibula fractures must be carefully done, because growing up and developmental phenomenon continues in pediatric cases. In pediatric cases, a doctor has a greater responsibility.

In conclusion, our clinical experience supported by literature show that conservative treatment protocols (close reduction) are crucial for mandibular pediatric fractures. However, open reduction and internal fixation appliances (screws and plates) are required if mandibular fractures are unstable, highly displaced, or malunion.

As a result of this paper we recommend that screws and plates should be removed as soon as healing period is over and especially in pediatric cases, doctors must have a greater responsibility about therapy period.

REFERENCES