

A pediatric patient with a femoral diaphysis fracture occurring after a motorcycle accident

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Abstract

Introduction: Femoral diaphysis fractures are the second most common fractures influencing the lower extremity in children. They occur after high-energy traumas. Surgical treatment has come into prominence over the last 10 years to enhance patient compliance and early mobilization.

Objective: We prepared this study to present an example of trauma which may lead to serious permanent disability in pediatric patients and attract attention to the precautions to be taken on this issue.

Case: A five (5)-year-old male patient was evaluated in the emergency department with his older brother after a motorcycle accident. The vital signs of the patient with an isolated femoral trauma were found stable. His hemogram and biochemical values were normal. Orthopedic consultation was requested for the patient with an isolated femoral distal diaphysis fracture. He was hospitalized by an orthopedic consultant physician. He was taken into surgery. Fixation was performed surgically with a plate-screw system. The patient was discharged without complications.

Conclusion: Since large bone fractures may occur in pediatric patients after a high-energy trauma such as a motorcycle accident, pediatric patients should be legally prohibited from getting on a motorcycle or getting on a motorcycle without protective equipment.

Keywords: Motorcycle accident; pediatric patient; diaphysis fracture; trauma.

Introduction

Femoral diaphysis fractures are the second most common fractures influencing the lower extremity in children (20-26/100000 children per year). These fractures account for 1-2% of fractures in children [1-3]. While non-operative methods such as Pavlik harness, skeletal or skin traction, and pelvipedal plaster are preferred in younger children, surgical treatment has come into prominence in older children over the last 10 years to avoid the adverse impacts of long-term immobilization, enhance patient compliance and early mobilization [4]. Plate-screw and rigid or elastic nail applications are

among the surgical treatment options. These applications can be performed with closed, minimally invasive or open methods [5, 6]. We presented the case of a 5-year-old patient with a femoral distal diaphysis fracture occurring after a motorcycle accident.

Case

A five (5)-year-old male patient was evaluated in the emergency department with his older brother after a motorcycle accident. His vital signs were as follows: blood pressure: 106/65, heart rate: 105, saturation: 99, fever: 36.6. His hemogram and biochemical values were normal. He had no addi-

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tional trauma. Orthopedic consultation was requested for the patient with an isolated femoral distal diaphysis fracture. He was hospitalized by an orthopedic consultant physician. He was taken into surgery. Fixation was performed surgically with the plate-screw system. The patient was discharged without complications.



Figure 1: Preoperative direct radiography images of the patient.

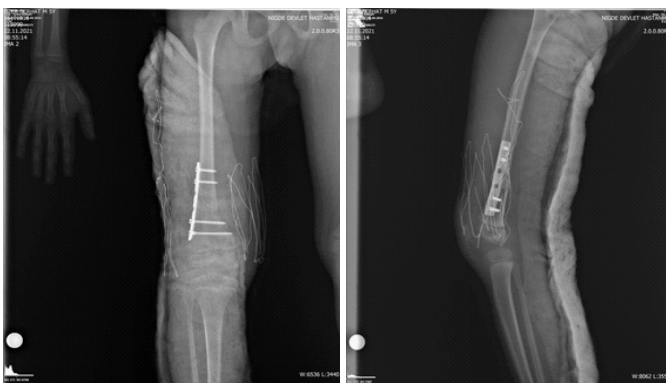


Figure 2: Postoperative direct radiography images of the patient.

Discussion

Pediatric femoral diaphysis and distal femoral fractures may occur as a result of traumas, pathological bone diseases, repetitive stresses, or child abuse [7]. In our case, the fracture was observed as a result of a high-energy traffic accident, i.e., a motorcycle accident. In femoral shaft fractures observed in school-aged children (5-15 years of age), many authors have reported problems such as joint stiffness secondary to long-term immobilization, late return to daily activities, and poor reduction resulting from inadequate fixation in the application of pelvipedal plaster, which was used more frequently in the past [8, 9]. Therefore, the treatment of femoral shaft fractures in this age group is controversial [8-10]. However, the tendency to surgical treatment methods has increased in recent years. In the treatment of femoral diaphysis fractures in children, it is mainly aimed to enable fixation and maintain blood supply and epiphyseal lines. Intramedullary nails have design and application characteristics suitable for these purposes [11]. Moreover, they have significant advantages such as protection of fracture hematoma and absence of muscle and periosteum damage owing to closed reduction [11, 12]. In their large series of 123 cases, Ligier et al. identified skin irritation and necrosis in 13 patients and deep infection in 1

patient (due to accompanying risk factors: paraplegic patient and urinary infection spread), and they did not observe an implant failure and need for another surgery in any patient. They concluded that fixation with an elastic nail was physiological and satisfactory [13]. In our case, the patient was discharged with intramedullary nailing without complications. There are publications concluding that the complication rate decreases as a result of early surgery in femoral fractures [12]. In conclusion, pediatric patients should be legally prohibited from getting on a motorcycle or getting on a motorcycle without protective equipment since large bone fractures may occur in pediatric patients after a high-energy trauma such as a motorcycle accident.

Conflict of interest: No conflict of interest was declared by the authors.

References

- Hedström EM, Svensson O, Bergström U, Michno P. Epidemiology of fractures in children and adolescents. *Acta Orthop.* 2010; 81:148-153.
- Heideken J, Svensson T, Blomqvist P, et al. Incidence and trends in femoral shaft fractures in Swedish children between 1987 and 2005. *J Pediatr Orthop.* 2011; 31:512-519.
- Schalamon J, Dampf S, Singer G, et al. Evaluation of fractures in children and adolescents in a level I trauma center in Austria. *J Trauma.* 2011; 71:E19-25.
- Carey TP, Galpin RD. Flexible intramedullary nail fixation of pediatric femoral fractures. *Clin Orthop Relat Res.* 1996; 332:110-118.
- Kuremsky MA, Frick SL. Advances in the surgical management of pediatric femoral shaft fractures. *Curr Opin Pediatr.* 2007; 19:51-57.
- Uçar BY, Gem M, Bulut M, et al. Titanium elastic intramedullary nailing: closed or mini-open reduction? *Acta Orthop Belg.* 2013; 79:406-410.
- Doğan M, Bozkurt M, Karaca S, Altıngöz H, & May H. Çocuk Femur Cisim Kırıklarının İnkorpore Pelvipedal alçı ile Tedavisi, 2004.
- Martinez AG, Carroll NC, Sarwark JF, et al. Femoral shaft fractures in children treated with early spicacast. *J Pediatr Orthop.* 1991; 11:712-771.
- Pollak AN, Cooperman DR, Thompson GH. Spicacast treatment of femoral shaft fractures in children—the prognostic value of the mechanism of injury. *J Trauma.* 1994; 37:223-229.
- Narayanan UG, Hyman JE, Wainwright AM, et al. Complications of elastic stable intramedullary nail fixation of pediatric femoral fractures, and how to avoid them. *J Pediatr Orthop.* 2004; 24:363-369.
- Saseendar S, Menon J, Patro DK. Treatment of femoral fractures in children: is titanium elastic nailing an improvement?

toverhipspicacasting? J Child Orthop. 2010; 4:245-251.

12. Güzel Y, Güvenç K, Bilge O, Toker S, & Mustafa YELP. Management of Femoral Shaft Fractures with Elastic Titanium Nails in Pediatric Patients. Dicle Medical Journal. 2016; 43(2):224-228.

13. Ligier JN, Metaizeau JP, Prévot J, Lascombes P. Elastic-stableintra-medullarynailing of femoralshaftfractures in children. J Bone JointSurgBr. 1988; 70:74-77.