Case Report
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Bilateral isolated traumatic patella fracture: A case report

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ABSTRACT

This study aimed to describe the isolated bilateral patella fracture and treatment management of a 27-year-old male patient brought to the emergency department of our hospital with pain and swelling in both knees after a motor vehicle accident. During the accident, the patient's both knees hit the dashboard. Radiographs revealed comminuted displaced patella fractures in both knees. On the same day, open reduction and internal fixation were performed for both patella fractures in the same session. On the first postoperative day, the patient was made to walk with the support of crutches and under the control of angle-adjustable knee braces, with full weight given to both sides. The complete union was observed in the postoperative sixth week. The patient had a painless full range of motion of the knee joint in the postoperative 18th month and was satisfied with his life.

Keywords: Bilateral; patella; patella fracture; rehabilitation; zuggurtung

INTRODUCTION

Isolated bilateral patella fractures due to trauma are very rare (1). Although treatment and rehabilitation in unilateral patella fractures are well defined, data on the treatment protocol in bilateral cases are insufficient (1,2).

In bilateral patella fractures treated using the tension band wiring technique, successful results can be obtained by early movement with flexion restriction (2).

In this study, isolated bilateral patella fracture and treatment management of a 27-year-old male patient who had a crash injury due to a collision with the front panel of a vehicle during a traffic accident have been described. This study aimed to discuss the treatment approaches in these cases and what needs to be done to achieve the best result.

CASE REPORT

A 27-year-old male patient was brought to the emergency department of our hospital with pain and swelling in both knees after a motor vehicle accident. The patient was a truck driver whose seat belt was not fastened during the accident. During the accident, the patient's both knees hit the dashboard. The patient had no additional disease.

Physical examination revealed significant swelling in both knees and crepitation due to fractured fragments. The patient had no other injuries. Radiographs revealed comminuted displaced patella fractures in both knees.

The patient was hospitalized, and both his knees were operated on the same day as the accident, under spinal anesthesia and in the same session with tourniquet control. Open reduction and internal fixation were performed. The patient was placed supine, and an anterior longitudinal incision was made on both knees. The fracture fragments were reduced and stabilized using 1.6-mm Kirschner wires. An acceptable degree of superficial stepping/surface mismatch was detected by controlling the patella joint surface in both knees, and an anterior cross-tension band technique was applied with the help of a 1-mm cerclage wire. In addition, a circumferential cerclage technique was applied using a 1-mm cerclage wire due to multipart fractures. The reduction quality and articular surface were examined using fluoroscopy. The retinaculum was repaired in both knees. Then, the stability was

Figure 1 Direct radiographs of bilateral traumatic patella fracture.

checked by flexing both knees up to approximately 120°. When the stability was found to be sufficient using fluoroscopy and flexion, the layers were closed in the anatomical plane. An angle-adjustable knee brace was attached to allow 0°–30° of movement in both knees, and isometric exercises were started. On the first postoperative day, the patient was made to walk with the support of crutches and under the control of angle-adjustable knee braces, with full weight given to both sides. On the postoperative fourth week, the knee brace angle was increased to 60° and the exercises were continued. The complete union was observed in the postoperative sixth week, and the knee braces were completely removed. The patient could walk without support in the postoperative 18th month. All knee joint ranges of motion were open and painless, and the patient was satisfied with his life.

DISCUSSION

Despite features, such as the subcutaneous location of the patella and cancellous bone, the patella constitutes less than 1% of all skeletal system fractures (1). Direct and indirect forces may play a role in patella fractures. Some direct causes are crash injuries due to collision with the dashboard and falls from a height in traffic accidents. Fractures in these injuries are often very fragmented. Fractures occurring with an indirect mechanism are usually caused by a sudden quadriceps contraction of the flexed knee and commonly have a transverse pattern (3). In case reports of nontraumatic fractures, osteoporosis, hyperparathyroidism, and renal failure are often the underlying causes (4,5).

Although conservative and surgical treatment and posttreatment rehabilitation of patella fractures are well described in the literature, data on the treatment protocol in bilateral cases are insufficient. Previous studies suggested that the first bilateral patella fracture was reported in 1817, and rare case reports

Figure 2 (**a** and **b**) Postoperative anterior–posterior and lateral radiographs of the patient who underwent anterior cross-tension band and circumferential cerclage application to both knees. (**c** and **d**) Anterior–posterior and lateral radiographs showing complete union in the postoperative sixth week.

have been published since then (6). In 1913, Steinke reported two bilateral patella fractures. He tied the fracture ends with a wire, and both reported good results (7). Similar case reports were subsequently reported, with better results of surgical treatment of patellar fractures involving wiring or suturing methods than nonoperative treatment (8).

In the case reports of 2011 and 2012, satisfactory results were achieved with the tension band method and partial patellectomy treatments for closed comminuted fractures. The AO technique using the tension band wiring is a time-tested process and should be the procedure of choice unless a serious fragmented fracture has occurred (2,9,10).

In conclusion, care should be taken in terms of bilateral patella fractures in vehicle traffic accidents. In these injuries, the presence of a patellar fracture on one side and less obvious clinical findings on the other side should be suspicious for possible patellar fracture. In bilateral comminuted patella fractures treated with anterior cruciate tension band and circumferential cerclage technique, successful results can be obtained by early movement with flexion restriction.

REFERENCES

1. Moretti B, Speciale D, Garofalo R, Moretti L, Patella S, Patella V. Spontaneous bilateral fracture of patella. Geriatr Gerontol Int. 2008;8(1):55–8. doi: 10.1111/j.1447-0594.2008.00447.x.
2. Cırpar M, Türker M, Aslan A, Yalçınozan M. İki taraflı travmatik patella kırığı: Bir olgu sunumu [Bilateral traumatic patella fracture: a case report]. Eklem Hastalik Cerrahisi. 2011 Aug;22(2):110-3. Turkish. PMID: 21762068.
3. Whittle AP, Wood II GW. Fractures of lower extremity. In: Canale T, editor. Campbell's operative orthopaedics. Philadelphia: Mosby; 2003. p. 2725-872.
4. Carneiro M, Nery CA, Mestriner LA. Bilateral stress fracture of the patellae: a case report. Knee 2006;13:164-6.
5. Hadlow AT, Medlicott PA. Bilateral simultaneous sleeve fractures of the patella in secondary hyperparathyroidism. Injury 1987;18:417-8.
6. Desault PJ. Treatise on Fractures, Luxations and Other Affections of the Bones. Translated by Chas. 3d ed. Caldwell: I817. p. 299.
7. Steinke CR. Report of Two Cases and a Review of the Literature. Ann Surg. 1913;58(4):510–25.
8. Murphy JJ. Bilateral Fracture of Patella. Br Med J. 1943 Jun 12;1(4301):725. doi: 10.1136/bmj.1.4301.725. PMID: 20784879; PMCID: PMC2283048.
9. Madi S, Naik M, Rao S, Vijayan S. Simultaneous, Isolated Traumatic Bilateral Patella Fractures. Trauma Mon. 2016;21(1):e20244.
10. Vinay G, Zile K, Rakesh G, Gaurav S. Bilateral traumatic patellar fracture: a case report and review of literature. Chin J Traumatol. 2012;15(3):188-91. PMID: 22663917.