

Research Journal of Pharmaceutical, Biological and Chemical Sciences

Simultaneous Fractures of Both Patellae.

Kumaravel Shanmugasundaram*, A Sivasenthil, Azath Faizer, and Renjit John Mathew.

Department of Orthopedic Surgery, Government Thanjavur Medical College, Thanjavur, Affiliated to the Tamilnadu Dr MGR Medical University Chennai 32, Tamil Nadu, India.

ABSTRACT

Bilateral simultaneous patellar fractures are very rare injuries. It can occur in systemic disorders like osteoporosis and hyperparathyroidism. A bilateral simultaneous patellar fracture caused by trauma is very rarely reported. We report a case of bilateral simultaneous patellar fracture in a 65 year old postmenopausal lady who sustained the injury following an accidental fall on getting up from her bed and suddenly losing balance. She had an undisplaced fracture of right patella and displaced transverse fracture of left patella. The right patella was treated conservatively while the left patella was treated with tension band wiring. At two year follow up, she had good functional outcome; she was able to squat, sit cross-legged; obtained normal muscle strength of quadriceps and full range of motion of both the knee joints. The mechanism of injury, the management and postoperative rehabilitation in above case will be discussed. A detailed review of literature regarding such cases will be presented.

Keywords: simultaneous fracture, both patellae, postmenopausal lady

**Corresponding author*

Case Report

On 16th June 2012, a 65 year old postmenopausal lady presented with history of losing balance on while getting up from bed and suddenly and forcefully sat on the floor with sudden flexion of both her knee joints. At that time, she had pain in both her knee joints. She was later helped to sit on the bed by her son but by then she found that she was not able to straighten both her knees. She had no loss of consciousness or had any bleeding from her ears, nose or did she had any fits. She was not able to walk after this incident. She was initially treated in another centre for four days and then came to our centre on 20th June 2012. She was a known hypertensive and a diabetic for five years before this injury. She had stopped menstruating 15 years back.

On examination, both her knees did not show any external injuries. There was swelling and tenderness over both patellae. There was no deformity of both her knees. Her cardio vascular system, respiratory system and abdomen were normal. Her X-rays showed undisplaced fracture of upper part of right patella (marked with arrows in figure 1) and displaced fracture of left patella (marked with arrows in figure 2). Her blood urea, creatinine, blood sugar were normal.



Figure 1: Antero posterior and lateral view X-rays showing the undisplaced fracture of upper part of right patella taken immediately after injury on 17-6-2012.



Figure 2: Antero posterior and lateral view X-rays showing the displaced transverse fracture of left patella taken immediately after injury on 17-6-2012

Her condition was discussed with her family and her .Since patient did not want to get operated on undisplaced fracture of right patella, it was decided to treat it conservatively .However she consented for the surgery on the left side patella. After anesthetic assessment, tension band wiring was done on left side

through a routine anterior midline approach. Post operative period was uneventful and left knee was mobilized after the pain subsided from the 1st postoperative day. Her undisplaced right patella fracture was treated conservatively with a tube plaster slab. Patient was able to walk with a walker from the 2nd postoperative day. Sutures were removed on the twelfth postoperative day. The left knee was mobilized immediately after surgery and the right knee was mobilized after one and a half months. At six weeks follow up patient had gradual improvement in range of movement. She was in continuous follow up. Her radiological and clinical results (figures 3, 4, 5,6,7,8 and 9) were good and near her pre injury status. Her latest follow-up radiographs are seen in figure 10.



Figure 3: Lateral views of the both the patellae at one and half months' follow up with conservatively treated patella on the right side and the operated patella on the left side.



Figure 4: AP views of the patellae –at one and half months' follow up with conservatively treated patella on the right side and the operated patella on the left side



Figure 5: Clinical pictures of the knee at one and half months follow up with conservatively treated right patella marked with arrow and the other was the operated patella



Figure 6: The patient was able to do straight leg rising for the both lower limb. The operated left side was marked with a bandage.



Figure 7: The patient was able to flex the knee of both the sides. She had almost equal flexion on both the side knees.



Figure 8: The follow up radiograph of the right side that was treated conservatively three months after injury. (7-9-12)



Figure 9: Post operative follow up radiograph of left side patella that was treated with tension band wiring (7-9-12) three months after the surgery.



Figure 10: The follow-up radiographs of the patient with both the lateral views and both the anteroposterior views in one film at two year follow up

REVIEW OF LITERATURE AND DISCUSSION

Bilateral patellae fractures indicate an exceptional entity, with a low incidence of 2.9% of all patellar lesions [1]. In basketball players there have been successive bilateral patella fractures because of ACL harvest and stress fractures [2]. Simultaneous isolated bilateral patellar fractures are uncommon injuries and most often linked with systemic disorders like hyperparathyroidism, osteoporosis, stress fracture and renal failure [3]. Insufficiency fractures of the patellae are rare. These are mostly described as stress fractures or as complications of chronic diseases such as described above. Mechanisms are only hypothetical, none have been proved necessitating a multidisciplinary approach [1].

Regarding traumatic simultaneous fractures of both patellae, only three case reports of isolated traumatic fracture of patella both the cases had surgical treatment for both the sides. Of these, the first case followed a road traffic accident without any related injuries or co-morbid condition. The patella on the right side had transverse open fracture which was fixed with tension band principle, and that on the left side sustained upper pole comminution which was treated by partial patellectomy. At one year he gained nearly normal muscle strength and full range of motion [3]. However our case was bilaterally closed fractures. This is one such atypical isolated bilateral traumatic fracture of patella following an abnormal mode of injury is rarely reported in the literature [3].

The second reported case was a 35-year-old male with bilateral comminuted transverse patellar fractures after a deceleration dashboard injury accident. He had tension band technique for both sides and at two year after surgery, had full range of movements with no complaints [4]. The third case of bilateral fracture of the patellae is due to an indirect trauma in an 85-year-old Parkinson patient who also had osteoporosis. Conservative management resulted in good recovery to almost pre injury mobility. Such injuries can happen in patients with metabolic bone diseases and with a high risk of fall [1].

In a skeletally immature patient bilateral simultaneous sleeve type fracture of lower pole of the patella occurred and operative fixation on both sides related in acceptable outcome [5].

CONCLUSION

This case like the case reported by us is unusual as there was no direct trauma to the knees and also because of its bilateral nature. Like past observations in insufficiency fractures of patellae occur in the presence of co morbidity like osteoporosis. In aged patients, such injuries can be insidious and also there is a need for a watchful follow up of associated degenerative arthritis of the knee. An appropriate follow up of old insufficiency fracture patients is a must as they also have problems affecting the cognition and reflexes.

References

- [1] Moretti B, Speciale D, Garofalo R, Moretti L, Patella S, Patella V. *Geriatr Gerontol Int* 2008 ;8(1):55-8.
- [2] Hensal F, Nelson T, Pavlov H, Torg J. *J Clin Orthopaed* 178:207.
- [3] Vinay G, Zile K, Rakesh G, Gaurav S. *Chin J Traumatol* 2012;15(3):188-91
- [4] Cırpar M¹, Türker M, Aslan A, Yalçınnozan M. *Eklemler Hastalıkları Cerrahisi* 2011;22(2):110-3.
- [5] Wong KH, Ho ST. *Hong Kong Journal of Orthopaedic Surg* 2003;7(2):128-131.