



Post-stroke Complication of Shoulder Dislocation and Fracture of the Humeral Head Due to Osteoporosis: A Case Report

İnme Sonrası Osteoporozla Bağlı Komplikasyon Olarak Gelişen Omuz Çıkığı ve Humerus Başı Kırığı: Bir Olgu Sunumu

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Abstract

Fracture of the humeral head and posterior or anterior dislocations of the shoulder joint due to osteoporosis are rare. Bilateral shoulder fracture dislocation has recently begun to appear in the literature. Moreover, the occurrence of this lesion following an ischemic stroke appears to be another new element in its etiopathogenesis. Here, it was presented as a case report of bilateral shoulder fracture and dislocation in a patient who previously developed left hemiplegia due to stroke. To our knowledge, this is the first case of a shoulder fracture-dislocation developed after minor trauma due to osteoporosis in a former stroke patient.

Keywords: Shoulder dislocation, shoulder fracture, hemiplegia, osteoporosis

Öz

Osteoporoz nedeniyle humerus başı kırığı ve omuz ekleminin posterior veya anterior çıkıkları nadirdir. Bilateral omuz kırıklı çıkığı yeniden literatürde yer almaya başlamıştır. Ayrıca, bu lezyonun bir iskemik inmeyi takiben ortaya çıkması, etiopatogenezinde başka bir yeni unsur gibi görünmektedir. Burada daha önce inme nedeniyle sol hemipleji gelişen bir hastada bilateral omuz kırığı ve çıkığı olgusu sunuldu. Bildiğimiz kadarıyla bu olgu, inme geçirmiş bir hastada osteoporozla bağlı minör travma sonrası gelişen ilk omuz kırıklı çıkığı olgusudur.

Anahtar kelimeler: Omuz çıkığı, omuz kırığı, hemipleji, osteoporoz

Introduction

Stroke is the second most common cause of mortality worldwide (1). Stroke generally affects the elderly population. The elderly population is also at risk for osteoporosis and fractures. Post-stroke patients experience many complications in the early and late stages, one of which is osteoporosis. Post-stroke metabolic disorders and physical inactivity cause acceleration of bone mass loss (2-4). It has been reported in studies that the risk of hip fractures after stroke is two to four times higher than healthy controls matched by age (5). Many studies have shown that significant bone mineral loss is higher especially on the paretic side in patients with stroke (6).

The rare cases of dislocation of bilateral shoulder fractures occur during epileptic seizures or in the course of trauma that occurs during convulsions (7). According to reports from today, divergence form of these bilateral shoulder fracture dislocation is

a new aspect. Moreover, the occurrence of this lesion following an ischemic stroke appears to be another new element in its etiopathogenesis (8).

Herein, it was presented as a case report of bilateral shoulder fracture and dislocation in a patient who previously developed left hemiplegia due to stroke. The patient consent was obtained.

Case Report

A 69-year-old male patient had left hemiplegia due to a stroke in September 2009. The patient could be ambulatory in the house with the support of a single person and with a cane. The patient was withdrawn from his left shoulder while being helped during the transfer in June 2019, and a fracture and dislocation occurred in the left shoulder. Later, in September 2019, a fracture and dislocation occurred in the right shoulder as a result of excessive pulling on the right shoulder during the transfer of

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the patient. The dislocated shoulder was reduced and remained in a cast for 20 days (The direct radiography of the patient's right shoulder before and after reduction is shown in Figure 1). The patient, who had fractures and dislocations in both shoulders within 4 months, was admitted to the physical medicine and rehabilitation clinic for rehabilitation at wheelchair level. In the physical examination, the patient had a short-term sitting balance. His ambulation was at wheelchair level. FIM motor was 17, FIM cognitive was 35, total was 52. Brunnstrom upper limb on the left was 2, hand was 2, lower limb was 3. Range of motion: Right shoulder passive abduction was 90, internal rotation was 90, external rotation was 70; left shoulder passive abduction was 60, flexion was 90, internal rotation was 90, external rotation was 70. His left supraspinatus and infraspinatus muscles were markedly atrophied. In laboratory tests; his bone mineral density (BMD) of the femur neck was -3.4, L1-L4 BMD was -3.4. Hemogram, biochemical tests, parathormone, calcium, phosphorus, and alkaline phosphatase values, and 24-hour urinary calcium values were within normal limits in the blood tests of the patient. Apart from stroke, the patient did not have a history of any other disease that could cause osteoporosis or any medication use. Calcium-vitamin D treatment (1.000 mg/day calcium, 800 IU/day vitamin D) and zoledronate treatment (5 mg/year) were initiated for the patient.

The patient was initiated upper extremity electrical stimulation, ROM exercises, pendulum and stretching exercises as physical therapy, in addition to balance and coordination exercises, ambulation training, trunk balance, and bicycle ergometer. Afterward, walking training was started with auxiliary devices, first in a parallel bar, then with a rollator. The patient was discharged after 6 weeks with the help of a walker and ancillary orthosis, with ambulation.

Discussion

A review of literature revealed more than 15 cases of bilateral fracture-dislocations of shoulder. Fractures and dislocations of

the shoulder which have been seen in patients with stroke are associated with epileptic seizures (8). In the literature, we did not find a case of shoulder fracture-dislocation developed after minor trauma due to osteoporosis in a former stroke patient.

Physical inactivity is a problem that increases the risk of both stroke and osteoporosis. Immediately after stroke, patients were found to have lower BMD compared with law-matched controls (4). Studies have shown that ambulation is very important in the first two months after stroke. The therapeutic effects of exercise have been reported in the elderly, especially those with chronic diseases and those at risk of stroke, osteoporosis and falling. Low FIM scores correlated with bone loss (9). Serious osteoporosis was detected in the case we presented. It was learned that the patient had a stroke 10 years ago and was able to walk with a cane and person support. As can be understood from here, it is seen that the patient has a serious sedentary life and received assistance during ambulation and transfers. As a matter of fact, while he was getting help, he had fractures and dislocations in his left shoulder and then right shoulder.

In conclusion, low BMD may be associated with limited ambulation and low FIM. Early mobilization should be targeted in stroke rehabilitation.

Ethics

Informed Consent: Informed consent was obtained from the patient regarding the case report.

Peer-review: Internally peer-reviewed.

Authorship Contributions

Concept: Ö.Z.K., Y.T.Y., E.Ü.A., Design: Ö.Z.K., E.Ü.A., Data Collection or Processing: Ö.Z.K., G.Ç., Analysis or Interpretation: Ö.Z.K., Y.T.Y., E.Ü.A., Literature Search: Ö.Z.K., Y.T.Y., Writing: Ö.Z.K., G.Ç.

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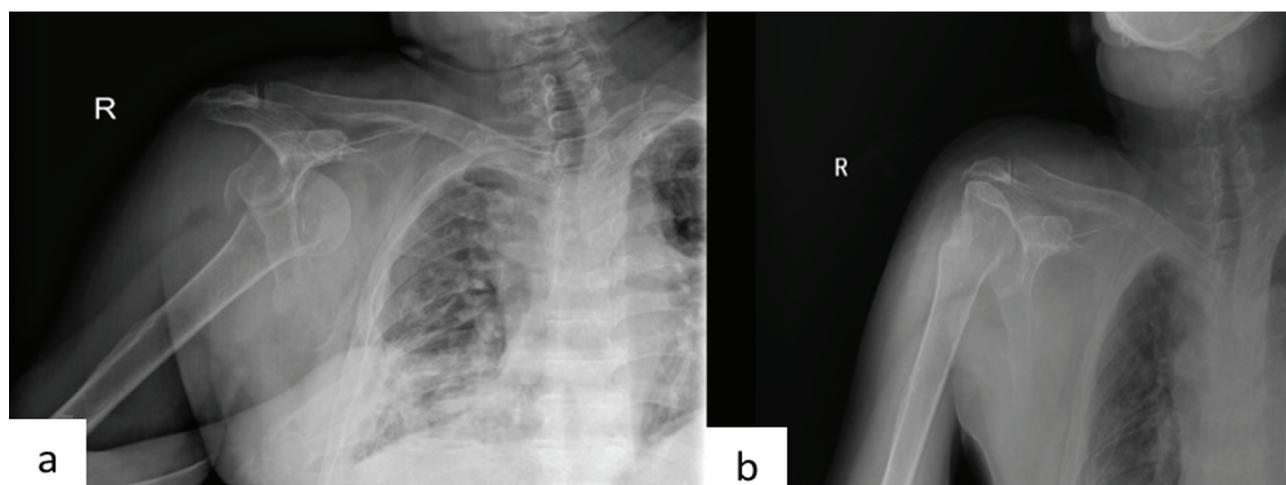


Figure 1. a. Right shoulder radiography posterior dislocation and femoral head fracture, **Figure 1. b.** Right shoulder radiography after reduction

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