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Less invasive surgery using external fixator for the treatment of subtrochanteric femur fracture in a high-risk geriatric patient

Yüksek riskli bir geriatrik hastada subtrokanterik femur kırığının tedavisinde eksternal fiksatör kullanarak daha az invaziv cerrahi

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ABSTRACT

A 90-year-old female patient was admitted to our clinic complaining of pain in her left hip which occurred due to fall from a chair. Her medical history included memory loss and mental changes associated with Alzheimer's disease and depression. Patient's cooperation and orientation were weak. Range of motion of the left hip was restricted and painful. Radiographs of the left hip demonstrated subtrochanteric comminuted fracture of femur. Laboratory tests revealed anemia and liver insufficiency. Departments of internal medicine and anesthesiology reported high risk for surgery. Surgery was performed under spinal anesthesia on radiolucent table and in supine position. Using fluoroscopy, subtrochanteric comminuted fracture of femur was reduced. Proximally, two Schanz screws were placed through femoral neck and head in axial plane, and distally, three Schanz screws were placed through femoral shaft in coronal plane. Finally, fixation of the screws was achieved with an external fixator which was made of carbon fiber rods. Patient was allowed to sit in the bed and move around with a wheelchair as of the day of surgery. No infection or loosening of fixator occurred.

Keywords: External fixator; high risk geriatric patient; subtrochanteric femur fracture.

ÖZ

Doksan yaşında bir kadın hasta sandalyeden düşme nedeniyle sol kalçasında ağrı yakınmasıyla kliniğimize yatırıldı. Tıbbi öyküsünde Alzheimer ile uyumlu hafıza kaybı ve zihinsel değişiklikler ve depresyon vardı. Hastanın kooperasyon ve oryantasyonu zayıftı. Sol kalçada eklem hareket açıklığı kısıtlı ve ağrılı idi. Sol kalçanın radyografilerinde subtrokanterik parçalı femur kırığı tespit edildi. Laboratuvar testlerinde anemi ve karaciğer yetmezliği tespit edildi. Dahiliye ve anestezi bölümleri cerrahi için yüksek risk bildirdi. Cerrahi spinal anestezi altında radyolüsen masada sırtüstü pozisyonda gerçekleştirildi. Floroskopi eşliğinde subtrokanterik parçalı femur kırığının redüksiyonu sağlandı. Proksimalde femur boynu ve başına aksiyel düzlemde iki adet Schanz vidası, distalde femur cismine koronal düzlemde üç adet Schanz vidası yerleştirildi. Son olarak, karbon fiber çubuklardan yapılmış bir eksternal fiksatör ile vidaların tespiti sağlandı. Ameliyat olduğu günden itibaren hastanın yatakta oturmasına, tekerlekli sandalye ile gezmesine izin verildi. Enfeksiyon veya fiksatörde gevşeme oluşmadı.

Anahtar sözcükler: Eksternal fiksatör; yüksek riskli geriatrik hasta; subtrokanterik femur kırığı.

Subtrochanteric femur fractures are difficult problems for orthopedic surgeons. Information is limited on patient satisfaction with the outcome of various management methods.[1] There are studies with new fixators showing that external fixation can provide results that are similar to those obtained with conventional internal fixation techniques.[2,3] Furthermore, Moroni et al.[4] concluded that surgeons should consider using the fixator with hydroxyapatite-coated pins for better fixation in the treatment of fractures in patients with osteoporosis. In this article, we report a less invasive surgery for the treatment of subtrochanteric femur fracture in a high-risk geriatric patient.

CASE REPORT

A 90-year-old female patient was admitted to our clinic complaining of pain in her left hip which occurred

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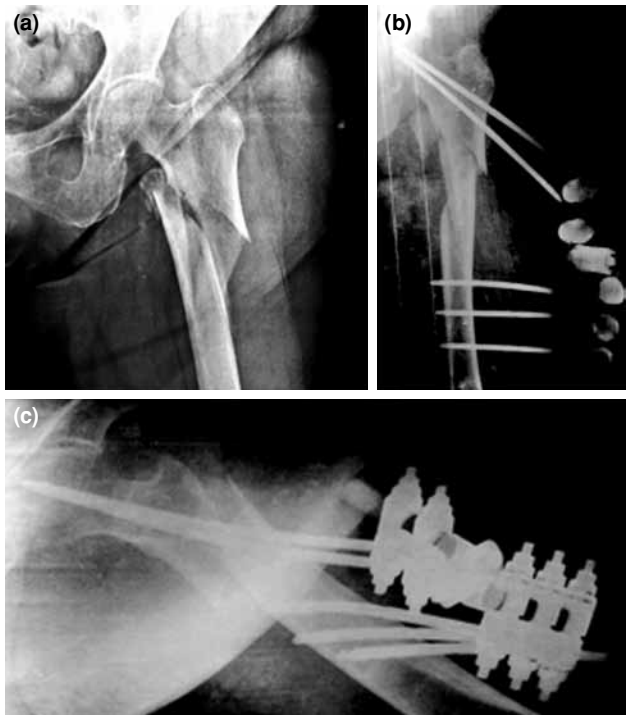

Figure 1. (a) Radiographs of left hip demonstrated subtrochanteric comminuted fracture of femur. **(b, c)** Radiographs showing fixed fracture using Schanz screws and external fixator. Proximally, two Schanz screws were placed through femoral neck and head in axial plane, and distally, three Schanz screws were placed through femoral shaft in coronal plane. Finally, fixation of screws was achieved with an external fixator which was made of carbon rods.

due to fall from a chair. Her medical history included memory loss and mental changes associated with Alzheimer's disease and depression. The patient had been taking donepezil for dementia. Her cooperation and orientation were bad. Range of motion of the left hip was painful and restricted. Radiographs of the left hip demonstrated subtrochanteric comminuted fracture of femur (Figure 1a). Laboratory investigations revealed anemia and liver insufficiency. Departments of internal medicine and anesthesiology reported high risk for surgery. Surgery was performed under spinal anesthesia and in supine position. Using image intensifier, subtrochanteric comminuted fracture of femur was reduced. Proximally, two Schanz screws were placed through femoral neck and head in axial plane, and distally, three Schanz screws were placed through femoral shaft in coronal plane (Figure 1b, c). Finally, fixation of the screws was achieved with an external fixator which was made of carbon rods. Patient was allowed to sit in the bed and move around with a wheelchair as of the day of surgery (Figure 2a-d). Betadine and ointments with antibiotic were used for wound care and prevention of pin tract infection. No infection or loosening of external fixator occurred. A written informed consent was obtained from the patient.

DISCUSSION

Subtrochanteric femur fractures in high-risk geriatric patients are difficult problems for orthopedic surgeons. We must treat the patients and not the radiographs in such cases.[5]

Dhal and Singh[6] showed that the external fixator can be applied under local anesthesia with sedation. They also showed that external fixation is superior

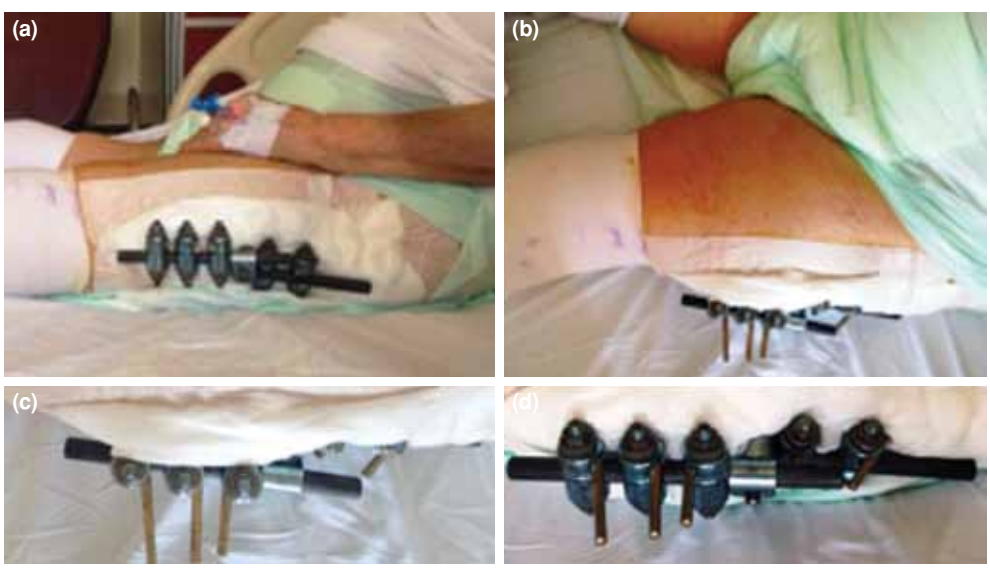

Figure 2. (a, b) Patient was allowed to sit in bed as of day of surgery. **(c, d)** View of external fixator from different angles.

in regard to delay of surgery, duration of surgery, blood loss and hospital stay, and cost efficiency. There were pin tract infections and loosening in their series. However, they performed this technique in the treatment for subtrochanteric femur fractures of young patients. On the other hand, our patient was a 90-year-old female complaining of pain in her left hip which occurred due to fall from a chair. Her medical history included memory loss and mental changes associated with Alzheimer's disease and depression. Departments of internal medicine and anesthesiology evaluated our patient as "high risk for surgery" due to the bad mental status and severe anemia with liver issufficiency. Thus, we may conclude that less invasive surgery using external fixator for the treatment of subtrochanteric femur fracture in a high-risk geriatric patient may a good choice.

Declaration of conflicting interests

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