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Bilateral Spontaneous Femoral Neck Fracture

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Abstract

Background: Spontaneous femoral neck fractures is a rare single fracture. The evident factors of its occurrence are rare, and the causes remain doubt. Osteoporosis and stress fractures have been the major possibilities.

Case presentation: We report a case of 75-year-old independent female felt right hip pain, but she did not note until she cannot resist the pain after 4 months later three years ago. The patient denied any possible trauma resulting in the femoral neck, the fracture was treated with THA. After one year, she felt right hip little pain and found right leg shorten. After the symptom continued 2 months and aggravated 1 week, she decided to readmitted in our hospital and X-ray showed the right femur neck had been fractured and same as last year. We took TKA for her and the pathological results showed that the femur head had been necrosis.

Conclusion: Our case report demonstrate whenever an elderly patient presents with a vague pain about the hip, stress fracture of the femoral neck should be included in diagnosis. Osteopenia, fragility and constantly undergoing stress of hip after are the most reasons, only identified high-risk, can these risk factors be modified and fractures prevented.

Keywords: Bilateral, Spontaneous, Femoral neck fracture, Total knee arthroplasty, Case report

Introduction

Involving the femur neck fracture area, especially in the elderly, total hip arthroplasty could be used easily and could achieve satisfied curative effect [1]. Theoretically, it removed the femoral neck area and replaced with arthroplasty, patients accepted the methods and the effect was satisfied [2].

Etiologic factors of fractures of the femoral neck have been identified. Most studies report patients with trauma [3]. Spontaneous femoral neck fracture occurred without evidently factors is rare, and the causes are remain in doubt.

Osteoporosis and stress fractures have been the major possibilities [4]. The localization of most of them was in head-neck junction area of the femoral neck, an area where most of occurring trabecular micro-fractures in osteoporotic proximal femoral [5]. The accelerated production of micro-fractures triggers in the elderly a dynamic metabolic response which result in fatigue stress fractures.

Case Presentation

Patient history

Three years ago, a 75-year-old independent female felt right hip pain, but she did not note until she cannot resist the pain after 4 months later. In our hospital, X-ray revealed fracture of the left femur neck (**Figure 1**).



Figure 1 Fracture of the left femur neck.

Diagnostics and treatment

The patient denied any possible trauma resulting in the femoral neck, also excluded any previous illness, epileptic disease, renal disease, prolapse of lumbar intervertebral disc and so forth, fluoride treatment, alcohol abuse and so forth. Erythrocyte sedimentation rate and CRP was normal. Four days later, the fracture was treated with THA (**Figure 2**). The patient's bone density: T= -2.55. During hospitalization, toe-

touch and two legs weight bearing was allowed. She was discharged 14 days later, and she had received regular follow-up every two months. One month after operation, the patient described that she had walked as normal people after discharge. After one year, she felt right hip little pain and found right leg shorten, she realized maybe the right hip had ben fractured. After the symptom continued 2 months and aggravated 1 week, she decided to readmitted in our hospital and X-ray showed the right femur neck had been fractured (**Figure 3**) and same as last year. We took TKA for her (**Figure 4**) and the pathological results showed that the femur head had been necrosis (**Figures 5 and 6**). She was discharged 14 days later.



Figure 2 The fracture was treated with total knee arthroplasty (TKA).

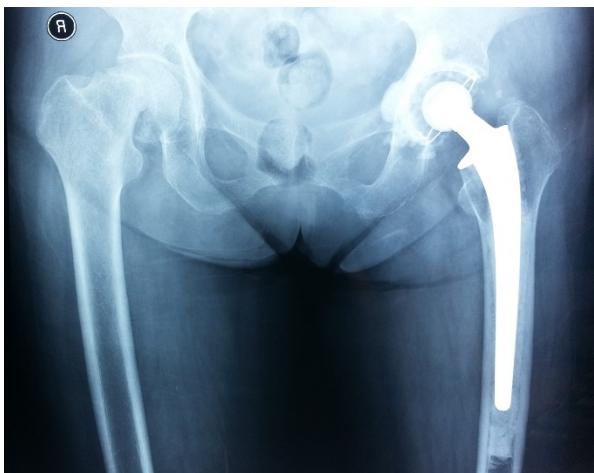


Figure 3 Fracture of the right femur neck.



Figure 4 The right fracture was treated with THA.

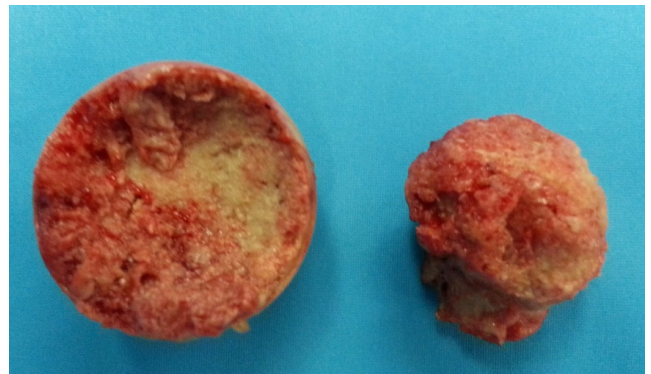


Figure 5a Femur head had been necrosis.



Figure 5b Femur head had been necrosis.

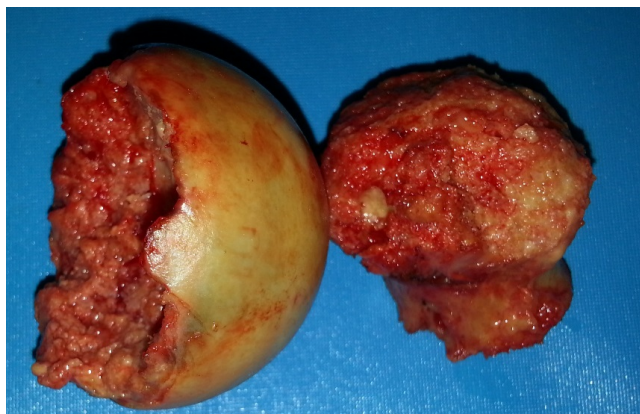


Figure 5c Femur head had been necrosis.

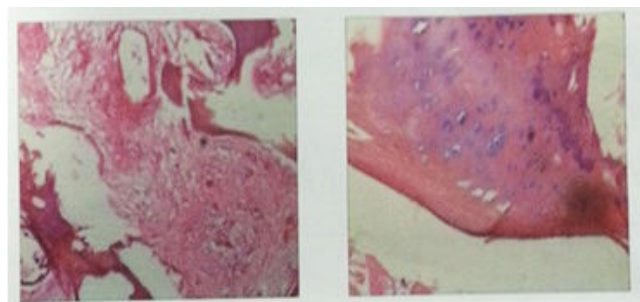


Figure 6 Pathological results showed that the femur head had been necrosis.

Discussion

In this paper, radiographs obtained after the right of hip pain and showed a focal loss of density at the upper head-neck junction one year ago (**Figure 1**), if we took MRI scan, it was possible to revealed a bone marrow edema pattern in the right head-neck junction with a low signal intensity line on the T1-weighted images and found this area had been necrosis, but the etiology of this disorder loss was unknown. This case study demonstrated that fracture of the femoral neck was associated with loss bone density [6].

Stress fractures of femoral neck occurring is another possibility, which to the best of our knowledge, has been described previously [2,7]. At the upper head-neck junction, it is a stress area which undergo the gravity of body. But in the elderly, the density of the area was thinner and it is very easier to occur fracture and we can find the right thin density in head-neck junction area when the left femoral neck fractured (**Figure 1**). Stress fracture of the femoral neck is usually seen in military [8]. And in the elderly, they could be easily overlooked. Stress fractures of the femoral neck were prevalent in adults older than 65 years of age [9]. The pathogenesis is unclear. The localization of most of them was in head-neck junction area of the femoral neck, an area where most of occurring trabecular micro-fractures in osteoporotic proximal femoral [5]. The accelerated production of micro-fractures triggers in the

elderly a dynamic metabolic response which result in fatigue stress fractures [10].

Conclusion

Our case report demonstrates, whenever an elderly patient presents with a vague pain about the hip, stress fracture of the femoral neck should be included in diagnosis. Osteopenia, fragility and constantly undergoing stress of hip after are the most reasons, only identified high-risk, can these risk factors be modified and fractures prevented.

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Authors Contribution

Kai Sun took the history and wrote the initial draft of the manuscript. Hui Li and Wenxue Jiang performed the physical examination and revised the manuscript. All authors reviewed and contributed to the final version of this case report. All authors read and approved the final manuscript.

Ethics Approval and Consent to Participate

Ethical clearance was sought from the Directorate of Tianjin Medical University General Hospital.

References

1. Pankaj A, Malhotra R, Logani V, Bhan S (2007) Bilateral femoral neck stress fractures following total knee arthroplasty: A case report and review of literature. *Arch Orthop Trauma Surg* 7: 549-552.
2. Yli-Kyyny T, Tamminen I, Syri J, Venesmaa P, Kroger H (2011) Bilateral hip pain, *Lancet* 9784: 2248.
3. Munker R, Niedhart C, Niethard FU, Schmidt-Rohlfing B (2007) Bilateral fracture of the femoral neck following transient osteoporosis in pregnancy, *Z Orthop Ihre Grenzgeb* 1: 99-90.
4. Bala M, Bollheimer C, Scholmerich J, Schaffler A (2009) Hormone-induced spontaneous femoral neck fracture in a 28-year-old female patient. *Med Klin* 3: 244-248.
5. Rieger B, Friederich NF, Rasch H, Hirschmann MT (2014) Non-dislocated osteoporotic insufficiency fracture of the medial femoral neck: SPECT/CT makes the diagnostic difference. *Unfallchirurg* 4: 369-373.
6. Lippuner K (2012) Osteoporosis-whom to treat? The importance of FRAX(R) in Switzerland, *Ther Umsch* 3: 207-213.
7. Hanquist PA (2012) Spontaneous, bilateral fracture of the collum femoris by diabetic kidney insufficiency. *Ugeskr Laeger* 13: 874-875.
8. Viceconti M, Taddei F, Cristofolini L, Martelli S, Falcinelli C, et al. (2012) Are spontaneous fractures possible? An example of

- clinical application for personalised, multiscale neuro-musculo-skeletal modelling. *J Biomech* 3: 421-426.
9. Kaneko H, Matsuda K, Kim S, Maeda K, Ikegami T, et al. (2009) Subcapital femoral neck fracture after fixation of an intertrochanteric fracture with a proximal femoral nail: a report of two cases. *J Orthop Surg (Hong Kong)* 3: 370-373.
 10. Matsushita T (2013) Synovial hemangioma of the hip joint with pathological femoral neck fracture and extra-articular extension. *J Orthop Sci* 1: 181-185.