Acta Orthop Scand *56*, 275–276, 1985

Femoral head necrosis following traumatic hip joint tamponade

A case report

Necrosis of the left femoral head developed after a bicycle accident with undislocated acetabular fracture. 1½ years later a Moore hemiarthroplasty was performed. The cause of the condition was probably hip joint tamponade.

Göran C. H. Bauer

University Department of Orthopaedics in Lund, S-22185 Lund, Sweden

Twenty-five years ago, I performed a Moore hemiarthroplasty for femoral head necrosis. At the time we did not understand the etiology of the condition. I now believe it was traumatic tamponade of the hip joint (Strömqvist et al. 1985).

Case report

On November 12, 1958, a 64-year-old man was brought to the Orthopedic Department of Malmö General Hospital, Sweden, immediately after he had fallen off his bicycle in a near collision with a car. He stated he had fallen on his left hip; the left hip was painful on active motion, and radiographs showed a fissure through the acetabulum at 10 o'clock (Figure 1). The patient received physiotherapy, and after 6 weeks he returned to his job as a check-room attendant at a restaurant. In the summer and fall of 1959 he had occasional hip discomfort, and 1 year after the bicycle accident his left hip had become increasingly painful; he could walk at most 100 m and could not negotiate stairs. I saw him in the Orthopedic Clinic on March 2, 1960 by which time he had to travel to and from his job by taxi and could not sleep because of pain. He walked with a slight limp, and his left hip had a slight flexion contracture and hardly any rotation. The radiographic examination showed necrosis of the left femoral head with a large segmental collapse at the upper lateral pole (Figure 1).

On April 5, 1960, I performed a Moore hemiarthroplasty and found the femoral head remarkably soft in its upper part. Histologic examination confirmed the diagnosis of osteonecrosis. The patient recovered, never had any more problems from his left hip, and died from a cancer of the lung 16 years later.

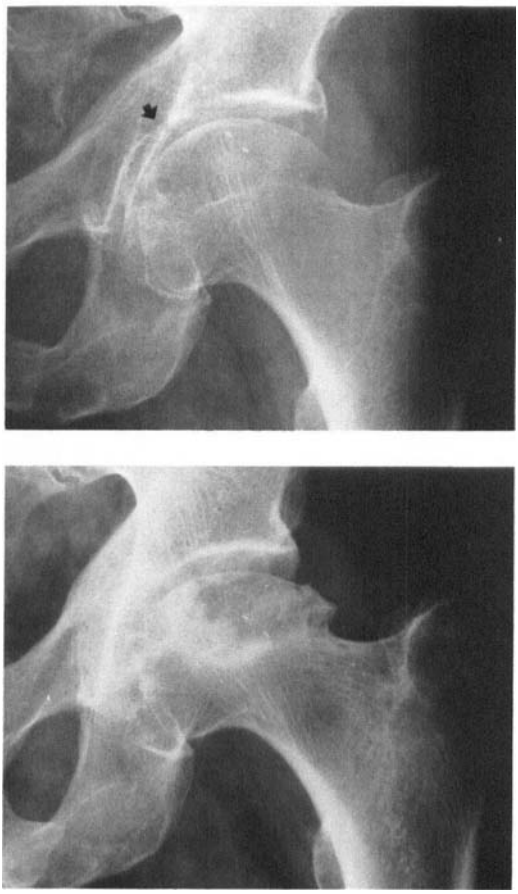

Figure 1. Development of femoral head necrosis due to traumatic hip joint tamponade.

November 1958, acetabular fracture after fall on the left hip in a bicycle accident.
February 1960, the acetabular fracture has healed but the femoral head has collapsed in the upper lateral part because of osteonecrosis.

Discussion

Of course, we realized at the time that the accident a year previously had caused the necrosis, but we did not understand the mechanism. When the femoral head was sent for microscopic examination, the pathologist was asked whether he could identify vessels in the ligamentum teres; we thought that perhaps these vessels had been occluded by the acetabular fracture. However, the pathologist only verified the osteonecrosis. I have now had the opportunity to see seven cases of traumatic hip joint tamponade (Strömqvist et al. 1985), in which the femoral head has been brought back to life by aspiration of hematomas which have caused high intra-articular pressures. I therefore believe my case to be one of hip joint tamponade.

True, the patient worked in a restaurant, an environment associated with alcoholism and hence with non-traumatic necrosis of the femoral head. However, the patient was not regarded as an alcoholic, and his hip problem was clearly associated with distinct trauma.

As hip joint tamponade has progressed from speculation and experiments to become a solid clinical reality, it is important to re-evaluate previous concepts. As I was reading the report by Gelfand et al. (1983) on transient loss of isotope uptake in a hemophilic hip I felt I knew the cause of the Legg-Calvé-Perthes'-like left hip of the 10-year-old hemophiliac shown in Figure 5 in Ahlberg's study (1965).

Traumatic hip joint tamponade should be diagnosed and treated in the first of the three radiographically silent stages of femoral head necrosis (Bauer 1980): the first is reversible, the second irreversible, and the third hypermetabolic.

Acknowledgement

After a quarter century the original radiographs were immediately available because the Department of Diagnostic Radiology in Malmö has not destroyed any radiographs since 1919!

References

Ahlberg, Å. (1965) Haemophilia in Sweden. VII. Incidence, treatment and prophylaxis of arthropathy and other musculo-skeletal manifestations of haemophilia A and B. *Acta Orthop. Scand.* Suppl. 77.

Bauer, G. C. H. (1980) Osteonecrosis. A nostalgic review. In: *Clinical trends in orthopaedics*, (Eds. Straub & Wilson), pp. 95–100. Thieme, Stuttgart.

Gelfand, M. J., Ball, W. S., Oestreich, A. E., Crawford, A. H, Jolson, R. & Perlman, A. (1983) Transient loss of femoral head Tc-99m diphosphonate uptake with prolonged maintenance of femoral head architecture. *Clin. Nucl. Med.* **8**, 347–354.

Strömqvist, B., Wingstrand, H., Egund, N., Carlin, N. O., Gustafson, T., Herrlin, K., Nilsson, L. T., Thorngren, K. G. & Önnerfält, R. (1985) Traumatic hip joint tamponade. Two cases with femoral head ischaemia. *Acta Orthop. Scand.* **56**, 81–85.