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HIP DISLOCATION, ANATOMICAL DESCRIPTION, EPIDEMIOLOGY, MECHANISMS OF ACTION, CLASSIFICATION, CLINICAL PRESENTATION, IMAGING PRESENTATION, TREATMENT, COMPLICATIONS AND DISLOCATION AFTER TOTAL HIP REPLACEMENT

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SUMMARY

Introduction: *Traumatic hip dislocation is an uncommon injury, approximately making up 2 to 5% of all dislocations generated by high-energy trauma. This type of dislocation can be pure or related to other injuries or alterations such as fracture of the femoral head, femoral neck or acetabulum.*

Objective: *to detail the current information related to hip dislocation, anatomical description, epidemiology, mechanisms of action, classification, clinical presentation, imaging presentation, treatment, complications and dislocation after total hip replacement.*

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Methodology: *a total of 30 articles were analyzed in this review, including review and original articles, as well as clinical cases, of which 21 bibliographies were used because the other articles were not relevant to this study. The sources of information were PubMed, SciELO, Google Scholar and Cochrane; the terms used to search for information in Spanish, Portuguese and English were: hip dislocation, proximal femur, femoroacetabular dislocation, prosthetic dislocation.*

Results: *Anterior dislocations account for 10% to 15% of traumatic hip dislocations, with the remainder being assigned to posterior dislocations. The incidence of osteonecrosis of the femoral head is between 2% to 17% of individuals, while 16% form post-traumatic osteoarthritis. The sciatic nerve is affected in about 10% to 20% of posterior dislocations. There is no correlation between early weight bearing and osteonecrosis. Dislocation of the total hip endoprosthesis is observed in about 2% of individuals within one year after surgery. There are dislocation rates of up to 28% following revision and implant exchange surgeries.*

Conclusions: *The capsular ligaments of the hip joint (iliofemoral, ischiofemoral, and pubofemoral) act very importantly in the functional mobility and stability of the joint. Hip dislocations are caused by high-energy trauma, such as traffic accidents, which are becoming more common due to the increase of these. Posterior dislocations are more common compared to anterior hip dislocations. A complete and thorough trauma evaluation is important in the clinical assessment. Those with a posterior dislocation of the hip show marked pain and the hip in flexion, internal rotation and adduction. Those with an anterior dislocation remain with the hip in marked external rotation, slight flexion and abduction. The importance of an anteroposterior projection of the pelvis and a cross lateral projection of the injured hip is emphasized. Treatment may be closed or open reduction depending on the circumstances, clinical situation and associated injuries. Complications such as osteonecrosis may be associated with the time of evolution. The treatment of instability following total hip replacement should follow a standardized algorithm.*

KEY WORDS: *dislocation, hip, femur, acetabulum, prosthesis.*

INTRODUCTION

Traumatic hip dislocation is an uncommon injury, approximately 2 to 5% of all dislocations caused by high-energy trauma, 60% of which are caused by traffic accidents, followed in order of frequency by falls from great heights, occupational accidents, sports injuries and others(1,2).

This type of dislocations can be pure or related to other injuries or alterations such as fracture of the femoral head, femoral neck or acetabulum and infrequently intertrochanteric and subtrochanteric fractures. The alterations are determined by the location of the hip at the instant of impact, as well as the site of action of the force of the provoking agent. Approximately 3 to 5% of fractures of the proximal end of the femur are generated in high-impact trauma(2-4).

Some bibliographies describe 4.8 to 58.8% of femoral head necrosis in hip dislocations, depending on the time until reduction. Other authors report 17% if the hip is reduced before 12 hours and reaching more than 56% after this time. Although the times are not clear, it is possible to reduce as soon as possible, however it is difficult when the alteration is associated with fractures of the proximal femur. There are complications such as osteonecrosis, vascular lesion and neurological lesion, in addition to this, coxarthrosis and heterotopic ossification may occur in the long term(2,5-7).

METHODOLOGY

A total of 30 articles were analyzed in this review, including review and original articles, as well as cases and clinical trials, of which 21 bibliographies were used because the information collected was not important enough to be included in this study. The sources of information were Cochrane, PubMed and Google Scholar; the terms used to search for information in Spanish, Portuguese and English were: hip dislocation, proximal femur, femoroacetabular dislocation, prosthetic dislocation.

The choice of bibliography exposes elements related to hip dislocation; in addition to epidemiology, anatomical description, mechanisms of action, classification, clinical presentation, imaging presentation, treatment, complications and dislocation after total hip replacement.

DEVELOPMENT

EPIDEMIOLOGY

Up to half of the individuals who present with a hip dislocation show concomitant fractures elsewhere. Those who ride in a vehicle without a restraint system are at risk of showing a larger hip dislocation compared to those with a restraint system. Anterior dislocations account for 10% to 15% of traumatic hip dislocations, with the remainder being posterior dislocations. The incidence of osteonecrosis of the femoral head is between 2% to 17% of individuals, while 16% form post-traumatic osteoarthritis. The sciatic nerve is affected in about 10% to 20% of posterior dislocations(3,8).

Some reviews show that this type of injury in young active individuals, with an average age of around 40 years, may leave short, medium and long term sequelae(9,10).

ANATOMY

The hip joint is an enarthrosis with a stability given by its bony configuration, in addition to the ligamentous restrictors and the congruence of the femoral head inside the acetabulum. The acetabulum is formed by the union between the ischium, the ilium and the pubis in the triradiate cartilage. Approximately 40% of the femoral head is covered by acetabular bone. The effect of the labrum is to deepen the acetabulum and increase joint stability. The hip joint capsule is composed of thick longitudinal fibers supplemented by stronger ligamentous thickenings (the

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iliofemoral, pubofemoral and ischiofemoral ligaments), which are directed in a spiral fashion and do not allow excessive extension of the hip. The capsular ligaments of the hip joint (iliofemoral, ischiofemoral and pubofemoral) play an important role in the functional mobility and stability of the joint. The primary vascularization of the femoral head originates from the medial and lateral femoral circumflex arteries, which are branches of the deep femoral artery. At the base of the femoral neck, an extracapsular vascular ring is formed that generates ascending cervical branches that cross the hip joint at the capsular insertions. The ascending cervical branches course through the femoral neck and enter the bone just below the articular cartilage of the femoral head. The artery of the round ligament, which is a source of the obturator artery, may provide vascularization to the epiphyseal region of the femoral head. The sciatic nerve exits the pelvis through the greater sciatic notch. There is some variability in discussing the relationship of the nerve to the piriformis muscle and the short external rotator muscles of the hip. Most commonly, the sciatic nerve exits the pelvis below the muscle belly of the piriformis(3,8,11).

MECHANISM OF INJURY

Hip dislocations are usually caused by high-energy trauma, such as traffic accidents, industrial accidents or falls from a height. These traumas are increasingly common due to the increase in traffic accidents. The originating force is directed to the hip from one of these locations:
The front of the flexed knee upon impact against an object.
The sole of the foot, with the knee on the same side extended.
The greater trochanter.
Less commonly, the force generating the dislocation is placed in the posterior region of the pelvis, with the foot or knee on the same side acting as a strut. The direction of dislocation (anterior versus posterior) is given by the direction of the force applied and the posture of the lower limb at the instant of injury.

Anterior Dislocations

They account for 10% to 15% of traumatic hip dislocations, usually caused by external rotation with hip abduction. The level of hip abduction determines whether the anterior dislocation is superior or inferior:
Inferior or obturator dislocation is generated by abduction, external rotation and flexion at the same time of the hip.
The superior, iliac or also called pubic dislocation is generated by abduction, external rotation and extension at the same time of the hip.

Posterior Dislocations

More common compared to anterior hip dislocations. They occur in trauma with the knee flexed and the hip in different degrees of flexion:
If at impact the hip is neutral or in mild adduction, it is possible to generate a dislocation without fracture of the acetabulum.
If the hip is in slight abduction, a related fracture of the posterosuperior part of the rim of the acetabulum is generated most of the time(2,3,8).
Traumatic dislocation of the posterior portion of the hip associated with a fracture of the femoral neck is a rare injury; the combination of posterior dislocation of the femoral head with ipsolateral fractures of the femoral neck and diaphysis is even rarer(12).

CLINICAL ASSESSMENT

A complete and thorough trauma evaluation is important, due to the high energy mechanism that occurs most of the time. Most of the affected individuals are oblivious or unconscious at the time of being attended as a result of the associated injuries. Concomitant intra-abdominal and thoracic injuries are common, as well as some other musculoskeletal alterations, such as fractures of the pelvis, acetabulum or spine. Individuals with a hip dislocation are unable to move the lower extremity and have considerable pain.

Those with a posterior hip dislocation have significant pain and the hip in flexion, internal rotation and adduction.
Those with an anterior dislocation remain with the hip in significant external rotation, slight flexion and abduction.

It is important to make a correct neurovascular exploration because a lesion of the sciatic nerve or of the femoral neurovascular complexes can be generated in the dislocation. The lesion of the sciatic nerve happens by elongation of the nerve towards the posterior on the head of the dislocated femur, also the posterior fragments of the wall of the acetabulum come to alter it. Mostly the peroneal part of the sciatic nerve is altered. Infrequently there is an injury of the femoral artery, vein or nerve after an anterior dislocation. Ipsilateral fractures of the knee, patella and femur are common, so a good assessment is important, in addition to evaluating fractures of the pelvis and spine(3,4,8,12).

ASSESSMENT BY IMAGING

An anteroposterior projection of the pelvis and a cross lateral projection of the injured hip are required. The observable in the anteroposterior projection of the pelvis are the femoral heads that must present identical size with symmetrical and integral articular spaces in all its surface; in the posterior dislocations, the head of the altered femur can appear a little smaller compared to the other normal one, on the contrary in the anterior dislocations, the head of the femur appears slightly bigger than the normal one. Above Shenton's line should remain regular and continuous. The relative appearance of the greater and lesser trochanters may suggest pathologic internal or external rotation of the hip. It is also necessary to evaluate the abducted or adducted position of the femoral shaft. The femoral neck should be evaluated to eliminate the possibility of fracture prior to reduction maneuvers. The cross

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lateral projection of the affected hip can help in the differentiation of posterior dislocations from anterior dislocations.

An oblique projection at 45° also called Judet allows us to evaluate the presence of osteochondral fragments, the congruence of the articular spaces, the integrity of the acetabulum, as well as depressions and fractures of the femoral head.

If it is not possible to perform a closed reduction and an open reduction is desired, a CT scan should be performed beforehand to demonstrate the existence of intra-articular fragments and to rule out the possibility of related fractures of the femur and acetabulum. At the moment, the role of MRI in hip dislocation is not clear, however it is useful to evaluate the integrity of the impeller or labrum, in addition to the vascularization of the femoral head(3,8,13).

Figure 1. The preoperative anteroposterior pelvic radiograph (A), Judet views (B, C) and computed tomography show the severely displaced lateral femoral neck fracture with posterior dislocation of the femoral head in combination with a transverse acetabular fracture.

Source: Tannast M, Mack PW, Klaeser B, Siebenrock KA. Hip dislocation and femoral neck fracture: Decision-making for head preservation. Injury. 2009(13)

CLASSIFICATION

Hip dislocations can be divided according to the existence or not of associated fractures and the relationship of the femoral head to the acetabulum.

Thompson and Epstein Classification

Anterior hip dislocations.
Type I: Superior dislocations, including pubic and subspinous dislocation.
IA: Without associated fracture.
IB: Associated with a fracture or impaction of the femoral head.
IC: Associated with a fracture of the acetabulum.
Type II: Inferior dislocations, including obturator dislocation and perineal dislocation.
IIA: Without associated fracture.
IIB: Associated with a fracture or impaction of the femoral head.
IIC: Associated with a fracture of the acetabulum.

Luxaciones posteriores de cadera.

Tipo I: Luxación simple con o sin un fragmento insignificante de la pared posterior.
Tipo II: Luxación asociada a un único gran fragmento de la pared posterior.
Tipo III: Luxación con un fragmento conminuto de la pared posterior.

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Tipo IV: Luxación simple con una fractura del suelo del acetábulo.
Tipo V: Luxación con una fractura de la cabeza del fémur (clasificación de Pipkin)(3,14).

Clasificación de Pipkin de la luxación de cadera con fractura asociada de la cabeza y el cuello del fémur. La luxación-fractura de cadera de Pipkin es una lesión que suele pasar desapercibida y se asocia a graves secuelas(6,15).
Tipo 1 con fractura de la cabeza femoral caudal a la fóvea capitis femoris.
Tipo 2 Luxación con fractura de la cabeza femoral cefálica a la fóvea capitis femoris.
Tipo 3 Tipo 1 ó 2 asociado a una fractura del cuello femoral.
Tipo 4 Tipo 1 ó 2 asociado a una fractura del borde acetabular.

TREATMENT

It is necessary to reduce the hip early, reducing the risk of osteonecrosis of the femoral head; the technique to be used, closed or open, is controversial. Most researchers recommend attempting closed reduction, however, it is considered that all fracture-dislocations require urgent surgery to remove the fracture pieces from the joint, in addition to restoring the fractures. It is reported in some literature that the prognosis worsens with time in either closed or open reduction after 12 hours. Fractures of the acetabulum or related femoral head may be treated in the subacute phase.

Closed Reduction

Regardless of the direction of the dislocation, reduction can be attempted through traction on the axis of the extremity with the affected individual in the supine position. It is more convenient to perform closed reduction under general anesthesia, however it is also possible to perform it only under conscious sedation(3,8).

We show 3 methods which, when correctly applied, help to reduce the hip:
Allis Method: comprises the generation of traction in the direction of the deformity, placing the individual in supine decubitus, standing above the affected individual on the surgical table or stretcher. Initially, traction is performed in the axis while an assistant generates countertraction to stabilize the pelvis of the compromised individual. As the traction force increases, flexion should be gradually increased until about 70° is maintained. Slight rotational movements at the hip, as well as slight abduction, usually support the femoral head overriding the rim of the acetabulum. In addition, if a lateral direction force is exerted on the proximal portion of the thigh, it aids reduction. Hearing a snap is a sign of success(3,8).

Stimson's Gravity Technique: the affected individual is positioned on the stretcher in prone position with the involved leg on the outside, placing the limb in 90° of hip flexion and 90° of knee flexion; here one person immobilizes the pelvis and another person generates an anterior force on the proximal portion of the calf. A slight rotation of the limb can be performed to facilitate reduction(3,8).

Bigelow And Inverted Bigelow Maneuvers: associated with iatrogenic femoral neck fractures and are not commonly used.

Bigelow, in the supine position, longitudinal traction is exerted on the limb, subsequently, the thigh in adduction and internal rotation is flexed at least 90°, then, the femoral head is inserted into the acetabulum through abduction, external rotation and hip extension.

Inverted Bigelow, used in anterior dislocations, traction is exerted in line with the deformity, then the hip is placed in adduction and suddenly internal rotation and extension are generated.

Following a closed reduction, an anteroposterior radiograph of the pelvis is recommended to judge the reduction. While the individual remains sedated or under anesthesia, hip stability should be assessed; when an acetabular fracture with a large displaced fragment is encountered, stability should not be assessed.

Stability can be conferred by flexing the hip 90° in neutral position, consequently a force is exerted in the posterior direction, upon feeling any sensation of subluxation, further diagnostic studies and sometimes surgical exploration or extra traction treatment will be done.
After achieving closed reduction and assessing stability, a CT scan is recommended.

Open Reduction

Open reduction is recommended for hip dislocation in:

- Non-concentric reduction.
- Fracture of the acetabulum or femoral head requiring excision or open reduction and internal fixation.
- Irreducible dislocation of closed form.
- Ipsilateral femoral neck fracture.

The standard posterior or Kocher-Langenbeck approach allows exploration of the sciatic nerve, removal of posterior incarcerated fragments, treatment of most labral tears and instability, and restoration of posterior fractures of the acetabulum.

The anterior or Smith-Peterson approach is used in isolated fractures of the femoral head. It presents some disadvantages in posterior hip dislocations such as possible total vascular injury. The lateral circumflex artery can be preserved by detaching the capsule from the acetabular side, keeping the insertions in the femoral neck and trochanters intact.

The anterolateral or Watson-Jones approach is frequently used in anterior dislocations and when presenting with related femoral head or femoral neck fractures.

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The direct lateral or Hardinge approach shows the anterior and posterior structures in the same incision.

When presenting an ipsilateral fracture of the femoral neck, displaced or non-displaced, it is recommended not to perform closed reduction. It is suggested to stabilize the hip fracture provisionally by means of a lateral approach, then perform a mild reduction and consequently the definitive fixation of the femoral neck.

Post-reduction, treatment differs from short periods of bed rest to skeletal traction of varying duration. There is no correlation between early weight bearing and osteonecrosis, which leads us to recommend partial weight bearing. If the reduction is concentric and stable, after a short period of bed rest, the protected load is released after 4 to 6 weeks. If the reduction is concentric and unstable, skeletal traction is applied for 4 to 6 weeks followed by protected loading(3,6,8,11,14).

PROGNOSIS

The consequences following hip dislocation range from a relatively normal hip to a joint with significant pain and degenerative changes. Several reviews report good to excellent results in 70 to 80% of non-complex posterior dislocations. However, as posterior dislocation is related to a fracture of the femoral head or acetabulum, it alters the prognosis. There are reports of increased incidence of associated femoral head injuries such as osteochondral or subsidence in anterior dislocations. Individuals with very satisfactory results do not present associated femoral head fracture(3,8).

COMPLICATIONS

Osteonecrosis: occurs in approximately 5% to 40% of the injuries, the risk is higher according to the increase in time to reduction, generally if it is greater than 6 to 24 hours, however there is literature that indicates that osteonecrosis comes from the initial injury and not from the time of dislocation. Osteonecrosis may show up many years after the injury. Constant attempts at reduction may increase its incidence(3).

Post-Traumatic Osteoarthritis: common in the long term, the incidence is particularly high if the dislocation is related to fracture of the acetabulum or transchondral fractures of the femoral head(3).

Recurrent Dislocation: infrequent with an incidence of approximately 2%, individuals who show reduced anteversion of the femur may have recurrent posterior dislocations, while those with increased anteversion may be prone to recurrent anterior dislocations(3).

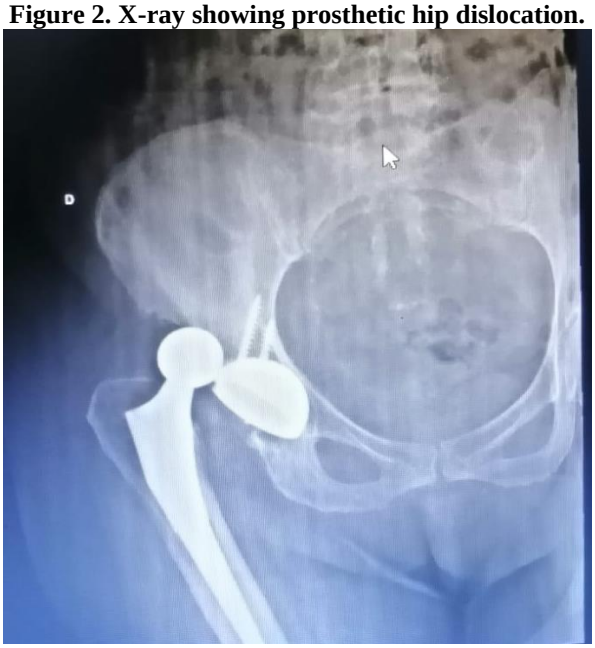
Neurovascular Injury: the sciatic nerve is altered in 10 to 20% of hip dislocations, mostly by elongation due to posterior slippage of the dislocated head or by a displaced piece. The observed rate of complete recovery is between 40 and 50%. Electromyographic studies are recommended at 3 to 4 weeks. If there is no clinical or electrical improvement after one year of injury, surgical exploration should be performed. If the sciatic nerve injury occurs after closed reduction, nerve entrapment may have occurred and surgery is suggested for exploration. Reports of injury to the femoral nerve and femoral vascular structures in anterior hip dislocations are reported in the literature(3).

Femoral Head Fractures: occur in approximately 10% of posterior dislocations or shear fractures and about 25 to 75% of anterior dislocations or plunge fractures.

Heterotopic Ossifications: these are seen in about 2% of affected individuals and are linked to initial muscle injury as well as hematoma formation. Surgical intervention increases its incidence and prophylaxis can be done with the drug indomethacin for 6 weeks or radiotherapy.

Thromboembolic Disease: it is usually shown after hip dislocation due to intimal injury by traction of the vessels. Prophylaxis with medication, elastic stockings and sequential pneumatic compression devices is recommended, especially if affected individuals are subjected to traction(3).

Figure 2. X-ray showing prosthetic hip dislocation.



Source: The Authors.

DISLOCATION AFTER TOTAL HIP REPLACEMENT

Hip replacement is among the most successful surgeries of the musculoskeletal system, however, it can present serious complications such as dislocation of a total hip endoprosthesis, which is an emotionally traumatizing event that should be prevented in the first instance. A preoperative risk assessment

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should be made, as well as, the operation should be performed with a correct technique, making the best possible physical configuration of the implant structures, in addition to maintaining the balance of the soft tissues and that the trained orthopedic surgeon has the appropriate experience for the procedure. Dislocation of the total hip endoprosthesis is observed in about 2% of individuals within one year after the intervention.

There are dislocation rates of up to 28% following implant revision and exchange surgeries. Individual-specific risk factors include advanced age, concomitant neurologic disease, and limited compliance; relevant procedure-specific risk factors include inadequate soft tissue tension, limited surgical experience, and implant malposition. Treatment of instability following total hip replacement should maintain a standardized algorithm. Conservative treatment is warranted the first time a dislocation is generated without identifiable reason. Prosthesis dislocation is an infrequent complication in posterior approach total hip arthroplasty, however it has a significant impact on mortality and morbidity(16-21).

Figure 3. Fluoroscopy showing hip joint following reduction of a prosthetic hip dislocation.

Source: The Authors

CONCLUSIONS

The capsular ligaments of the hip joint (iliofemoral, ischiofemoral and pubofemoral) play an important role in the functional mobility and stability of the joint. Hip dislocations are caused by high-energy trauma, such as traffic accidents, which are becoming more common due to the increase of these. Posterior dislocations are more common compared to anterior hip dislocations. A complete and thorough trauma evaluation is important in the clinical assessment. Those who present with a posterior dislocation of the hip show marked pain and the hip in flexion, internal rotation and adduction. Those with an anterior dislocation remain with the hip in marked external rotation, slight flexion and abduction. The importance of an anteroposterior projection of the pelvis and a cross lateral projection of the injured hip is emphasized. Treatment may be closed or open reduction depending on the circumstances, clinical situation and associated injuries. Complications such as osteonecrosis may be associated with the time of evolution. Treatment of instability following total hip replacement should follow a standardized algorithm.

BIBLIOGRAPHY

1. *Pascarella R, Maresca A, Cappuccio M, Reggiani LM, Boriani S. Asymmetrical bilateral traumatic fracture dislocation of the hip: A report of two cases. Chir Organi Mov. 2008 Sep;92(2):109–11.*
2. *Luxación de cadera asociada a fractura del extremo proximal de fémur: Reporte de caso y revisión del tema. An Fac Med [Internet]. 2022 Jun 1 [cited 2023 Sep 24];9(1). Available from: https://revistas.udelar.edu.uy/OJS/index.php/anfamed/article/view/649*
3. *Koval KJ, Zuckerman JD. Fracturas y luxaciones. 2 ed. Madrid: Marban; 2003.*
4. *Tonetti J, Ruatti S, Lafontan V, Loubignac F, Chiron P, Sari-Ali H, et al. Is femoral head fracture-dislocation management improvable: A retrospective study in 110 cases. Orthop Traumatol Surg Res. 2010 Oct;96(6):623–31.*
5. *Ioannis G, George M, Christina N, Emmanuel M, Mathaios T. Posterior Open Hip Dislocation. A Case With a 4-Year Follow-up. J Trauma Inj Infect Crit Care. 2009 Aug;67(2):E54–6.*
6. *Hougaard K, Thomsen PB. Traumatic posterior dislocation of the hip ?Prognostic factors influencing the incidence of avascular necrosis of the femoral head. Arch Orthop Trauma Surg. 1986 Dec;106(1):32–5.*
7. *Beebe MJ, Bauer JM, Mir HR. Treatment of Hip Dislocations and Associated Injuries. Orthop Clin North Am. 2016 Jul;47(3):527–49.*
8. *Bucholz RW, Heckman JD, Rockwood CA, Green DP. Rockwood & Green's fracturas en el adulto. Madrid: Marbán; 2003.*
9. *Allagui M, Touati B, Aloui I, Hamdi MF, Koubaa M, Abid A. Obturator dislocation of the hip with ipsilateral femoral neck fracture: A case report. J Clin Orthop Trauma. 2013 Sep;4(3):143–6.*
10. *Zhao B, Li H, Yan J, Han LR, Yang XF. Pipkin type III femoral head fracture–dislocation combined with complicated acetabular fracture: A rare case report and literature review. Medicine (Baltimore). 2017 Dec;96(50):e9214.*
11. *Ng KCG, Jeffers JRT, Beaulé PE. Hip Joint Capsular Anatomy, Mechanics, and Surgical Management. J Bone Jt Surg. 2019 Dec 4;101(23):2141–51.*
12. *Sharma G. Hip dislocation associated with ipsilateral femoral neck and shaft fractures: an unusual combination and dilemma regarding head preservation. ACTA Orthop*

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Traumatol Turc. 2014;48(6):698–702.

13. *Tannast M, Mack PW, Klaeser B, Siebenrock KA. Hip dislocation and femoral neck fracture: Decision-making for head preservation. Injury. 2009 Oct;40(10):1118–24.*
14. *Dreinhöfer KE, Schwarzkopf SR, Haas NP, Tscherne H. [Femur head dislocation fractures. Long-term outcome of conservative and surgical therapy]. Unfallchirurg. 1996 Jun;99(6):400–9.*
15. *Lang-Stevenson A, Getty CJM. The Pipkin fracture-dislocation of the hip. Injury. 1987 Jul;18(4):264–9.*
16. *Dargel J, Oppermann J, Brüggemann GP, Eysel P. Dislocation Following Total Hip Replacement. Dtsch Ärztebl Int [Internet]. 2014 Dec 22 [cited 2023 Sep 24]; Available from: https://www.aerzteblatt.de/10.3238/arztebl.2014.0884*
17. *Berend KR, Sporer SM, Sierra RJ, Glassman AH, Morris MJ. Achieving stability and lower-limb length in total hip arthroplasty. J Bone Joint Surg Am. 2010 Nov 17;92(16):2737–52.*
18. *Berry DJ. Effect of Femoral Head Diameter and Operative Approach on Risk of Dislocation After Primary Total Hip Arthroplasty. J Bone Jt Surg Am. 2005 Nov 1;87(11):2456.*
19. *Parvizi J, Picinic E, Sharkey PF. Revision total hip arthroplasty for instability: surgical techniques and principles. J Bone Joint Surg Am. 2008 May;90(5):1134–42.*
20. *Wetters NG, Murray TG, Moric M, Sporer SM, Paprosky WG, Della Valle CJ. Risk Factors for Dislocation After Revision Total Hip Arthroplasty. Clin Orthop. 2013 Feb;471(2):410–6.*
21. *Crompton J, Osagie-Clouard L, Patel A. Do hip precautions after posterior-approach total hip arthroplasty affect dislocation rates? A systematic review of 7 studies with 6,900 patients. Acta Orthop. 2020 Nov 1;91(6):687–92.*

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