

Acetabular Fractures| Causes, Symptoms, Treatment

Our hip joint is a ball and socket joint. The ball refers to the head of the femur, the thighbone, and the socket refers to the acetabular notch, part of the hip bone. The term acetabular fracture is used for fractures in the socket of the hip joint.

Acetabular fractures are much less common than the fractures of the ball of the femur or other femoral fractures. According to some sources only, 10% of the total pelvic fractures are comprised of acetabular fractures. In this article, we will discuss some causes, treatments, and complications associated with acetabular fractures.

Anatomy

The hip joint is a large and significant joint of our body. It helps stabilize our bodies and transmits the weight of the torso to the legs. As mentioned above, it is a ball and socket type joint. The acetabulum forming the socket and the femur (head) forming the ball.

The bones making the joint are covered by a smooth and slippery articular cartilage, the works to reduce the friction between the ball and socket. The joint's stability or strength comes from the strong ligaments that attach one bone to the other. A lot of our important organs, vessels, and nerves are in close proximity to the pelvic bones e.g., the hip bone, and these viscera can get damage due to an acetabular fracture.

Signs and symptoms

Symptoms of acetabular fracture do vary depending on the severity of the fractures. In some cases, there is only a minor crack in the acetabulum, and in other severe cases, the acetabulum might be broken away into several pieces. Like every other fracture in our body symptoms include:

- Pain – this could be severe grade pain which gets aggravated more with movement. At times even a slight movement is impossible to perform due to the immense pain caused by fractures
- Numbness or tingling – if a nearby nerve gets damaged due to fractures bone compressing or stretching it, you might feel weakness, or numbness in the area that nerve is supplying

Causes and risk factors

Acetabular fractures occur when the head of the femur exerts an immense force on the socket, eventually breaking the socket. Auto-collisions (car crash) is a major source of this force. Your knee hitting the dashboard or steering wheel during the accident can put force on your acetabulum through the femoral head. It can also be caused by a direct fall on the sides of your hips, forcing the head of the femur into the socket breaking it.

Athletes playing contact sports may also experience this type of fracture, especially athletes playing Australian rugby, football, and gymnastics. Some risk factors include:

- Age – elderly people have weakened bones and ligaments that can reduce the pressure resisting capacity of these bones, causing them to fracture more easily
- Malnourishment – lacking a good diet, especially lack of calcium and vitamin D can cause you to have weaker bones
- Underlying disease – disorders that cause weakening of the bones i.e., hyperparathyroidism, osteomyelitis, osteoporosis, etc. can increase the risk of you getting an acetabular fracture

Diagnosis

People with high-impact fractures almost always come to the hospital in an emergency. After stabilizing your pain, your doctor might take your history, perform a physical examination, and request some other diagnostic techniques to confirm if you have an acetabular fracture. These diagnostic techniques include:

- X-ray – X-rays for acetabular fractures are taken from various angles to assess the severity of the fracture
- CT-scan – it is a commonly ordered scan that provides a more detailed view of the bones in the pelvis and the fractured bones

Treatment

Treatment depends on the severity and pattern of your fracture along with your overall health status. There are a few treatment options available for acetabular fractures:

- Non-surgical treatment – these include therapies that are non-invasive and mostly conservative. This type of treatment includes walking aids like crutches, positioning aids like knee immobilizers, bed rest along medications like NSAIDs (non-steroidal anti-inflammatory drugs) which help to reduce swelling and pain
- Surgical treatment – this is the most opted treatment for acetabular fractures. The cartilage around the acetabulum is oftentimes broken which needs to be fixed to avoid complications. During surgery, bones are fixed (joined together if broken into pieces) and aligned into their proper positions. Surgery is also needed if there is a severed vessel that is causing an internal hemorrhage (bleeding) due to the fracture. Your doctor might put metal plates in your joint to keep it fixed until you recover

- Total hip replacement – in cases of severe damage, the acetabulum cannot be fixed. In these cases, total hip replacement surgery is advised. In this procedure, the damaged acetabulum and associated cartilage is removed and replaced by artificial bone and cartilage

Complications

Acetabular fractures and their treatment can sometimes cause problematic complications. Some of these complications are:

- Sciatic nerve injury – sciatic nerve lies behind the hip joint and if the injury is severe and widespread it can damage the sciatic nerve leading to weakness and even paralysis of your thigh and leg muscles
- Posttraumatic arthritis – acetabular fractures often damage the smooth surface of the articular cartilage around the acetabulum, and this can cause pain even after successful treatment
- Internal haemorrhage – if an artery is cut due to the fracture, internal bleeding can cause a lot of damage and even shock if not treated properly. In some cases of hip replacement surgeries, the femoral artery (artery in your thigh) gets lacerated (cut) leading to high amounts of blood loss which can even be fatal
- Infection – if bacteria enter the body during surgery or through the wound it can lead to infection and even sepsis (infection spread in the blood)
- Avascular necrosis – femoral head necrosis (tissue death) is a common complication of hip fractures. It can be associated with acetabular fractures too. It occurs due to blocked blood supply to the femoral head (ball) by arterial damage leading to necrosis of the head of the femur

Prevention

You can prevent acetabular fractures by:

- Wearing seat belts and driving safely
- Carefully place your ladder when you're climbing a ladder
- Have a healthy balanced diet with ample calcium and vitamin D
- Exercise regularly – this can strengthen your ligaments and joints can to some extent avoid or at least reduce the severity of fractures

When to see a doctor

If you get into an accident or experience a high-impact fall on your legs following severe pain, you need to get medical treatment right away. Along with the pain, you might experience swelling which might be increasing with time. Your doctor will treat you for the pain first and then manage the fractures you had.

Your recovery period depends on the severity of the injury you had. In case of minor fractures, you would be advised to rest for some time and then start doing light movements. However, in case of severe fractures, you would need to take bed rest for a longer period of time and along with other therapies. Most of the people recover fully and enjoy a healthy life.

References:

· Acetabular Fractures by OrthoInfo -

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<https://orthoinfo.aaos.org/en/diseases--conditions/acetabular-fractures/>