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Arthritis of the Hip Joint

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Arthritis of the Hip Joint

The hip is one of the most used joints in our body. It is in constant use in for almost all activities and everyday movements such as walking, sitting, turning and even driving a car. An arthritis or worn hip joint causes pain and stiffness. Very soon becomes evident just how much we rely on it. If because of pain you try to rest and keep off the hip joint then the pain can become worse as the muscles become weak, making movement more difficult.

Injury or disease can damage your hip in several ways, resulting in a broken or deteriorated bone, irritated bursae or a worn out joint. The most common type of joint pain is arthritis, although there are other conditions which can also cause pain or discomfort in this area.

The Anatomy of the Hip Joint

The hip is one of the main weight-bearing joints in the body. It bears the weight when walking, standing or twisting, the wear of running and the impact of jumping. The hip joint itself consists of two main parts:

- The femoral head or ball at the top of the femur or thigh bone
- The acetabulum or rounded socket at the side of the pelvis
- An acetabular labrum or fibrous cartilaginous edge to the socket which deepens the socket and stabilises the hip joint.

- The smooth slippery articular surface or articular cartilage covering the ends of the bones.
- The ligaments around the hip joint which serve to stabilise the hip.

The hip is a very stable joint because of the ball fitting into the rounded socket or cup-like cavity and the surrounding labrum or suction cap. Ligaments form a capsule connecting the ball to the socket, keeping the bones in position and helping to stabilise and control motion.

The surfaces of the ball and socket are covered by a smooth, tough material called articular cartilage, which cushions the bones and helps them to rotate more easily within the socket. Bursae, fluid-filled sacs, cushion the area where muscles or tendons glide across bone. The lining of the joint or synovial membrane produces a slippery fluid rich in hyaluronic acid called synovial fluid which lubricates the joint. In a healthy joint, the hip allows movement and rotation of the upper leg allowing a wide range of multidirectional motion. This allows pain-free mobility – walking, sitting, bending, turning, etc. This normally works to maintain a well functioning joint and good joint function which allows us to enjoy an active and fulfilling life.

Arthritis of the hip

Pain is the most common and prominent symptom of hip arthritis. This is most often experienced in the groin or buttock. The pain can radiate down the front of the thigh as well. Occasionally it goes all the way down the thigh to the knee – this is because the hip and knee have an overlapping nerve supply.

Most patients with significant hip disease have a limp and with deterioration one leg may become shorter than the other. A creaking sound usually means that there is bone-on-bone contact which is an advanced stage of the disease. As the disease progresses, the hip becomes stiff and less movement is possible, the ability to walk is restricted to short distances until eventually only one or two steps may be taken at a time.

Osteoarthritis (OA)

Osteoarthritis is the wearing-out or erosion of a joint arising from the wearing away of cartilage. Without this protection, the bones rub together causing severe pain and stiffness. Patients who have early-stage osteoarthritis often experience pain at the beginning of a movement or during the first few minutes of exercise. Once activity gets underway, the pain usually diminishes, although it is likely to increase again after walking for a time. The period of time for which walking is possible tends to diminish over time. As the condition worsens, pain may be present even at rest or commonly at night in bed. Symptoms are generally aggravated even further in cold or wet weather conditions. The early stages of hip osteoarthritis are common with up to 50 percent of people over the age of 35 display early signs of the disease.

Rheumatoid arthritis (RA).

Rheumatoid arthritis is a condition where the body's immune system attacks the joints causing inflammation and pain in the joint. The synovium or lining of the joint swells and joints become stiff and harder to move, especially early in the morning. Over time, muscles around the joint waste away, as well as cartilage and bone, leaving only fibrous scar tissue. RA affects about 1% of the population and is three times more common in women than in men. The average onset

age is between 35-45 years and the disease often runs in families. There is no known cure for RA, although various treatments can help ease symptoms.

Post-traumatic arthritis

Post-traumatic arthritis can occur after an injury to the joint, such as a fracture through or adjacent to the joint or damage to the articular cartilage. Sometimes the damaged cartilage needs to be surgically removed or with the incongruence it wears away naturally. Once it is removed, it is replaced by scar tissue which is not as effective in carrying weight or allowing the joint to function smoothly. Symptoms can include swelling, pain, stiffness, limping, tenderness or joint instability.

Other causes of hip pain

There are a range of other conditions which can also be responsible for causing pain in the hip joint.

- Avascular necrosis (AVN)
- Developmental dysplasia of the hip (DDH)
- Femoroacetabular impingement (FAI)
- Perthes disease
- Slipped upper femoral epiphysis
- Hip sprain
- Bursitis
- Soft tissue injury

Avascular necrosis (AVN)

Avascular necrosis is a condition where there is cellular death (necrosis) of bone components due to interruption of the blood supply. Without blood, the bone dies and collapses. If avascular necrosis involves the bones of a joint, it often leads to irregularity and incongruity and destruction of the joint articular surfaces. This results in pain stiffness and arthritis.

Developmental dysplasia of the hip (DDH)

Congenital dislocation of the hip or DDH is a congenital (present at birth) condition of the hip joint, occurring once in every 1,000 births. The hip joint is created as a ball and socket. In DDH the hip socket may be shallow, letting the ball of the thigh bone slip in and either partially or completely out of the socket.

Femoroacetabular impingement (FAI)

Impingement between the front of the neck of the femur and the anterior margin of the acetabular cup affects the hip joint in young and middle-aged adults. It can occur when the ball shaped femoral head is misshapen and doesn't have full range of motion inside the acetabular socket, causing damage to the cartilage inside the joint.

Perthes disease

Perthes disease is a degenerative disease of the hip joint in children. It affects the head of the femur in around 1 in every 20,000 children. The blood supply to the growth plate of the bone becomes inadequate and results in the bone softening and breaking down, a process called necrosis. This can lead to the head of the femur being deformed or

flattened. The effects of the disease can continue into adulthood and cause osteoarthritis.

Slipped upper femoral epiphysis

This is a condition of adolescents involving the end of the femur (thigh bone), where the epiphyseal plate (growth plate) weakens and the head of the femur (ball) slips downwards and backwards.

Hip sprain

These minor injuries can cause pain in the hip joint. The problems can occur where the ligaments supporting the hip joint have been stretched or torn, causing pain and restricting movement. If a muscle is overstretched or suffers a hard blow, this can cause the muscle's tissue to tear. Old age, prior injury and failing to warm-up properly before exercise can increase the risk. Swelling and bruising are common symptoms, although there are many degrees of severity.

Bursitis

Bursae are small sacs of fluid or pouches. These are situated where tendons or muscles move across a prominent bone or joint. Inflammation of such as busae produces a painful condition of bursitis. When they become inflamed, movement becomes painful and difficult. Movement of tendons and muscles over the inflamed bursae causes further aggravation, perpetuating the problem.

Soft tissue injury

Direct or indirect trauma commonly causes an injury to the soft tissue around the joint. Direct trauma can occur from a sporting or other type of accident; indirect trauma can arise from overuse of the tissue. Soft tissue injuries include ligament sprains, tendon strains, repetitive stress injury and carpal tunnel syndrome.

Non-surgical treatments

Severe joint pain due to arthritis can detract greatly from mobility, independent lifestyle, feelings of well-being and quality of life. Many successful treatments consist of a combination of approaches designed to take account of your own individual circumstances, needs and lifestyle, focusing on identifying ways to manage your discomfort and improve joint function. Non-surgical treatments are frequently considered first in most instances of hip pain.

Exercise and physical therapy

Exercise and low-impact physical therapy can help the functioning of the joint through increasing its strength and range of motion. Secondary benefits may include a raised sense of physical wellbeing through improved flexibility, heart rate and blood flow. Activities prescribed may include gentle stretches, cycling using an exercise bike, walking or water-based exercise such as swimming or water aerobics, which allow for mobility whilst removing weight-bearing stresses.

Physiotherapy covers a wide range of different treatments. Your therapist may recommend mobilisation of the joint (to prevent the muscles around the joint from

weakening) or perhaps strength and proprioceptive retraining. Electrotherapy (the use of electrical energy as a medical treatment) may also be advised.

Weight management

The stress across any joint is increased with increased weight. This is particularly relevant to weight bearing joints such as the hip and knee joints. Joint pain can be aggravated by excessive weight – a healthy diet and weight loss may help alleviate symptoms of arthritis by reducing stress on the joints and increasing function. Heavy lifting should also be avoided. A walking stick or other aid helps to reduce the stress across the joint and by doing so helps with walking and reduced the pain experienced.

Medication

Medication such as painkillers and non-steroidal anti-inflammatory drugs (NSAIDs) may be used to treat the symptoms of arthritis. Medications though may only provide temporary relief as they do not prevent further damage to the joint.

Injection therapy

Injection therapy involves the use of a needle and syringe to inject local anaesthetic, steroid or hyaluronic acid into the damaged joint, soft tissues or other areas to relieve pain. It is typically used only when less invasive forms of treatment fail to relieve symptoms.

Surgical Treatment Options

When non-surgical treatments no longer offer sufficient pain relief and the pain, sleepless nights restricted activities and disability are having very serious effects on your daily activities, it may be time to consider surgery. There are different alternatives and types of hip surgery or replacement available depending on how badly your hip joint is damaged or worn. Treatments include arthroscopy (e.g. keyhole surgery to clear away loose tissue, debris or irregularities inside the joint), hip resurfacing, uncemented or a traditional cemented hip replacement.

Hip replacement surgery has been demonstrated to be a successful procedure for many patients and may bring long-term benefits for people who undergo it. Some people delay surgery however due to fear, misinformation or a lack of awareness about their treatment options. There is no cure for osteoarthritis though and it is also degenerative – meaning that any pain and limited mobility are likely to get worse over time.

It is important to weigh up the risks and benefits before deciding to proceed with surgery. Potential benefits may be significant, including the removal of pain, an improvement in mobility and a return to a more active lifestyle.

All surgery involves some element of risk though and complications can occur, e.g. dislocation, pulmonary embolism, deep vein thrombosis (DVT), infection, leg length discrepancy, fractures, sciatic nerve injury, vascular injury, bony in-growth or adverse reactions to debris caused from implant wear inside the joint. It is important to discuss these with your surgeon before you make a decision.

Hip resurfacing

Hip resurfacing provides a bone conserving solution for the younger, more active patient in line with their increased demands for higher activity. If you are a suitable candidate for this type of operation, it is possible that you will be able to return to relatively normal levels of activity – many resurfacing patients have been able to take part in modest recreational sporting activities with their new hip.

In conventional total hip replacements, the head of the thigh bone is removed and replaced. With a hip resurfacing, only the diseased or damaged surfaces of the hip joint – the femoral head ('ball') and the acetabulum ('socket') – are replaced with metal surfaces. The artificial joint may be cemented in position or press-fit securely in place without cement. In a 'cementless' fixation, the surface of the implant is covered in a special rough porous coating which grips the bone and allows the bone to grow up to the metal surface. Over time, the patient's natural bone grows through the pores, attaching the artificial joint to the hip's natural remaining bone structure.

This procedure is much more bone conserving than a conventional hip replacement, as the head of the femur is simply reshaped and resurfaced, rather than being totally removed. This will facilitate further surgery should the implant need replacing at any time in the future. Hip resurfacing is therefore suitable for patients who are younger and at risk of requiring more than one hip replacement over their lifetime.

Other advantages for the younger patient stem from the materials used. As both components or 'bearing surfaces' are made from metal (rather than plastic), the resurfacing system may last longer and may therefore be more suitable for patients with higher levels of activity. The femoral bearing is also a larger diameter than is used in a conventional total hip replacement – closer to the size of the head of the natural femur. This means that it is less likely to dislocate than the smaller diameter bearing of a total hip replacement.

In recent years the use of 'minimally invasive' techniques has become more widespread, with surgeons making smaller incisions, causing less disruption to the soft tissues surrounding the hip. However, hip resurfacing is not suitable for everyone. It may usually be recommended for younger patients, typically below the age of 65 with a relatively active lifestyle. It is not suitable for women of child bearing age or for those patients with low bone density or osteoporosis. There are some characteristic complications which occur with this technique. More recently the egress of metallic ions into the local tissues or lymphatic tissues has attracted some attention. Your surgeon will discuss your options and will advise whether or not this type of operation is recommended for your individual circumstances.

Hip replacement

Hip replacement is a very common and a very successful operation. The procedure is used in patients who have moderate or advanced signs of arthritis, a traditional total hip replacement (THR) consists of a surgical procedure in which parts of an arthritic or damaged joint are removed and replaced. The resultant artificial joint is designed to move just like a healthy hip. In younger patients an uncemented hip replacement may be preferred or one with a ceramic bearing surface rather than the traditional metal on polyethylene.

In a THR, the head of the femur (thigh bone) and the acetabulum (hip socket) are both replaced. The metal stem of the new hip is implanted into the damaged portion of the femur. The femoral head is replaced with an artificial ball at the top of the femur, attached to the metal stem. The hip socket is covered with an artificial liner made of ceramic, polyethylene or metal. These surfaces are known as 'bearings'. The liner allows for smooth and painless movement of the ball in the socket.

The artificial joint may be cemented in position or press-fit securely in place without cement. In a 'cementless' fixation, the surface of the implant is covered in a special coral-like coating. Over time, the patient's natural bone grows through the pores of the coating, attaching the artificial joint to the hip's natural remaining bone structure.

THR has been demonstrated to be a successful procedure. It is commonplace in terms of the numbers of operations carried out and as reported by the National Joint Registry (NJR)¹, around 65,000 hip replacements are conducted in the UK each year – around 200 every working day.

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