

Total hip replacement: Relieving pain and restoring function

Since the first successful modern hip arthroplasty was performed by Sir John Charnley in the 1960s, procedures and components have evolved and made joint replacement available to patients younger than 65.

ABSTRACT: Total hip replacement is one of the most common orthopaedic reconstructive procedures performed today, with more than 40 000 replacements completed annually in Canada. New surgical techniques and materials have led to procedures that produce profound changes in the lives of patients and allow them to resume virtually all of their previous activities. Sir John Charnley developed low-friction arthroplasty in the 1960s. Since then, procedures have evolved to address the issues of wear and bone loss and permit joint replacement in patients younger than 65. Pain is the primary indication for a hip replacement, with osteoarthritis being the most common cause. State-of-the-art implants in 2016 include cemented, uncemented, or hybrid components;

metal or ceramic femoral heads; and polyethylene or ceramic acetabular liners. In British Columbia, the standard of care is a metal acetabular shell with a polyethylene liner and a cemented or uncemented femoral stem with a metal femoral head. Hip resurfacing is an option for young active patients, although its use worldwide has declined dramatically. Early mobilization after total hip replacement is recommended. While complication rates are low, possible postoperative problems include venous thromboembolism and nerve injury in the short-term, and periprosthetic fracture and osteolysis in the long-term. If there is a failure of the hip replacement for some reason, the likelihood of a revision procedure succeeding is good.

Total hip replacement is a remarkable procedure that can relieve pain and restore function. According to the Canadian Institute for Health Information, more than 40 000 hip replacements are completed annually in Canada (<https://secure.cihi.ca/estore/productFamily.htm?locale=en&pf=PFC2945&lang=en>). For most patients with a destructive process occurring in the hip joint, total hip arthroplasty (THA) is a viable option. Since the first successful THA was performed in the 1960s, procedures and the components used have evolved and we now have a better understanding of post-op considerations and possible complications.

History

Beginning in the 1800s, a number of attempts were made at hip replacement for infection and fracture using implants of ivory, glass, ceramic, and metal. These trials continued through to the 1960s, when Sir John Charnley

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developed the modern total hip replacement, which he called low-friction arthroplasty.¹ Charnley's procedure used a single-component (monoblock) metal femoral stem and head combined with a cemented polyethylene acetabular shell. The arthroplasty of Charnley's era survived for many years but had problems. The 22.25-mm femoral head was prone

often. These include metal-on-metal and ceramic-on-ceramic bearing surfaces. While the risk of wear is minimal with these articulations, metal-on-metal total hip arthroplasty has been abandoned because of the many failures related to adverse local tissue reactions to metal debris and the formation of pseudotumors. Currently, the only hard-on-hard bearing surface

been resolved. Patients unable to perform activities of daily living or with deformities such as a leg-length discrepancy or flexion deformity are prime candidates for this operation. Such patients tend to have significant pain. With the improving outcomes of hip replacement it is no longer necessary to wait until patients are completely disabled before considering surgery. Earlier intervention yields better outcomes provided that nonoperative treatments are no longer effective and the patient has pain that is related to the hip joint and not referred from the lumbar spine or related to extra-articular structures.

Pain from the hip joint is typically located in the groin or buttock, with referral to the thigh and often to the knee. Hip arthritis can present solely with knee pain, a finding especially common in elderly patients. All patients presenting with knee pain should undergo a physical examination of the hip and appropriate radiographs should be obtained if abnormalities are found during the hip examination.

Diagnoses

Obviously, patients being considered for THA need to have an underlying condition that can be addressed using joint replacement. In broad terms, any patient with a pathology that leads to degeneration of the articular cartilage of the joint might benefit from replacement of that joint. Osteoarthritis, whether idiopathic, developmental, or posttraumatic, is by far the most common diagnosis leading to hip replacement surgery. This includes osteoarthritis in the medial wall of the acetabulum, which is often missed because the radiological findings can be subtle and the presenting symptoms can be somewhat unusual. For example, a patient may have pain at night and with certain activi-

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to dislocation and the polyethylene shell to eccentric wear. Larger femoral heads were developed that reduced the rate of dislocation, but at the cost of increased wear. Whatever the size of the head, the cement mantle tended to loosen and then fail. The problem of loosening was essentially solved with the introduction of uncemented components. However, failures continued to occur with the breakdown of the polyethylene and subsequent bone loss.

Since the late 1990s, highly cross-linked polyethylene with much improved wear characteristics has been used with excellent results. Today wear and bone loss as a result of hip replacement are exceedingly rare, regardless of patient age or activity level. In addition, so-called hard-on-hard articulations are being used more

available for a total hip arthroplasty is ceramic-on-ceramic, and according to joint registry data there is no evidence of superiority when ceramic and highly crosslinked polyethylene are compared at 10 years follow-up.

Today's state-of-the art implants include:

- Femoral heads of metal or ceramic.
- Acetabular liners of polyethylene or ceramic.
- Components that are cemented, uncemented, or hybrid (uncemented acetabulum and cemented femur).

Indications

The primary indication for total hip replacement is pain. Patients who are unable to sleep because of pain will generally have a remarkable outcome from THA and will likely awake from surgery to realize that their pain has

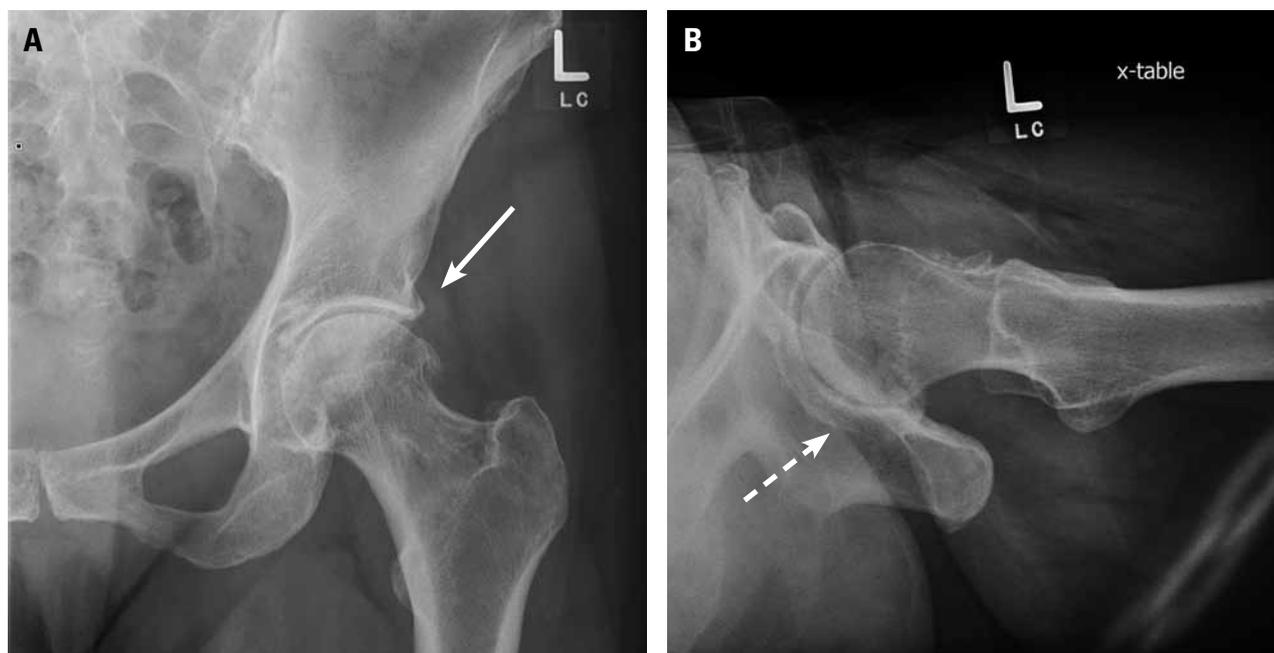


Figure 1. Anteroposterior view of left hip (A) shows minor changes at the dome of the acetabulum and difficult-to-assess osteoarthritis (solid arrow) in the acetabular medial wall. Lateral view of the left hip (B) reveals osteoarthritis (dashed arrow) in the acetabular medial wall.

ties because the medial wall of the acetabulum is affected, but can still have good walking tolerance because the dome of the acetabulum (the weight-bearing surface) is relatively unaffected. In these cases, the lateral radiograph can be helpful in assessing medial wall osteoarthritis (**Figure 1**).

Over the past decade femoroacetabular impingement (FAI) has been recognized as a precursor of and possibly one of the ultimate causes of idiopathic osteoarthritis of the hip. The condition commonly occurs as either cam FAI (deformity of the femoral neck) or pincer FAI (deformity of the acetabulum). The impingement caused by deformed hip bones eventually leads to acetabular labral tears and concomitant articular cartilage degeneration. Because the labral tears are part of the degenerative process, the repair of these in patients older than 40 without a bona fide injury and FAI is almost never indicated. An MRI or MRI/arthrogram of the

hip will rarely change the management and should not be ordered if there is any evidence of degenerative arthritis. Hip-preserving surgery (hip arthroscopy or open dislocation and debridement) in the presence of degeneration will not lead to a good outcome and may lead to more rapid progression of the arthritis and an earlier need for a hip replacement.

Acetabular dysplasia involves a shallow or underdeveloped acetabulum that leads to early hip osteoarthritis. As in cases of femoroacetabular impingement, patients older than 40 with acetabular dysplasia will not benefit from osteotomies and labral repairs. The only effective surgical option is a total hip replacement. As such, there is no role for MRI in diagnosing acetabular dysplasia and degenerative change.

Avascular necrosis occurs when the blood supply to the femoral head is disrupted. In such cases the avascular portion of the femoral head can

collapse and cause degeneration of the hip joint. However, the radiological findings are often not as pronounced as the patient symptoms. MRI will reveal the extent of the disease but is not usually a necessary investigation unless the plain X-ray images do not reveal any abnormalities early in the course of the disease.

Inflammatory arthropathies such as rheumatoid arthritis, ankylosing spondylitis, and psoriatic arthritis all present with degenerative changes similar to those seen in osteoarthritis and should be treated in the same manner.

Age

In the past, being younger than 65 was considered a barrier to joint replacement. This is no longer the case. Although patients with hip-related pain should be counseled to persist with nonoperative treatment until such time as their symptoms are severe enough to warrant THA, it is

important to recognize that patients age 40 to 50 may be better served by replacement than by hip arthroscopy or further waiting. These patients are not too young for hip replacement, and the thinking that only patients older than 65 should be offered THA is no longer correct.

As the bearing surfaces used for hip replacement have improved, the lifespan of implants has increased,

contact during the joint articulation consists of the femoral head and the acetabular liner. The search for the best materials to use in this bearing surface have led to industry innovation and much debate.

Options today include a femoral head made of metal (cobalt and chromium) or ceramic and an acetabular liner made of metal, ceramic, or polyethylene. In British Columbia, the

The main difference between modern implants and the original 1960s implants is the move away from the monoblock head-and-stem construct. The implant used by Charnley was a femoral stem and head that had been machined as a single unit, whereas current implants consist of a femoral stem with a trunnion that permits attachment of a head and thus allows for more sizing options. In recent years, however, trunnion corrosion has led to pseudotumor formation similar to that experienced by patients with metal-on-metal total hip replacement.² Although rare, these inflammatory masses have been reported with metal-on-polyethylene hip replacements and are thought to be related to metallic corrosion where the head of cobalt and chromium joins with the femoral stem, which in most cases is made of titanium.

In North America currently, the metal-on-polyethylene bearing surface is used most commonly.³ It has good wear characteristics, a high survivorship, and remains the workhorse of arthroplasty surgeons now that the early problem of liner wear has been addressed. Originally, the pressure of the metal femoral head on the softer polyethylene liner produced an eccentric wear pattern that eventually led to joint failure and the need for revision.⁴ Over the last 15 years or so the use of crosslinked polyethylene has significantly reduced the rate of wear, and revisions for polyethylene wear are now uncommon.

Ceramic-on-ceramic and ceramic-on-polyethylene bearing surface

An alternative to metal-on-polyethylene is a bearing surface of medical grade ceramic. The ceramic-on-ceramic bearing surface is more expensive but has better wear characteristics, reduced particulate debris

Implants are now good enough to outlast the patient in most cases.

and the age of the patient is not as critical a consideration as it once was. Implants are now good enough to outlast the patient in most cases. Therefore, the status of the joint and the symptoms of the patient, not the age of the patient, should determine whether a THA is appropriate.

Implants

Many implant designs have been used during the development of total hip arthroplasty. Research into various implant materials and different shapes and sizes of both the femoral and acetabular components has made this field a diverse and exciting one.

During a total hip arthroplasty procedure, the degenerated femoral head and acetabulum are replaced with a metal femoral stem and head (cemented or uncemented), a metal acetabular shell (cemented or uncemented), and an acetabular liner that locks into the acetabular shell. The bearing surface that takes the force of

Medical Services Plan covers the cost of a cemented or uncemented femoral stem with a metal femoral head and a metal acetabular shell with a polyethylene liner (either ultra high molecular weight or highly crosslinked polyethylene). If a patient asks for a different component because of a perceived benefit, there is an additional charge since no benefit has been found with other articulating surfaces.

Metal-on-polyethylene bearing surface

In the 1960s, Charnley pioneered the use of a metal femoral head and an acetabular component of ultra high molecular weight polyethylene. This metal-on-polyethylene bearing surface was adapted from the impact bearings used for looms in the textile industry.¹

Since Charnley's time, only a few improvements have been made, and the metal-on-polyethylene bearing now has an excellent track record.

generation, and greater biocompatibility.⁵

The use of ceramic bearings is increasing in North America and is used in the majority of cases in Europe. Earlier generations of ceramic were relatively brittle, which led to a high risk of component fracturing.⁶ Improvements in ceramic technology and manufacturing techniques have dramatically reduced the incidence of implant fracturing⁵ along with the risk of squeaking from the hip with walking and bending motions.⁷ Despite the potential advantages of a ceramic-on-ceramic bearing surface, the rate of revision at 10 years is identical to that of metal-on-polyethylene and the cost is greater. While the ceramic-on-ceramic bearing surface is considered an option for young, active patients who require a total hip arthroplasty,⁷ the routine use of ceramic-on-ceramic instead of metal-on-polyethylene is not considered cost-effective.

An alternative to the standard ceramic-on-ceramic bearing is a ceramic femoral head with a polyethylene liner. This ceramic-on-polyethylene bearing surface does not pose a squeaking risk and is cheaper than a ceramic-on-ceramic bearing. While the wear rates of ceramic-on-polyethylene and metal-on-polyethylene are not appreciably different, the risk of pseudotumor formation from metallic debris is eliminated with the use of ceramic-on-polyethylene. Despite this advantage, the routine use of ceramic-on-polyethylene is not considered to be cost-effective because of the rarity of pseudotumors in the large number of hip replacements done annually and the higher cost of ceramic implants.

Metal-on-metal bearing surface

From the late 1990s to the early 2000s there was a resurgence in the use of a metal-on-metal bearing surface

in total hip arthroplasty. The advantages included low volumetric wear, high resistance to implant fracture, and lower rates of dislocation with the increased femoral head sizes permitted by large-head metal-on-metal THA.⁸

This enthusiasm was short lived, however. It has now been well documented that patients with a metal-on-metal THA have elevated serum levels of cobalt and chromium, of which the clinical effects are unknown. Further, it has been discovered that in some patients the metallic ion wear debris leads to formation of benign solid or cystic masses. Investigations have found that the prevalence of these pseudotumors in asymptomatic patients with metal-on-metal implants is unacceptably high.⁹ Given the complications and the high revision rates for large-head metal-on-metal implants, this bearing surface is no longer an option for total hip arthroplasty.

Cemented versus uncemented implants

A major consideration in THA is whether to use a cemented or an uncemented implant. Early procedures relied on polymethylmethacrylate cement from the dental industry,¹⁰ a bonding agent that failed to adequately secure arthroplasty implants to bone. Charnley recognized that rather than using the cement for bonding, he should use it as a grout to create an interface between the porous metaphyseal and cortical bone and the metal implant in order to greatly increase the surface contact area and achieve long-term stability. While cemented implants (**Figure 2**) are still favored in some parts of the world, including Sweden and Norway,¹⁰ the most common type of prosthesis in North America is an uncemented implant (**Figure 3**).



Figure 2. Total hip replacement with cemented components.



Figure 3. Total hip replacement with uncemented components.

In uncemented techniques, both the femoral and acetabular components are coated with a porous material that encourages the bone to grow into the surface of the implant. Initial stability depends on having the implant firmly pressed into the bone, and long-term stability is gained by the bone bonding to the implant. In some cases, such as when the femoral bone is of poor quality and cannot support a firmly press-fit femoral component, cement can be used. This is known as a hybrid THA, in which the acetabular component is uncemented, but the femoral component is cemented. There is no substantial difference in outcome between uncemented and hybrid fixation techniques, and the choice of fixation depends on surgeon experience and patient characteristics.

Hip resurfacing

Hip resurfacing is an alternative to the traditional total hip arthroplasty, which requires the removal of the femoral head and neck. In a resurfacing procedure, the femoral head is machined to accept a metal cap and the acetabulum is replaced in a manner similar to that used for THA. In this way the large-diameter head and acetabular component make a metal-on-metal bearing surface.

The advantages of a hip resurfacing procedure include the maintenance of bone stock, which can eventually be converted to a THA should the resurfaced joint wear out or fail. The disadvantages include a risk of femoral neck fracture and the risks that go along with a metal-on-metal bearing surface, such as elevated serum levels of metal ions and adverse tissue reactions. However, it has been shown that the serum metal ion concentrations generated by hip resurfacing are much less than those generated by a large-head metal-on-metal THA.¹¹

The use of hip resurfacing has declined dramatically worldwide over the past few years, but remains a viable option for young, active patients with disabling osteoarthritis. While hip resurfacing must be used with caution, it can lead to good and long-lasting outcomes when performed by an experienced surgeon and in a well-selected patient. Currently the procedure is not recommended for women, men of small stature, or patients older than 65.

Post-op considerations

After patients have undergone total hip arthroplasty, they should be encouraged to mobilize early and to observe hip precautions. Patients should also be monitored for possible complications. Complications that may occur in the short-term are:

- Venous thromboembolism (VTE)
- Prosthetic joint infection
- Nerve injury
- Vascular injury
- Bleeding
- Leg-length discrepancy
- Dislocation/instability
- Fracture

Complications that may occur in the long-term are:

- Prosthetic joint infection
- Periprosthetic fracture
- Dislocation/instability
- Polyethylene wear
- Osteolysis

Mobilization and hip precautions

Postoperative patient mobilization should begin within 24 hours of hip replacement surgery.¹² Benefits of early mobilization include decreased risk of venous thromboembolism, shorter inpatient stay, and lower total cost of care.¹²

Hip precautions following THA have become routine in postoperative care. Recent research suggests precaution-free post-op protocols

have not resulted in higher dislocation rates when patients undergo an anterior or anterolateral approach THA. Similarly, there is no strong evidence for higher dislocation rates with precaution-free post-op protocols when patients undergo a posterior approach replacement.¹³ While patients are encouraged to observe hip precautions, a commonsense approach should be followed and patients should not be too worried about dislocation, which remains a relatively rare complication provided the implants are positioned correctly.

Venous thromboembolism

Venous thromboembolism is a well-documented complication of total hip arthroplasty. THA patients are at particular risk because of both intraoperative endothelial trauma and venous stasis from relative immobilization in the perioperative period. A recent systematic review found approximately 1 in 200 patients (0.53%) developed symptomatic VTE prior to hospital discharge following hip arthroplasty despite receiving VTE prophylaxis.¹⁴ This same study found rates of symptomatic VTE events occurred in approximately 2% to 5% of hip arthroplasty patients within 3 months of surgery.¹⁴ The rate of clinically asymptomatic VTE events is higher still but clinical relevance of asymptomatic VTE is not known.¹⁴

The American Academy of Orthopaedic Surgeons (AAOS) and the American College of Chest Physicians (ACCP) have published guidelines regarding VTE prophylaxis in joint arthroplasty patients.^{15,16} The AAOS guidelines state that moderate evidence supports the use of pharmacological and/or mechanical VTE prophylaxis for routine hip replacement, but do not recommend one particular prophylactic regimen over another because of inconclusive evidence.¹⁶

The ACCP guidelines state that grade 1B evidence supports the use of either low molecular weight heparin, fondaparinux, apixaban, dabigatran, rivaroxaban, low-dose unfractionated heparin, warfarin, or aspirin for VTE prophylaxis in THA patients. Furthermore, the ACCP cites grade 1C evidence for intermittent pneumatic compression devices as mechanical VTE prophylaxis.¹⁵

Following surgery, patients who develop VTE can remain asymptomatic, experience leg swelling suggestive of deep vein thrombosis (DVT), or exhibit one or more of the following symptoms suggestive of pulmonary embolism (PE): tachycardia, shortness of breath, chest pain, hemoptysis, hypotension, anxiety.¹⁷ Knowing the likelihood of VTE developing and promptly recognizing the signs and symptoms can permit early work-up and treatment to limit morbidity, reduce cost of care, and prevent mortality. It should be emphasized that a D-dimer assay has no role in the post-op workup given the expected elevation of D-dimer levels due to recent surgery.¹⁸ Duplex Doppler ultrasound can help in the diagnosis of DVT, but should not be used to scan the calf because a diagnosis of calf DVT based on duplex Doppler ultrasound is unreliable and the risk of embolism from calf DVT is very low in the post-operative setting and does not warrant the risk of anticoagulation. CT pulmonary angiography (or ventilation-perfusion scan in patients unable to undergo CT angiography) is the test of choice to assess for pulmonary embolism.¹⁸ When the radiologist reports a filling defect on a CT pulmonary angiogram, it needs to be noted whether this is a segmental or subsegmental filling defect. Subsegmental filling defects do not require anticoagulation. Segmental filling defects are consistent with a diagnosis of pul-

monary embolism and require anticoagulation. Because DVT/PE after hip replacement is a provoked event, anticoagulation is not required long-term and may be stopped after 3 months unless the condition is a recurrent one, in which case the patient should be referred to a thrombosis clinic or to a hematologist to see if long-term anticoagulation is indicated.

(with or without erythrocyte sedimentation rate), and obtaining sterile joint aspirate for culturing and sensitivity testing and cell count with differential. Obtaining aspirate prior to initiating systemic antibiotic therapy prevents compromising the diagnostic value of the aspiration and allows selection of an appropriate antibiotic. A prospective multicentre study

A methodical approach to the evaluation and management of surgical wounds following THA is critical.

Prosthetic joint infection

Prosthetic joint infection is a serious complication that occurs in 1% to 2% of patients and has negative effects on patient morbidity and satisfaction and on the overall cost of care. A methodical approach to the evaluation and management of surgical wounds following THA is critical. Postoperative wound infection can result from surgical contamination, contiguous spread, or hematogenous spread.¹⁸ Acute THA wound infections manifest within days or weeks of surgery and present with localized hip pain, swelling, erythema, and warmth. Wound drainage or a draining sinus tract may be evident and the presentation can include fever, malaise, and frank sepsis.¹⁸ Chronic wound infections present more subtly but are commonly associated with pain. Standard workup for wound infection includes obtaining blood for culturing and WBC and C-reactive protein testing

of arthroplasty patients compared results from superficial cultures of wound exudate with deep cultures of intra-articular tissue or aspirate and found poor concordance, with many superficial cultures yielding bacterial growth while deep cultures and further workup suggested the absence of infection. Based on these findings, the authors of the study recommend against the use of superficial cultures to prevent misdiagnosis and medical or surgical mismanagement.¹⁹ Ideally, when patients present with concerning surgical wounds, workup for infection and prompt follow-up with their surgeon or an on-call orthopaedic surgeon should occur before antibiotics are initiated.

Until recently, patients with orthopaedic implants, including hip replacements, were routinely given antibiotic prophylaxis when undergoing low- or high-risk dental procedures to prevent prosthetic joint infections.

Clinical practice guidelines released in 2012 by the AAOS in conjunction with the American Dental Association now recommend against antibiotic prophylaxis for dental procedures because of a lack of evidence that dental-procedure-induced bacteremia leads to prosthetic joint infections. The grade of recommendation for this is designated as Limited.^{20,21}

lous. Preoperative cessation of anti-coagulants should be undertaken, and the use of tranexamic acid for bleeding prophylaxis should be considered.¹⁸ Patients should also be counseled preoperatively regarding the possible need for perioperative blood transfusion, although this is becoming rare in patients with a preoperative hemoglobin level over 125 g/dL.

solves within 3 months and does not require any specific treatment. Intraoperative fracture can happen on the acetabular or, more commonly, the femoral side during bony preparation or implant insertion. If identified intraoperatively, additional fixation is often necessary to ensure prosthesis stability. Postoperative recognition of fracture, especially involving the acetabulum, could alter clinical course and may require revision surgery to ensure implant stability.¹⁸

Hip instability or dislocation occurs in approximately 1% to 3% of THA patients and is the second most common indication for revision surgery after infection. Dislocation most commonly happens within 1 month of surgery.¹⁷ Numerous factors can lead to instability, including infection, trauma, patient noncompliance, implant wear or loosening, pseudotumor formation, and component malposition. Treatment of a dislocated prosthesis is closed reduction under procedural sedation with orthopaedic referral.¹⁸ Recurrent dislocations generally require revision surgery.

Periprosthetic fractures secondary to trauma can occur at any point postoperatively. Immediate orthopaedic referral is required to determine the need for operative fixation or revision arthroplasty.

Components wear over time with repetitive loading and friction within the artificial joint; this natural wear process can be exacerbated by component malpositioning.¹⁸ Research into implant biomechanics is continuing in an attempt to maximize component lifespan by minimizing wear. Wear debris, particularly from the breakdown of polyethylene, triggers an immune response and can lead to prosthesis instability and osteolysis. This bone resorption, in turn, can cause component loosening and pain.¹⁸ Osteolysis is a complication

The incidence of nerve injury following THA is approximately 1 to 2 cases per thousand.

Other complications

The incidence of nerve injury following THA is approximately 1 to 2 cases per thousand, with the peroneal branch of the sciatic nerve and the femoral nerve most commonly affected.¹⁷ Multiple causes must be considered, including traction injury, compression, and direct trauma, although in many cases the cause will remain unknown. Prognosis tends to be favorable for partial, if not full, return of function, but depends on the cause of the injury. Supportive treatment, including a foot drop orthosis for sciatic nerve palsies, is recommended.^{17,18}

While vascular injury is exceedingly rare during THA surgery,¹⁸ bleeding in the perioperative period remains a well-established risk even when surgical technique is meticu-

lous. Leg-length discrepancy may occur following THA. Patients tend to tolerate up to 2 cm of LLD without need for treatment, but a greater discrepancy can become clinically important, potentially manifesting as knee, hip, or lumbar pain or as gait disturbance.¹⁸ Most symptomatic LLD can be treated with a shoe lift. In patients requiring bilateral THA, subsequent arthroplasty on the contralateral hip may actually balance out the inequality. It is not unusual for patients with no measurable LLD to complain that the surgical limb seems longer. This is known as a functional leg-length discrepancy and is related to mobilization of a previously stiff hip in which the hip is held in an abducted position to avoid dislocation and also due to weak hip abductor muscles. In most patients, this re-

of older implants from the 1990s and earlier, and is seen rarely now. Implant loosening can still be seen, however, and is related to either the failure of the cement or the failure of bone ingrowth in uncemented components. Patients with persistent hip pain following THA, especially of new onset, should be re-referred to their orthopaedic surgeon for workup.

If there is a failure of a hip replacement due to infection, osteolysis, periprosthetic fracture, or some other cause, the likelihood of a revision procedure succeeding is good. Revision THA produces results that approach those of the initial surgery.

Summary

Total hip arthroplasty can relieve pain, restore function, allow patients to return to normal activities, and is a viable option for most patients with a degenerative process occurring in their hip joint. In BC the standard of care for hip implants is a metal acetabular shell with a polyethylene liner and a cemented or uncemented femoral stem with a metal femoral head. Early mobilization after total hip replacement is recommended. While complication rates are low, possible postoperative problems can include venous thromboembolism, prosthetic joint infection, and periprosthetic fracture. When a hip replacement fails for some reason, there is a good likelihood that a revision procedure will succeed.

Competing interests

None declared.

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