Total Hip Arthroplasty: A Case Report

A 67-year-old women presented with a 13-year history of progressive right hip pain resulting in an increased difficulty carrying out daily activities. Repeated radiographic imaging revealed severe degenerative changes of the right hip with significant joint space narrowing and considerable osteophyte formation, consistent with advanced osteoarthritis. Following attempted conservative management and an assessment in orthopaedics, the patient underwent a right total hip replacement.

Clinical Presentation and Assessment

History

Presenting Complaint

A 67-year-old women presented with progressive right hip pain causing difficulty with walking and other daily activities.

History of Presenting Complaint

This patient's pain initially began in 2013 and early that year she was able to get a pelvic X-ray done that showed mild osteoarthritis of the right hip joint. Despite only mild findings, the patient felt this did not correspond with the severity of the pain that she had.

Following the onset of her pain as well as the initial radiographic imaging, this patient's pain had steadily increased and had become more persistent and severe. Her pain was aggravated more with activities involving walking or weight bearing, and found that she was having to stop these activities to take breaks. She would try to get out to walk her dog with her husband twice a day, but reported that over recent years she has needed to stop multiple times during these due to pain and discomfort. Pain would improve after a period of rest.

The patient reported that her pain had persisted over the years and progressively worsened, however she delayed any further medical reviews due to anxiety about potentially getting diagnosed with osteoarthritis and family that had had negative experiences. The patient was eventually persuaded by her husband to seek another medical review in June 2025, at which point more radiographic imaging was carried out. These investigations showed advanced osteoarthritis of the right hip with significant osteophyte formation. Following this she was referred to orthopaedics and subsequently scheduled for a right total hip replacement.

Past Medical History

This patient only had a past medical history of rosacea which she has had since she was 38 and causes facial erythema. She does not have any history of cardiovascular disease, respiratory issues, diabetes, or any other chronic medical conditions.

Drug History

Her medications before surgery included:

- Codeine (for pain relief)
- Naproxen (for pain relief)
- Omeprazole (proton pump inhibitor for gastric protection)

- Lymecycline (for rosacea)

She had no inhalers or glyceryl trinitrate spray. She also had no known drug allergies.

Systemic Enquiry

Musculoskeletal: Joint pain and stiffness
All other systems unremarkable.

Family History

There was a family history of hip osteoarthritis in both the patient's mother and sister, each requiring surgical intervention. The sister has had bilateral total hip replacements, and the mother has had a left total hip replacement. Since the mother's hip replacement her mother has experienced pain she thinks is more limiting than before her surgery. This family history and experience is what made this patient anxious and delay seeking medical advice for her pain.

Social History

This woman works as a receptionist and lives with her husband at home. She remains independent in her daily activities despite her pain.

She has never smoked but drinks approximately 6 units of alcohol each week throughout the social events she goes to.

Each day she tries to do two walks with her husband, morning and evening, to walk their two dogs, although this has been limited in recent years. No other physical exercise.

Examination Findings

General Presentation

During the initial examination the patient appeared well despite her pain.

Local Examination and Movement

No obvious deformities or scars pre-operatively. There was some tenderness over the right hip during palpation, along with reduced active and passive range of motion with the same hip. She also had a slight leg length discrepancy of about 1.5cm, however this was previously unnoticed by the patient.

Systemic Examination

Just before the procedure the patient's vital signs were taken, and were as follows:

Pulse: 132 bpm
Blood pressure: 216/112 mmHg
Temperature: 36.4 °C

Due to these observations the procedure was delayed so they could check whether the findings were due to an unknown underlying issue or just due to her anxiety about the procedure. After a discussion, rechecking the pre-operative investigations, and time to seek the opinions of additional colleagues, it was decided that it was safe to proceed with the surgery.

Investigations

The initial X-rays performed in 2013 showed mild degenerative changes. Repeat imaging in June 2025 demonstrated much more severe degenerative changes of the right hip joint, consistent with advanced osteoarthritis. These radiographic findings included, loss of join space, large osteophyte formation, subchondral sclerosis, and subchondral cysts.

Blood tests were also carried out to ensure the patient was well enough to undergo the surgery, and to identify what type of blood the patient had just in case they lost a significant amount during the surgery and needed it replaced. The blood tests also check whether there is underlying infection, possible clotting issues, or even anaemia so the medical professionals are aware. Urea and electrolytes are also checked to evaluate how well the kidneys are working which is essential to know when the patient is going to be receiving anaesthesia.

In addition to these blood tests, an electrocardiogram was also carried out. This was to ascertain whether there seemed to be any cardiac abnormalities which could also contribute to a higher risk surgery or potentially delay the surgery to another day.

All investigations that were carried out were unremarkable. The electrocardiogram was particularly important with this patient specifically because of her tachycardia before going into surgery. This allowed the anaesthetist to refer back to it and see what the patients normal heart rhythm was, and therefore whether it was likely she had an underlying heart issue or whether it was more likely to be anxiety causing the tachycardia.

Diagnosis

This patient was diagnosed with severe right hip osteoarthritis, based on a combination of clinical presentation but also radiological findings. She reported a long history of progressive hip pain which was worse during movement and relieved by rest. This caused her to have to take frequent breaks during any activities.

Radiographic imaging displayed advanced degenerative changes including, loss of join space, large osteophyte subchondral sclerosis, and subchondral cysts. Furthermore, when asked about morning stiffness she reported that the stiffness would last less than half an hour. All of these symptoms, alongside the imaging, led to her diagnosis in 2025.

Management

This patient's initial management was conservative and included lifestyle modifications as well as analgesia. The patient was encouraged to continue her low-impact exercise with walking, despite the pain she would get, and also think about spacing out tasks that would require more of a physical demand. On top of this advice she was given codeine and naproxen to manage the pain, as well as omeprazole for gastric protection from these medications. Despite these

management techniques the patient's pain still got progressively worse and eventually she was referred for a total hip arthroplasty. This final decision to go forward with the surgery was based on a number of factors including severe pain that was affecting the quality of the patient's life, functional limitations, radiographic images that showed advanced osteoarthritis, and the failure of conservative treatment to significantly improve her pain to a level she was comfortable at.

The hope was that a total hip replacement would help relieve her pain and restore some of her function and mobility, as well as improving her quality of life. After her surgery this patient was taken to the post-operative ward and throughout a few hours there was able to speak to a physiotherapist and occupational therapist about managing daily activities during recovery, but was ultimately discharged to go home later that same day.

Evidence-Based Discussion

Osteoarthritis of the hip affects over 3 million individuals in the United Kingdom alone and severe cases can cause a large reduction in daily functioning for patients (1, 2). Total hip arthroplasties have been demonstrated to be a highly effective treatment for many individuals, especially those with more advanced osteoarthritis of the hip, however the optimal surgical approach remains a subject of ongoing debate (3).

Some of the initial approaches for this surgery include the direct anterior, lateral, or posterior method, with continued discussion about which approach is superior, particularly regarding functional recovery and other post operative risks (4). In the observed case, a posterior approach was used, however this decision may vary between different surgeons and between health boards.

A recent systematic review and meta-analysis comparing the direct anterior and posterior approach in total hip arthroplasty found that patients that underwent the direct anterior approach had shorter post-operative hospital stays, had better daily movement compared to the posterior approach, and also experienced less damage to certain muscles throughout the surgery (5). Additionally, this review came to the conclusion that the direct anterior approach was seen to reduce the risk of dislocation post operatively, and this could be due to the reduced risk of muscle damage in the anterior approach. These findings suggest that the direct anterior approach may lead to better patient outcomes compared to the posterior approach. A strength of this systematic review was the fact that they included the results of over 46,000 hip surgeries, however these patients came from four randomised control trials and 44 case control studies. Using case-control studies increases the chance that there were confounding factors such as the surgeon's skill and stage of training. These are important factors to take into account and so may affect the conclusions that this review came to.

Furthermore, the posterior approach is the one that was used traditionally and was widely taught to surgeons in training, and therefore has been well established over the years (6). This has resulted in shorter operative times and for some surgeons it may be that this is the most familiar technique which they feel the most comfortable performing (7). The direct anterior approach despite having advantages is more technically challenging and therefore for less experienced surgeons may actually be more likely to result in complications (8). Additionally, complications which are thought to be more common in the posterior approach, such as dislocation, can be reduced by carefully repairing the hip capsule (9). The posterior approach also allows clear visualisation of the hip, making it advantageous in more complex surgeries (10, 11).

Another important consideration when deciding the best approach, is the risk of nerve injury. Anteriorly there is the risk of damage to the lateral femoral cutaneous nerve, and running posteriorly is the sciatic nerve. It is important to avoid both of these to reduce the risk of post-operative complications. According to a study carried out in 2021, damage to the lateral femoral cutaneous nerve due to the direct anterior approach is reasonably common and is gradually being recognised more as doctors know what to look for and ask about post-surgery (12). In the posterior approach to total hip replacements, the short rotator muscles are reflected to protect the sciatic nerve helping to reduce the risk of injury (9).

Despite the many factors that can be taken into consideration when deciding on the best approach for a total hip arthroplasty, there is recent evidence from a systematic review published in 2026 that concludes that "Ultimately, surgical approach selection should be individualized - guided by surgeon expertise, patient anatomy, and the specific reconstructive demands of each case - rather than by the perceived superiority of any single technique" (10). In summary, each approach will have its own advantages and disadvantages, and in the end with the evidence we currently have the decision should be made based on what the surgeon feels most confident and comfortable performing. This will lead to the best results for patients and hopefully improve their quality of life. Furthermore, when it comes to the long-term outcomes of both the anterior and posterior approaches, there is not any significant benefit of one over the other demonstrating that they can both lead to positive changes in the patient's life (13).

With the case observed, a posterior approach was utilised. The evidence from the literature shows that this is an established, safe, and effective technique with advantages in visualisation, and especially for the surgeon performing the procedure in this case, the posterior approach was more familiar. This demonstrates sensible decision making when taking the care of the patient into account, and ultimately the surgery went very smoothly with no complications.

Complications and Risk Factors

Total hip arthroplasty is known to be a highly successful procedure, however there are complications that can occur just like any surgery therefore it is important that potential complications are anticipated and effort is made to avoid these. Despite being uncommon, periprosthetic infection as a result of the surgery and implant can lead to significant morbidity and may require revision surgery in the future along with intense treatment. There is also always the risk of neurovascular injury, in this case specifically, sciatic nerve damage which may result in functional difficulties. This patient's elevated blood pressure and tachycardia before surgery could also have complicated the anaesthetic and surgical management. Furthermore, because this patient had very advanced osteoarthritis and significantly large osteophytes, this adds to the complexity of the procedure. Despite this there were no complications noted throughout this patient's surgery or immediately post operatively.

Reflection

This case highlighted to me the importance of understanding a patient's worries and anxieties surrounding a diagnosis and management of chronic conditions. This patient delayed re-presentation with her hip pain due to negative family experiences of surgery and a feeling that she had been slightly dismissed in the past when her imaging did not reflect her symptom

severity. While not jumping to surgery was likely the correct decision in the past it still highlights the fact that the way a patient is made to feel in the moment can affect their future confidence to seek further care or appointments again. It emphasises the importance of validating patient concerns and understanding their anxieties, and also explaining to them what to do if they feel their pain is not improving within a certain amount of time. Because of this, in the future I will try and ensure that patients feel heard and supported through their management and understand why at different stages of their condition certain management techniques may be more appropriate.

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