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Total hip arthroplasty for hemophilic arthropathy of the hip: A rare presentation with excellent functional outcome: A case report

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Abstract
Hemophilic arthropathy is a well-recognized complication of hemophilia, most frequently involving the knees, ankles, and elbows. Hip joint involvement is uncommon and rarely reported. We present the case of a 47-year-old man with hemophilia A who developed end-stage degenerative arthropathy of the left hip, leading to severe pain and marked functional limitation. After failure of conservative treatment, the patient underwent total hip arthroplasty (THA) with optimized perioperative factor VIII replacement and interdisciplinary management. At final follow-up, the patient demonstrated excellent clinical and functional outcomes, with significant improvement in validated functional scores and no perioperative or late complications. This case highlights the hip as an atypical but clinically relevant site of hemophilic arthropathy and supports THA as a safe and effective treatment option when combined with meticulous hematologic control and structured rehabilitation.

Keywords: Hemophilia A, hemophilic arthropathy, hip joint, total hip arthroplasty, rehabilitation; case report

Introduction
Hemophilia A is a congenital X-linked bleeding disorder caused by deficiency of coagulation factor VIII Recurrent hemarthroses are a hallmark of the disease and lead to progressive hemophilic arthropathy, characterized by chronic synovitis, cartilage destruction, subchondral bone damage, and secondary osteoarthritis. The joints most frequently affected are the knees, ankles, and elbows, whereas hip involvement is considered rare.
Hip hemophilic arthropathy poses specific diagnostic and therapeutic challenges. Due to its low prevalence, diagnosis may be delayed until advanced degenerative changes occur, resulting in severe pain and disability. While total hip arthroplasty (THA) is the gold standard treatment for end-stage hip arthrosis in the general population, its use in patients with hemophilia has historically been associated with increased risks of perioperative bleeding, infection, and implant-related complications.
Advances in factor replacement therapy, surgical techniques, and perioperative care have significantly improved outcomes of joint replacement in patients with hemophilia. We report a rare case of hemophilic arthropathy of the hip successfully treated with THA, emphasizing the importance of interdisciplinary management, functional outcome assessment, and postoperative rehabilitation.

Case Presentation
A 47-year-old man with a known diagnosis of hemophilia A was initially followed at a peripheral hospital for progressive left hip pain of several years' duration. Due to the complexity of the condition and the need for specialized surgical and hematologic management, the patient was subsequently referred to our tertiary referral center for further evaluation and treatment. The pain was mechanical, worsened with weight-bearing, and significantly limited activities of daily living, including walking, stair climbing, and prolonged standing. There was no history of recent trauma. The patient reported multiple hemarthroses involving other joints during childhood and early adulthood.
Conservative management, including analgesic medication, activity modification, and physiotherapy, had failed to provide sustained relief. On physical examination, the patient exhibited an antalgic gait and marked restriction of left hip range of motion, particularly in flexion and internal rotation, with pain at the extremes of movement.

Preoperative functional assessment demonstrated significant disability, with a Harris Hip Score (HHS) of 42 points, indicating severe functional impairment. Pain intensity assessed using the Visual Analog Scale (VAS) was 8/10 at rest and 9/10 during weight-bearing activities. Plain anteroposterior pelvic radiographs revealed advanced degenerative changes of the left hip, including joint space narrowing, subchondral sclerosis, and osteophyte formation, consistent with end-stage arthrosis secondary to hemophilic arthropathy (Figure 1).

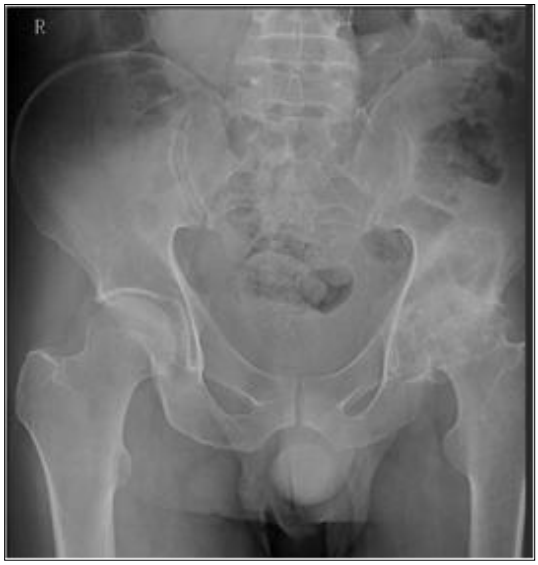

Fig 1: Plain anteroposterior pelvic radiography showing advanced degenerative changes of the left hip, including joint space narrowing, subchondral sclerosis, and osteophyte formation, consistent with end-stage arthrosis secondary to hemophilic arthropathy.

Following discussion within an interdisciplinary team involving orthopedic surgeons, anesthesiologists, specialists in immunohemotherapy, and physical medicine and rehabilitation (PM&R) specialists, surgical treatment was indicated. A perioperative factor VIII replacement protocol was established by the hematology team to maintain adequate coagulation levels before, during, and after surgery.

The patient underwent cementless total hip arthroplasty through a standard surgical approach. Intraoperative blood loss was within expected limits, and no bleeding-related complications occurred. Postoperatively, factor VIII replacement was continued according to protocol, and thromboprophylaxis was carefully balanced against bleeding risk.

A structured rehabilitation program was initiated early under the supervision of the PM&R team at the tertiary referral center, focusing on pain control, gradual range-of-motion exercises, muscle strengthening, gait training, and functional recovery. After hospital discharge, the rehabilitation program was continued and completed at the patient's local hospital in his area of residence, ensuring continuity of care and adherence to the rehabilitation protocol. Weight-bearing was progressively advanced according to tolerance.

At final follow-up (12 months postoperatively), the patient reported complete resolution of hip pain and a marked improvement in quality of life. Functional evaluation demonstrated a postoperative HHS of 94 points, reflecting excellent functional outcome. Postoperative pain assessment showed a marked improvement, with a VAS score of 1/10 at rest and 1-2/10 during activity. The patient regained independent ambulation without assistive devices and returned to normal daily activities. Postoperative radiographs showed a well-positioned and stable prosthesis with no signs of loosening or complications (Figure 2). No postoperative bleeding episodes, infections, or implant-related complications were observed.

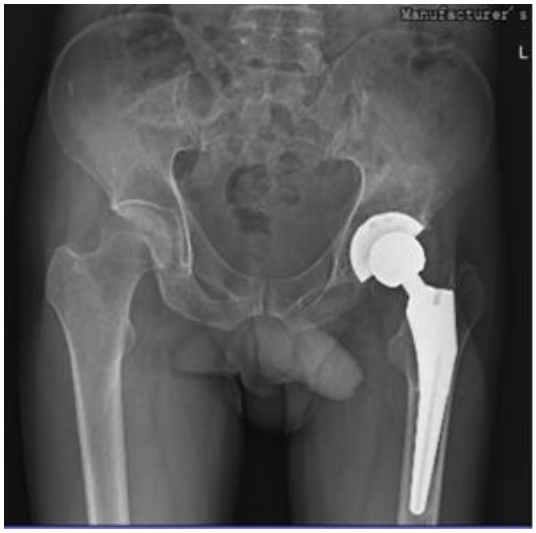

Fig 2: Plain anteroposterior pelvic radiography showing a well-positioned and stable prosthesis with no signs of loosening or complications

Discussion

Hemophilic arthropathy remains a major cause of morbidity in patients with hemophilia despite advances in prophylactic factor replacement therapy. Although the knee, ankle, and elbow joints are most commonly involved, hip arthropathy represents an atypical and infrequent manifestation, with limited cases reported in the literature.

Total hip arthroplasty in patients with hemophilia has historically been associated with higher complication rates compared to the general population, particularly with respect to bleeding and infection. However, contemporary studies have demonstrated that, with optimized perioperative hematologic management and careful surgical technique, THA can achieve durable pain relief and substantial functional improvement.

In this case, interdisciplinary collaboration was essential to the successful outcome. Close coordination between orthopedic surgery, hematology, anesthesiology, and PM&R ensured effective bleeding control, safe surgical intervention, and structured postoperative rehabilitation. The significant improvement observed in validated functional scores underscores the clinical benefit of THA in selected patients with hemophilic hip arthropathy.

Rehabilitation plays a critical role in maximizing functional outcomes following THA in hemophilic patients. Early mobilization, supervised physiotherapy, and individualized rehabilitation protocols contribute to restoring mobility while minimizing the risk of bleeding and other complications.

Clinicians should maintain a high index of suspicion for hemophilic arthropathy of the hip in patients with hemophilia presenting with chronic hip pain, particularly in those with long-standing disease, to allow timely diagnosis and appropriate intervention.

Conclusion

Hemophilic arthropathy of the hip is a rare but clinically significant cause of pain and disability in patients with hemophilia A. Total hip arthroplasty, when performed within an interdisciplinary framework with appropriate perioperative factor replacement and structured rehabilitation, can provide excellent clinical and functional outcomes. This case supports THA as a safe and effective treatment option for advanced hemophilic hip arthropathy.

Declarations

Ethical Approval and Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. Ethical approval was not required for this single case report.

Conflicts of Interest

The authors declare no conflicts of interest.

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