

## Hip Arthroscopy Following Gunshot Wounds to the Hip

*Marcus Trotter; Brian Mullis, MD; Janos Paul Ertl, MD*

*Indiana University, Indianapolis, IN, United States*

**Purpose:** Hip arthroscopy is thought to limit soft-tissue dissection, operative time, and overall complications for patients who have a loose body in the hip that would not otherwise require an open approach. However, limited literature exists about hip arthroscopy in treating patients with a gunshot wound (GSW) to the hip. The purpose of this retrospective study is to review a limited series of these cases at a Level-I trauma center with over 30% penetrating trauma rate to determine the safety of this procedure.

**Methods:** All hip arthroscopies were performed by 2 experienced fellowship-trained trauma surgeons from 2006-2018 at a Level-I trauma center. A total of 50 hip arthroscopy cases were identified by CPT (Current Procedural Terminology) codes. Of the 50 cases identified, 7 patients suffered a GSW to the hip. A chart review was conducted of these 7 cases to determine the frequency and severity of complications for this indication.

**Results:** All 7 patients were male and African-American with a mean age of 31 years and mean follow-up of 8 weeks. Two patients were lost to follow-up. The most common complications reported for hip arthroscopy such as traction injuries, peripheral nerve injuries (ie, peroneal, sciatic, femoral nerve injuries, lateral femoral cutaneous nerve transection), and pressure wounds to the sacrum were not seen in these patients. However, 5 out of the 7 cases were noted to have poor visualization with arthroscopy. Common reasons for poor visualization were difficult access to the bullet fragments, morbid obesity, hematoma formation, and preexisting arthritis. Of these 5 cases, 2 were converted to open procedures to retrieve the remaining bullet fragments. Three patients developed postoperative hip pain, with 2 of these patients developing radiographic and clinical signs of posttraumatic arthritis. Most significantly, 1 patient developed abdominal compartment syndrome, most likely due to increased pulse pressure over a prolonged operative period. Emergent exploratory laparotomy and abdominal compartment fluid release were performed and the patient had an otherwise unremarkable hospital course.

**Conclusion:** Hip arthroscopy continues to become more popular for removal of loose bodies as a less invasive procedure with presumed little risk for a trauma patient. However, this limited series suggests there may be a much higher risk of complications with hip arthroscopy for loose bodies following GSW due to poor visualization and extravasation of fluid, with a life-threatening event from one of these cases. Also, 2 of the 7 cases (29%) were converted to an open approach, which suggests the surgeon should be accomplished in both arthroscopic and open approaches to the hip or have the appropriate backup in case a conversion to an open approach is needed.