

Articles of Interest: Total Hip Dislocation



It is widely held that dislocation occurs in 2-10% of all primary THRs and as much as 20% of Revision THRs. This summary highlights several articles written over the last 10 years about hip dislocation and its effects. For more in-depth reading, the references are provided, and full article reprints are available from your distributor.

ARTICLES SUMMARIES

BEAULE, PAUL MD, SCHMALZRIED, THOMAS MD, AMSTUTZ, HARLAN MD,

Jumbo Femoral Head for the Treatment of Recurrent Dislocation Following THR, *JBJS* Vol. 84-A, Number 2 pp. 256-263, February 2002.

- Joint Replacement Institute investigation of 12 hips in 12 patients
- Patients had recurrent instability in their hips and underwent revisions utilizing jumbo femoral heads with an average size of 44 mm
- 12 patients had an average of 4 previous operations
- 10 patients received bipolar or fixed heads and 2 patients received unipolar or modular heads
- Average post-op follow-up was 6.5 years
- 1 patient died, but was stable up until time of death, 10 of the remaining 11 had no additional episodes of instability
- 1 hip did dislocate again, the cup was then repositioned and the patient was still stable 7.6 years later
- A larger femoral head must travel a greater distance before subluxing or dislocating, and a greater range of motion is allowed before the femoral neck impinges
- In a previous study of 850 surface replacements, with head sizes ranging from 38-51mm, the dislocation rate was 0.3%, thus supporting the use of jumbo heads in the treatment of dislocations.

VON KNOCH, MARIUS MD, BERRY, DANIEL MD, *et al*,

Late Dislocation after Total Hip Arthroplasty, *JBJS* Vol. 84-A, Number 11, p. 1949-1953, November 2002.

- Mayo Clinic investigation of 19,680 THRs between 1965-1995
- Purpose of this study was to determine the prevalence of late dislocation in THR (Greater than 5 years)
- The investigators also characterize demographics and other factors
- 513 hips dislocated (2.6%) with 32% dislocating 5 or more years after surgery
- Late dislocation was more frequent in women and younger patients
- Late dislocation occurred often in association with poly wear of more than 2mm
- The authors concluded that late dislocations were much more common than previously thought

ALBERTON, GREGORY *et al*,

Dislocation after Revision Total Hip Arthroplasty, Volume 84-A, Number 10, pp. 1788-1791 *JBJS*, October 2002.

- Mayo Clinic investigation of 1,548 revision in 1,405 patients (minimum 2 year follow-up)
 - Dislocation is the leading cause of failure in revision total hip arthroplasty
 - 115 or 7.4% of the patients dislocated
 - Revisions with 28 and 32 mm heads were significantly more stable than with 22 mm heads
 - Overall 36% of the hips remained unstable
 - 7.5% had anterolateral approach, 7.8% had lateral approach with trochanteric osteotomy, and 6.1% had posterior approach (no statistical significance in approach was recorded)
 - Trochanteric non-union was a dominant risk factor for dislocation (7 of 9 non-unions dislocated)
-

LACHIEWICZ, PAUL F, KELLY, SCOTT,

The Use of Constrained Components in Total Hip Arthroplasty, *JAAOS* Volume 10 No. 4, pp. 233-238, August 2002.

- Constrained components are often used as a surgical treatment for recurrent dislocation.
- They usually include a locking mechanism incorporated into the poly liner to keep the femoral head in place
- Depuy and SHO designs were looked at in this study
- This study showed component failure rates of 4-29% at a relatively short term follow-up
- Failure occurs in four ways: loosening of cup, disassociation of the constrained liner from the shell, material failure (breakage), and disengagement of the constraining ring.
- Acetabular liner thinning and head and neck separation were also seen
- With a failure rate exceeding 20% in many cases it appears that constrained liners should not be used prophylactically based on these results.

JOLLES, B.M. MD, et al,

Factors Predisposing to Dislocation after Primary THR: A Multivariate Analysis, *The Journal of Arthroplasty* Vol. 17 No. 3 2002.

- Investigation of 2,023 THAs performed between 1991 and 1998 at the Orthopedic Hospital de la Suisse Romande, Lausanne, Switzerland
- Many patient related factors have been implicated in dislocations including but not limited to, age, gender, alcohol abuse, diagnosis of OA, lack of compliance, and muscle weakness in the joint
- Technical factors are also prevalent causes of dislocation including inappropriate cup or stem position, posterior approach, thick implant necks, small femoral heads, and limited surgeon experience
- 21 patients who had at least one dislocation were compared to 21 patients without dislocations
- Implant position, seniority of the surgeon, American Society of Anesthesiologists (ASA) scores, and diminished motor coordination were recorded
- Dislocations rates were 6.9 times higher if total anteversion was not between 40 and 60 degrees and 10 times higher in patients with high ASA scores
- Patients >80 years of age had a dislocation rate of 9%, three times higher than the rest of the group
- Surgeons should pay particular attention to anteversion and use the ASA score as a preoperative assessment of dislocation risk

JOHNSTON, RICHARD C MD, CALLAGHAN, JOHN J MD et al,

Dislocation after Total Hip Arthroplasty: A Single Surgeon's Experience, *Orthopedic Clinics of North America* Vol. 32 No. 4 October 2001.

- Study of 4,967 THR (4,164 primaries, 803 revisions) performed by Richard Johnston between 1970 and 1996 at the University of Iowa
- Surgeon used the Charnley 22-mm components between 1970-79, Iowa 28-mm monolithic between 1982-88, modular 22-mm components between 1992-93 and other combinations between 1980-81 and 1994-96.
- During the 26 year period 7.2% of primary and 11.2% of revision procedures dislocated
- The most startling fact was that the surgeon returned to 22-mm heads in 1992 and had a 13.4% dislocation rate in primaries and 10% in revisions
- Another key fact was that the surgeon found that more than 25% of the patients dislocated 2 or more years after the procedure (normally, most dislocate in the first 3 months)
- The final takeaway was that the authors used constrained components in many revisions for dislocation with a 3.3% recurrent dislocation rate as opposed to a 33% recurrent dislocation rate without these constrained components

BARTZ, REED MD, et al,

The Effect of Femoral Component Head Size on Posterior Dislocation of the Artificial Hip Joint, *JBJS* Vol. 82-A, No. 9, September 2000.

- 6 cadaveric bones were implanted with uncemented hips and mechanically tested
- Range of motion and impingement were tested for 22, 26, 28 and 32mm heads
- The results showed that by increasing the head size from 22 to 28 range of flexion increased by 5.6° and by 7.6° prior to posterior dislocation
- Increasing the head size from 28 to 32mm did not provide more significant improvement
- Increasing the head size increases ROM and decreases impingement and subsequent dislocation



Wright Medical Technology, Inc.

5677 Airline Road
Arlington, TN 38002
901.867.9971 phone
800.238.7188 toll-free
www.wmt.com

Wright Cremascoli Ortho SA

Zone Industrielle la Farlecle
Rue Pasteur BP 222
83089 Toulon Cedex 09
France
011.33.49.408.7788 phone