Why Use a Modular Neck Design for Cemented THA?

by

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What are the immediate goals of THA?
- Eliminate Pain
- New Hip
- Restore Function
- Reproduce Hip Mechanics
  1. Femoral Offset
  2. Neck Length
  3. Version Angle

What are the immediate goals of THA? (cont.)
- Eliminate Pain
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Dislocation
- Reports from 2.8% to 4%
- Higher in Posterior Approach
- Higher in Sm. Dia. Heads
- Higher in Revisions >20%

Two Remaining Significant Problems in THA (cont.)
- Osteolysis

Two Remaining Significant Problems in THA
- Dislocation

Keys to Success in THA
- Technique, Technique, Technique
- Implant Alignment
- Implant Position
- Soft Tissue Balance
- Patient Selection
- Implant Design
- Implant Materials
Current Trends

- Surgical Navigation Systems
- Mini- Incisions
- Hard on Hard Bearings
- Large Femoral Heads
- Increased use of Lateral Femoral Offsets
- Increased use of Constrained Sockets

Current Trends
Surgical Navigational Systems

- Challenges in THA
  - Optimum cup alignment
  - Desired leg length
  - Optimum femoral offset

Challenges in THA
Cup Alignment
>30% Malpositioning

Optimum
45° Abduction
20° Anteversion

Single biggest medical/legal problem in THA

- Desired Leg Length

Modular Neck
Benefits

- Adjustment of Hip Mechanics
- Less chance of implant impingement
- Optimum of Stem Insertion Prior to Cup
- Reduced Operative Bleeding
- Modular Site Outside of Bone Interface
- Accessibility to Cup in case of Revision
- Replacement of Ceramic Head if Necessary (new neck taper)

R-120™ Cemented Stem Collared Design

- Intrinsically Modular Intolerable Neck
- C.C. Conventional Stylled Stem
- Full Collar
- A/P Teardrop Cement Groove
- Proximal Mate Finish
- Distal tip polished
- Currently 6 sizes

IMIN™ Features

- Version Adjustment
  (8°, 12°, 18°)
- Neck Shaft Angle Adjustment
- Stem Insertion / Accetabular Exposure

IMIN™ Features (cont.)

- Version Adjustment (cont.)
- Neck Shaft Angle Adjustment
- Stem Insertion / Accetabular Exposure

R-120™ Modular Neck Features (cont.)

- Version Adjustment
- Neck Shaft Angle Adjustment
- Stem Insertion / Accetabular Exposure

Surgical Approaches

- Anterior
  - Mini-Dual
  - Mini-Tri
- Direct Lateral
- Posterior
  - Mini-Dual

Surgical Approaches

- Anterior/Lateral (Modified Watson-Jones)
  - Dr. Hugh Cameron, Toronto, Canada

Stem Driver

(Cameras)
Trials at position #3

Surgical Approaches cont.
- **Anterior mini-dual approach**
  Dr. Kristaps J. Keggi, Waterbury, CT

Surgical Approach
- **Anterior**
  Small Single
  Dual Mini-Incision

Incision needs to be large enough to insert cup

Cup In Place Screw Insertion
Ways to Reduce Dislocation

- Anterior or Direct Lateral Approach
- Restore Hip Mechanics
- Modular Neck to Aid in Restoration
- 32 mm Dia. Head or Larger
- Do not use skirted necks or modular truion necks
- Constrained sockets (not indicated for impingement problems)
- Reduce Use of Angled Poly Inserts
- Navigation System ($50,000-250,000)

Summary

- Modular neck design aids in fine tuning joint mechanics
- Works with all surgical approaches
- Allows for femoral stem insertion first (aids in reducing blood loss)
- Allows for ease and access in case of revisions
- Reduces chances of mechanical impingement of implants with mini-incision surgical approaches

Clinical Summary to Date
50 implanted since 1/02 by authors
250 implanted in last 12 months by study group members*
0 dislocations
0 intra-op fractures
No significant leg length inequalities
70% indexed to positions other than 0

IMIN™ Study Group Members*

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