

**One year outcome of unicompartmental
interpositional arthroplasty of the
medial compartment of the knee,
utilizing a metallic implant.**

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Outline

- *Introduction* of a metallic implant for interpositional medial compartmental arthroplasty of the knee (UIA)
- *Presentation* of early results of initial 30 procedures, as a single surgeon case series
- *Considerations* re. further direction

Introduction

- Medial compartment osteoarthritis of the knee
 - Multiple treatment options
 - Escalating commitment :
 - morbidity vs adequacy
 - 'when to burn which bridge'

Introduction

- Non-established treatment options

Clinical outcome not known

- Range of possible outcomes
- Decision analysis (COA 2007) can help with preliminary assessment of the balance of risks and benefits
- Initial case series can provide preliminary data re. morbidity and efficacy

Metallic interpositional arthroplasty

Historical:

→ MacIntosh, McKeever

→ Sbarbaro, Swanson

- used initially in OA and RA
- as far back as late 1950's
- required some bone preparation

Metallic interpositional arthroplasty

- Unispacer (Sulzer, Zimmer)
 - brief appearance in early 2000's
 - approximately 3000 implanted
 - minimal reporting
 - issues: implant instability, pain, stiffness
 - relied on femoral congruency for stability
 - no longer used

Metallic interpositional arthroplasty

- Dr. R. Scott, Boston → McKeeever
 - ‘may be considered as a bridging measure in the treatment of unicompartmental OA’
 - 70-86% implant survival at 8 y → not unlike HTO
 - 10 out of 24 doing well at 16 years (2006)

Metallic UIA - OrthoGlide

- Development history
 - 2003 – trial of a polyurethane interpositional arthroplasty implant (Advanced BioSurfaces)
 - Technique established
 - Initial recovery OK
 - Implant stable
 - Synovitis due to wear after 4-6 months
 - Trial stopped

Metallic UIA - OrthoGlide

- Development history:
 - lessons learned
 - metallic implants (→510k)
 - 3 and 4 mm implants, various AP sizes
 - 2007 (Arnold)
 - 300 implants
 - 92/100 patients with functional outcome scores
 - functional outcome scores encouraging
 - 10% revision rate at 1 y
 - 1/300 dislocation, 1/300 infection.
 - to date: approximately 600 implants placed
 - insufficient data capture

Metallic UIA - OrthoGlide

- Considerations:
 - Is it safe?
 - Is it effective?
 - What about long-term management?
 - Is it acceptable to the health care system?
 - Cost and other resource utilization?
 - Health Canada licencing status?

Metallic UIA - OrthoGlide

- Medial implant licenced by HPB, Health Canada in 2009
- Note: changed to Special Access in 2011 (insufficient data)

Metallic UIA - OrthoGlide

- Safety:
 - less invasive surgery
 - minimal hospital stay
 - no violation of subchondral bone → potentially 'reversible' (management of infection etc)

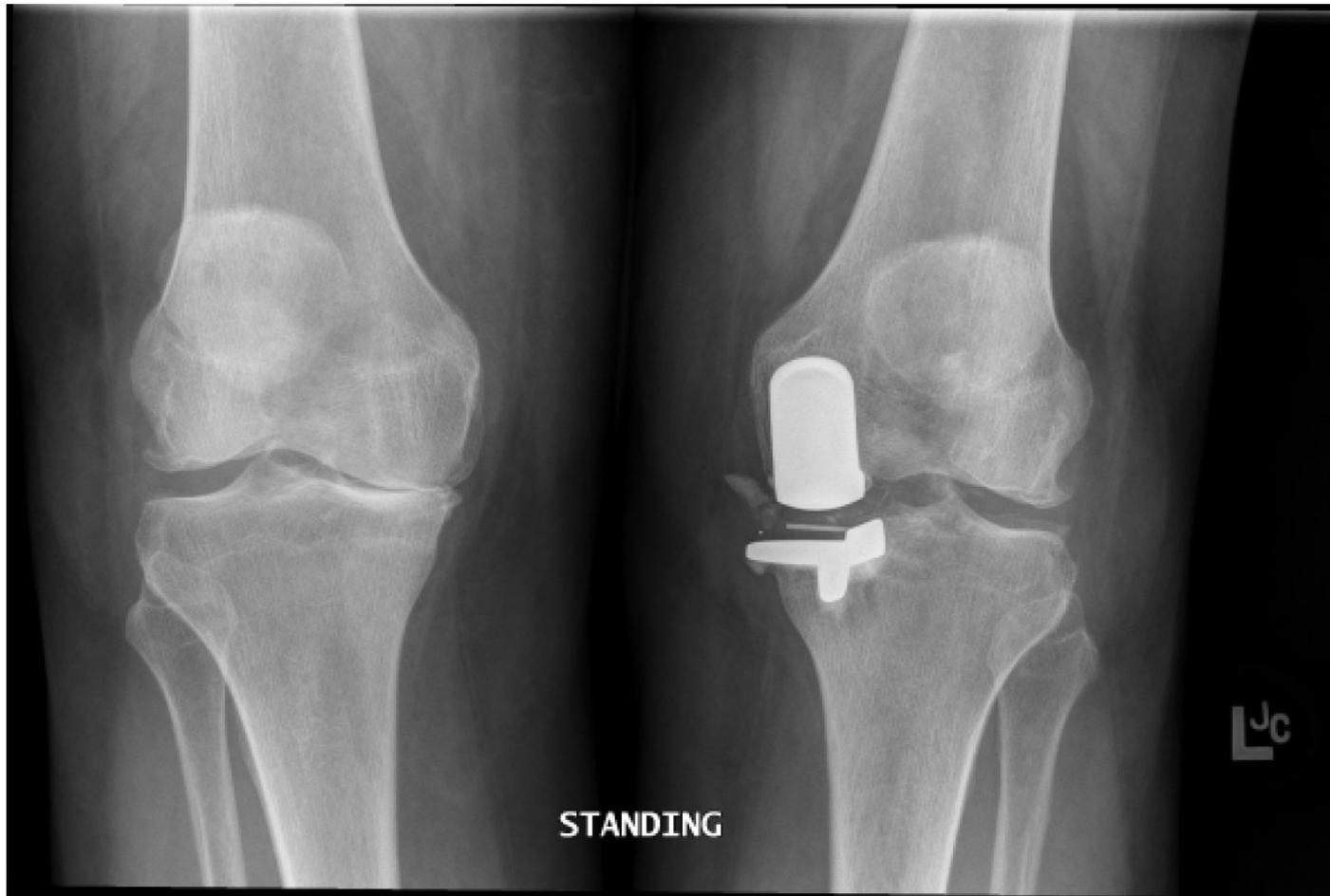
OrthoGlide - medial



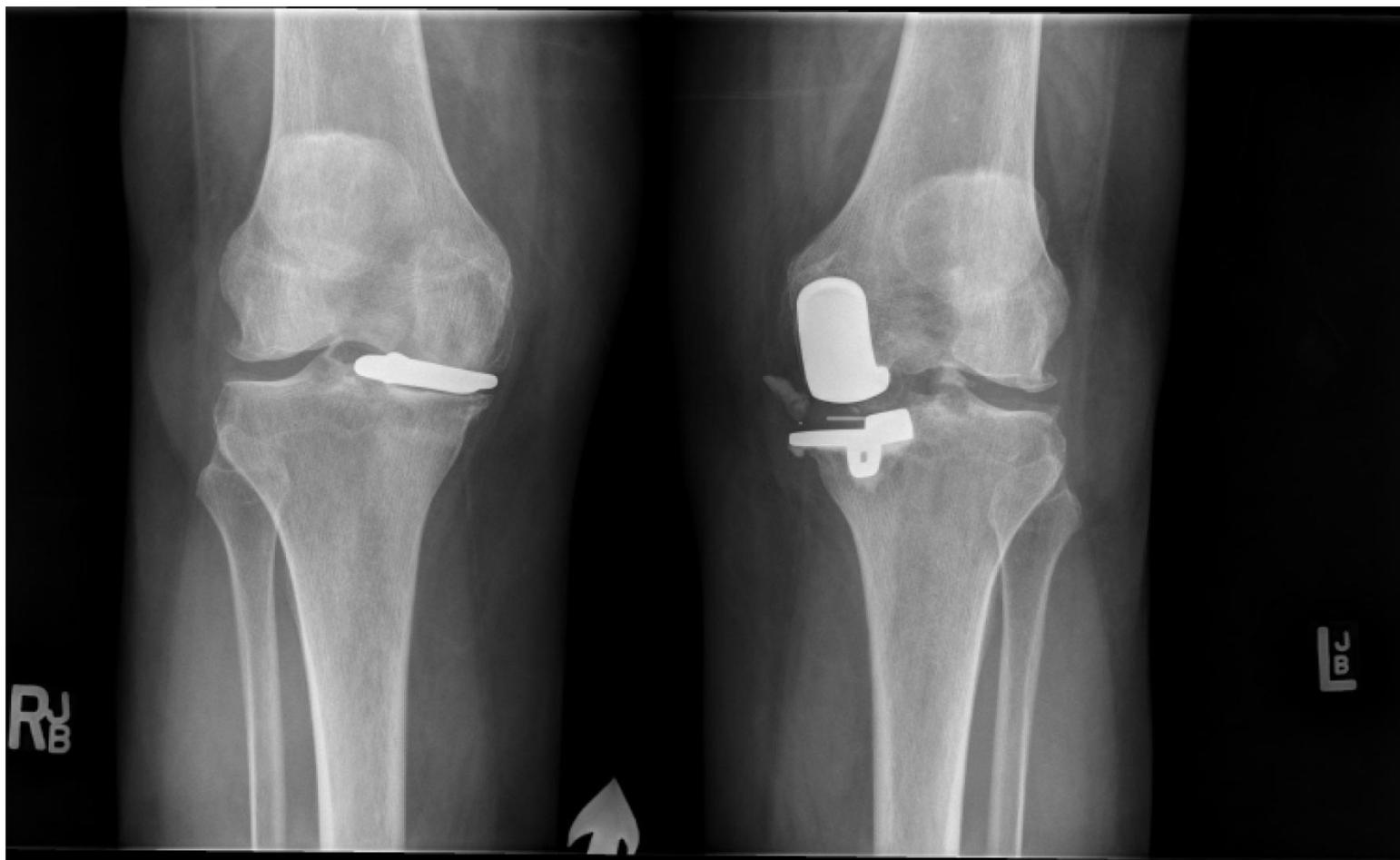
Metallic UIA - OrthoGlide

- Process of patient consent critical
- Patient tolerance of uncertainty of effectiveness of implant vs. assessment of exposure to surgical risks associated with various options
- INFORMED CONSENT of high quality

Female, 80y.
Medial UKA 4 years earlier



2 years post-op



2 years post-op



Methods

- Period under observation:
July 15, 2009 - July 15, 2010
- Thirty patients: 23 men / 7 women
- Average age 63.9 years, range 44 to 87 y

Methods

- Local anesthesia with IV sedation
- Arthroscopic assessment and partial joint preparation
- Arthrotomy (5-7 cm) for completion of joint preparation and implant insertion
- Daycare surgery

Methods

- Surgeon follow-up:
 - 2 w, 2 m, 6 m, 1 y and *as needed*
- Chart review up to and incl 1 year mark

Methods

- Outcome at 1 year (surgeon rating):
 - 'good' (satisfactory, steady-state, likelihood of early revision low)
 - 'fair' (implant merely tolerated, not a steady-state, likelihood of early revision significant)
 - 'poor' (implant not tolerated, revision pending or performed).

Results

- All completed as intended
 - No conversion to general anesthesia
 - No overnight stay or early re-admission.
- One patient lost to follow-up immediately after surgery

Results

- One hemarthrosis: wash-out POD 37
- No dislocation
- No revision surgery

Results

Knee range of motion

2 months 0-125 (\pm 10) degrees

6 months 0-128 (\pm 7) degrees

12 months 0-131 (\pm 7) degrees

Results

Functional rating at one year.

22/29 patients (76%) → good

3/29 patients (10%) → fair

4/29 patients (14%) → poor

(with patient lost to follow-up assigned to the 'poor' group → 73% 'good', 10% 'fair' and 17% 'poor'.)

Results

'Poor' group:

2/4 → progression of OA in lateral compartment

2/4 → unrelenting discomfort

Offered conversion to TKR

Discussion

After UIA → 'good' results at 1 y in 70-80% range (???)

After TKR → 'good' results at 1 y in 85-90% range (NIH, CIHI)

After UKR → similar or slightly less than TKR?

Discussion

'Good' TKA

VS

'Good' UKA

VS

'Good' UIA

Comparative outcome assessment needed

-Matched cohort study vs randomized trial???

Conclusion

- Interpositional arthroplasty of the medial compartment of the knee with the metallic Orthoglide implant appears to be safe and can be effective
- Uncertainty persists re. consistency and extent of functional improvement
- Revision options are preserved

Conclusion

- Further assessment will require a structured roll-out with systematic data capture:
 - on-line data registry with ongoing analysis
 - vs
 - formal multi-centre trial

Conclusion

- Refinement in implant design and materials, technique, indications etc to be based on further data collection
- Open communication in the orthopaedic community will be required to assess relative merit of various established and emerging technologies

THANK YOU