

Day of Surgery Discharge after Unicompartmental Knee Arthroplasty (UKA): An Effective Perioperative Pathway

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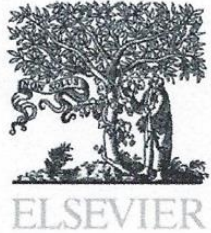


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UKA– Rapid Recovery Protocol

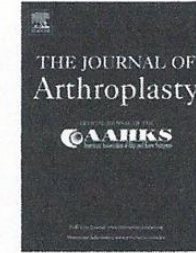
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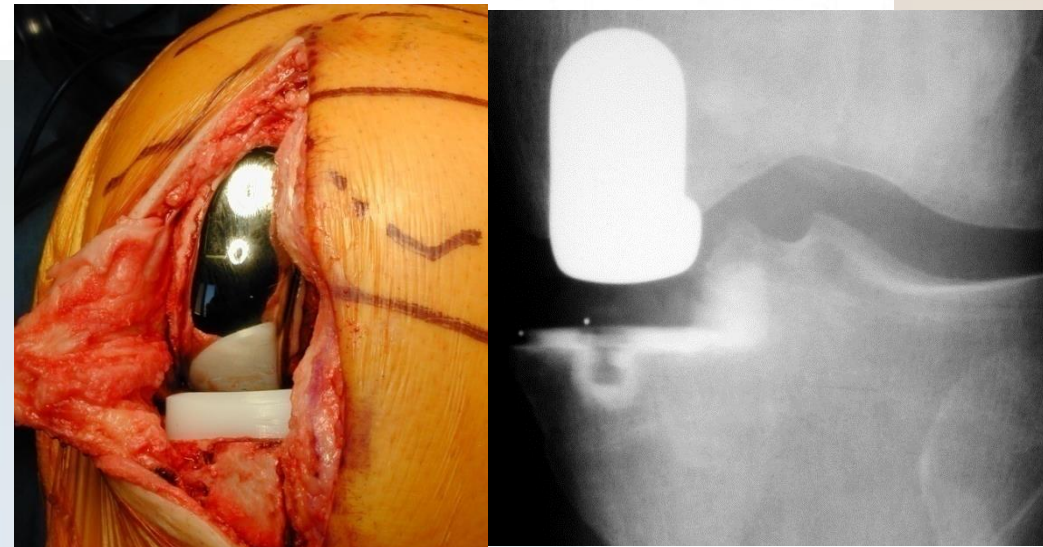


Day of Surgery Discharge after Unicompartmental Knee Arthroplasty: An Effective Perioperative Pathway

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Purpose of Study

- Describe a reproducible clinical pathway for day of surgery discharge
- Demonstrate that day of surgery discharge for UKA is a safe change in our goal to achieve efficient care



Methods

Retrospective Review

- **207 Consecutive UKAs**
 - 4.95% of Knee Arthroplasty Volume
 - Outpatient Surgery Center from 1/2003 – 2/2011
- **Two Cohorts**
 - Pre-Transition with Planned Overnight Stay (n=47), Jan 2003 – May 2008
 - Post-Transition with Planned Discharge (n=160), May 2008 – Feb 2011
- **Operative Record and Postoperative Chart Review**

Methods: UKA Indications

- **Medial compartment most common, Lateral 14%**
- **Symptoms isolated to single compartment**
- **Non-inflammatory disease**
- **Deformity < 15 degrees and correctible**
- **Flexion contracture <15 degrees**
- **Intact ligaments (ACL, PCL, MCL, LCL)**
- **X-rays**
 - **Weight-bearing AP, lateral and skyline views**
 - **Varus and valgus stress views**



UKA Indications: Helpful but Not Necessary

- **MRI**
 - Intact ACL
 - Intact articular cartilage and meniscus unaffected compartments
- **Arthroscopy photos**
 - Recent photos if available
 - Intact articular cartilage and meniscus unaffected compartments



Methods: Preoperative Evaluation/Education

Prior to Surgery:

- **Methicillin Resistant Staphylococcus Aureus (MRSA) Screening**
- **Preoperative Laboratory Data and Urinalysis**
- **Medical Clearance for all patients**
 - ASA Class 1-3
- **Cardiology clearance for history of significant cardiac disease**
- **Preoperative Visit with a Mid-Level Provider**
 - Narcotics, antibiotics, sleep aid, NSAIDs, DVT prophylaxis, scopolamine (if history of nausea)
 - Home environment deemed safe and availability of caregiver confirmed
 - Family encouraged to participate
 - Bowel Program



Methods: Anesthesia

- **Pre-operative medications**
 - Ranitidine 150mg PO, midazolam 2mg, PO Celecoxib 400mg
- **General Inhalational Anesthesia (most commonly isoflurane or sevoflurane)**
- **IV pain medication (morphine 10 mg, fentanyl 100-200 mcg, meperidine 25-50 mg)**
- **US Guided single injection femoral nerve or adductor canal block**
- **Standard preoperative antibiotics**



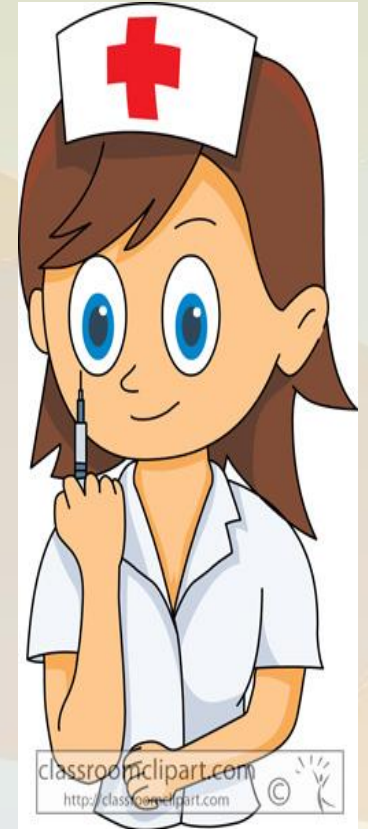
Methods: Surgical Technique

- Medial incision without patellar eversion
- Tourniquet utilized from incision to completion of cementing
- Intraoperative local injection of periarticular tissues with 20-40 mL of 0.2% ropivacaine and Toradol
- Single drain, removed in PACU
- Bulky dressing using cotton and bias wrap after skin closure
- Knee immobilizer prior to leaving operating room, cold therapy



Methods: Recovery Room

- Oral (hydrocodone) or IV pain (fentanyl 25-50 mcg) meds as needed
- Last dose IV antibiotics after drain removal and before Discharge Home
- Physical therapist provides gait training and transfer training
- WBAT with FWW or crutches
- Adequate pain control and stable vital signs
- Clearance for DC home by anesthesiologist
- Instructed to wear knee immobilizer until able to do 5 straight leg raises



Methods: Post-Surgical Care

- Phone call by surgeon POD #1-2
- POD #1: home health PT 3x/week for 2 weeks
- Rest, elevate, ice, PO pain meds
- POD #3-4 – 1st office followup visit for dressing change
- 6 weeks postop – 2nd office followup visit



Methods: Outcome Measures

- **Knee Society Clinical Rating System (KSCRS)**
- **Knee Osteoarthritis Outcome Survey (KOOS)**
- **SF 12**



Results: Patient Demographics

D/C POD #1

- 47 patients
- Surgery prior to May 2008
- Average age 57.89
- 58.7% male
- Average BMI 28.12
- Average ASA 1.81

D/C Day of Surgery (DOS)

- 160 patients
- Surgery May 2008 and after
- Average age 65.29
- 65% male
- Average BMI 27.72
- Average ASA 1.84



Results: Medial vs. Lateral

- **Medial: 146 patients (91.3%)**
- **Lateral: 10 patients (6.3%)**
- **Patellofemoral: 4 patients (2.5%)**



Results: Indications for Surgery

PRIMARY DIAGNOSIS	PERCENTAGE
OSTEOARTHRITIS	90.0%
POST TRAUMATIC ARTHRITIS	8.8%
AVASCULAR NECROSIS	0.6%
SIGNIFICANT MEDIAL OSTEOCHONDRITIS	0.6%

Results: Surgery Duration & Recovery Time

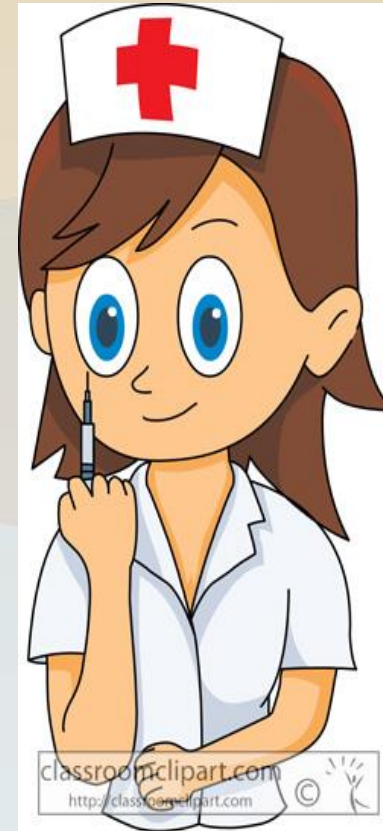
	Mean	Range
Duration of Surgery (min)	81.0	58-115

	Mean	Range
Recovery Time* (min)	120.9	60-304

*Recovery time is defined as entrance to recovery room until discharge.

Results: PACU/Recovery Room

- Oral narcotics 8.1%
- IV narcotics 31.9%
- No narcotics 60%
- Average PACU stay was 121 minutes



Results: Clinical Data

Parameter	Preoperative	Final Follow-up	p-value
Extension	5.67	0.73	<0.001
Flexion	124.4	133.3	<0.001
Knee Functional Score (100 = Best Score)	65.3	88.2	<0.001
Knee Society Score (100 = Best Score)	34.2	94.4	<0.001

Results: Complications of DOS Patients

- No intra-op complications
- 2 re-operations
- 1 hematoma POD #6
- 1 wound drainage from drain site - ER visit only
- 1 readmission POD #9 for hypovolemia and UTI
- No admissions to inpatient hospital from PACU
- No falls
- No VTE events
- No MI
- No CVA/TIA
- No infections
- No neurovascular injury



Results: Re-Operations



- 1 patient dislocation of the mobile bearing
- 1 patient with lateral DJD progression and conversion to TKA at year 3
- $2/160 = 1.25\%$



Study

Strengths

- **Large cohort**
 - 160 patients compared to 24 and 25 patients in other similar studies

Limitations

- **Retrospective review**
- **Inability to define patient selection criteria**



Value of DOS Discharge UKA

- **Significant reduction of cost to insurance carriers with day of surgery discharge versus inpatient hospitalization**
- **Significant cost saving from \$16,000 to \$7000 noted by Repicci and Eberle**



Conclusion

- **The success of DOS discharge is a result of multiple factors**
 - Strict surgical indications and patient selection
 - Patient and family education
 - Patient support system
 - Surgical and anesthetic techniques
 - Education of perioperative team
- **“Safe, efficient care of the UKA patient can be realized by utilizing this simple perioperative pathway”**

