

ARTHROPLASTY



ROTATION SPECIFIC GUIDELINES

In keeping with the specific standards of accreditation (2009) this rotation assumes administrative support and university affiliation.

Specific to the site, we offer these areas of focus for the resident:

1. Non-surgical treatment of primary osteoarthritis and lower extremity joint conditions.
2. Surgical, arthroplasty and non-arthroplasty treatment of osteoarthritis
3. Perioperative issues related to the arthroplasty patient

Following the Goals and Objective is an outline of teaching available/ caseload in those areas for the junior and senior resident.

The resident, upon orientation will review the Resident specific and College specific goals with his/her preceptor to ensure adequate focus throughout the rotation.

I MEDICAL EXPERT

Junior/Senior

Upon completion of the arthroplasty rotation the resident will be able to:

- Demonstrate appropriate core knowledge based on their level of training
- Understand the spectrum of arthroplasty orthopedic practice
- Appreciate the structure of healthcare in the setting including
 - Access to tertiary care, stabilization and investigation of patients for transfer
 - Resource allocation and health care infrastructure
 - Practice Management – Group and Solo
 - Work-Life Balance

a. TECHNICAL KNOWLEDGE

Junior - Clinical Skills and Knowledge

The junior resident will be expected to:

- Discuss the biomechanics of the hip and knee joints
- For the hip be able to discuss neck length, offset and version as they relate to stability
- For the knee gain a functional understanding of femoral component rotation and flexion extension gaps
- Know component malposition as it relates to patellofemoral tracking
- Know the surgical approaches used for the hip and the knee
 - Discuss the pros and cons for the various approaches utilized for modern THA
- Common complications and ER management: Infection, dislocation (hip and knee), evaluation of a painful TJA, periprosthetic fractures
- Radiographic evaluation of the TJA (hip and knee)
- Understand the unique medical problem of the geriatric population

Junior – Surgical Skills

- Be comfortable with any of the component tasks of total joint arthroplasty
 - In particular surgical approaches and layered closures
- Be able to reduce a dislocated total joint arthroplasty
- Be able to aspirate a total joint

Senior – Clinical Skills and Knowledge

- Familiarity with implant and bearing surface choices – discuss pros and cons of options and indications for their use
- Treatment/management decisions for the patient with osteoarthritis and other common joint conditions (eg. AVN, inflammatory arthropathy, crystalline arthropathy, sepsis, hemorrhagic, metabolic (Pagets))
- Templating of THA/TKA being able to discuss goals for each
- Should have a comfort level with all of the steps of TJA and be able to discuss pitfalls and corrections at each step along the way
- Must be able to discuss the following specific clinical scenarios:
 - The difficult primary THA – DDH, Young person with primary OA, post traumatic Trauma with retained implants, AVN, Metabolic bone disease
 - The difficult primary TKA - Valgus knee, post traumatic knee, post HTO, preoperatively stiff knee, rheumatoid
 - Revisions Arthroplasty - Unstable TJA Hip and Knee, periprosthetic joint infections, periprosthetic fracture operative management, failed UKA, patella baja,
 - Stiff TKA: Management algorithm
 - Managing bone loss for revision Arthroplasty: Classifications and principles for reconstruction (Hip and knee)
 - Management of complications of Metal-on-Metal THA
 - Total hip arthroplasty in those with spinal fusions – as it relates to lumbopelvic incidence and component positioning

Senior Surgical Skills

- Be able to integrate the component skills required to perform a primary and revision total hip and total knee arthroplasty
- This includes planning and problem solving within the OR

II COMMUNICATOR

- The resident will be expected to establish and maintain therapeutic relationships with both patients and their families. Communication will be assessed in both written and verbal areas. A PATIENT ENCOUNTER FORM will be given to an undisclosed patient(s) to assess the patient's perception of the encounter. (Document 2)

Areas of evaluation include:

1. The ability to take a focused history (observed H&P)
2. listening skills
3. information delivery to patients/family, e.g. informed consents
4. Information delivery to colleagues, progress notes, orders etc.

(random assessment of documentation)

The arthroplasty rotation will emphasize a patient centered approach in which the resident will be allowed to develop competency in learning to modify and explain information in a way that meets the needs of the individual patient. For assessment purposes the preceptor may require an area of predetermined specific learning cases e.g. end of life discussion in hip fracture, changing level of care in the ICU patient, or dealing with a physician as patient.

Junior

- effective listening to patients and families
- appropriate respect for patient confidentiality and privacy
- accurate documentation of patient encounters

Senior

- effective delivery of information to patients to allow / encourage discussion and informed decision making.
- Deal with challenging communication issues/ e.g., angry family, miscommunication, poor prognosis etc.

III COLLABORATOR

The resident will be required to demonstrate an ability to interact with all other health care professionals including family, nursing and other physicians. Respect for the roles of other professionals will be an important component of this area.

This area will be assessed through:

1. feedback from nursing staff
2. information from other multidisciplinary team members
3. Other physicians – i.e., 360° Evaluation.

Assessment of the resident in this area may be best objectively measured through specific minor projects. For example:

1. Collaborating with physiotherapists to design a post-operative, patient specific rehabilitation protocol
2. Collaborate with nursing regarding a patient safety issue

IV LEADER

The expectation of the resident is to utilize resources to balance patient care and to allocate finite resources wisely. The resident will be assessed in their ability to balance personal and professional activities and use their time to optimize patient care and CME.

Office administration, practice management and billing practices will be reviewed

Assessment

1. Ability to utilize resources wisely

2. Ability to manage time appropriately (promptness, prioritizing etc.)
3. Administrative ability

V SCHOLAR

The resident will demonstrate the abilities to ASSESS, APPRAISE, ACQUIRE and CONTRIBUTE to lifelong learning activities. Scholarship relates to the self discipline of evaluating, reporting and incorporating new evidence into practice.

This will be assessed through:

1. The ability of the resident to incorporate self-directed, as well as preceptor directed, specific learning goals throughout the rotation.
2. The ability of the resident to teach other health professionals in order to enhance patient care.
3. The resident's ability to integrate new research into practices with article reviews with preceptors throughout the rotation
4. The residents' ability to provide insight and critically appraise their own knowledge base, and procedural techniques.

VI HEALTH ADVOCATE

The resident is expected to consistently advocate for the health and care of the patient. This includes an ability to identify the important determinants of health care for the patient, both orthopedic and non-orthopedic. The resident should develop an understanding for the role of the surgeon in the health care system. This includes the role of the physician in recognizing and describing the health needs of the population.

This will be assessed though:

1. the resident's interaction with the patient requiring concurrent care issues
2. The resident's ability to negotiate for limited resources in patient prioritizing

It is imperative that the resident understands the need for advocacy of the patient as a group as well as an individual. Individual advocacy is usually well established in the early medical career, but group advocacy integrates much later in practice.

VII PROFESSIONAL

The resident will be expected in this rotation to adhere to a high standard of honesty, integrity, commitment, compassion, effectiveness, competence and altruism.

Other areas of professional behavior to be assessed are manners, presentation skills, utilization of feedback and other evaluation tools.

Self-regulation in these areas is imperative. The resident will be expected to be accountable for all behaviors and recognize the boundaries between professional and personal realms.

Professionalism also includes self- directed learning and evaluation.

This may be assessed through:

1. Personal learning projects
2. Creation of learning objective for the rotation
3. Self-assessment skills and simulation.

Reviewed and approved by RPC
November 23, 2021

Sample Senior Arthroplasty Rotation Reading List

Basic Science

- THA implant design – femoral component designs (cemented vs. uncemented, diaphyseal vs. metaphyseal fit, porous vs. grit blasted etc.), femoral neck designs (circular vs. trapezoidal), femoral head sizing, acetabular liner design (lateralized, lipped, constrained), methods of acetabular fixation (screw placement, press fit)
 - o As it relates to population indications, dislocation risks, impingement risks etc.

The difficult primary THA

- Specific disease states - DDH, Young person with primary OA, Post traumatic Trauma with retained implants, AVN, Metabolic bone disease
- Total hip arthroplasty in those with spinal fusions
 - o As it relates to lumbopelvic incidence and component positioning
- Additions to surgical exposures – trochanteric slide vs. ETO

The difficult primary TKA

- Valgus knee - specific constraint consideration, alignment considerations,
- Specific disease states - post traumatic knee, post HTO, preoperatively stiff knee, rheumatoid

Revisions Arthroplasty

- Unstable THA – diagnosis (femoral or acetabular malposition), evaluation, surgical management
- Unstable TKA – diagnosis (patellar, mid-flexion, extension), evaluation, surgical management
- Periprosthetic joint infections
 - o Conservative (liner exchange) vs. single stage revision vs. two-stage revision – evidence and surgical options
- Periprosthetic fracture operative management
 - o Based on classification and evaluation fixation versus revision arthroplasty and considerations within those surgical management options
- Failed remote arthroplasty – failed UKA, failed hip resurfacing, patella atla and baja, ceramic-on-ceramic squeaking or stripe wear, osteolysis around THA and TKA, eccentric wear in metal on polyethylene THA,
- Managing bone loss for revision Arthroplasty: Classifications and principles for reconstruction (Hip and knee)
 - o Acetabular reconstruction – use of revision cups, jumbo cups, flange prothesis and up-cage constructs
 - o Femoral reconstruction – use of cemented, diaphyseal fitting, modular and monoblock stems
 - o Knee reconstruction – use of PMMA, rebar screw, augments, cones and sleeves, and stemmed components
- Management of complications of Metal-on-Metal THA – diagnosis, evaluation and treatment algorithm

Sample Junior Arthroplasty Rotation Reading List

Basic Science

- Materials in arthroplasty – ceramics, polyethylene, cobalt chrome, titanium, PMMA
- Tranexamic acid – mechanism of action, indications, evidence for use
- Antibiotic prophylaxis – use of cephalosporins, use in context of allergy, mechanism of action, basic pharmacology

Biomechanics knee

- Prosthesis designs - varus/valgus constraint
- Varus/valgus correction theory - kinematic versus mechanical alignment
- Femoral roll back
- Gap balancing – measured resection, sequential releases, use of intra-operative tension-based computer
- Intraoperative alignment decisions – coronal, sagittal and axial considerations
- Component positioning in coronal plane – as it relates to patellar tracking

Biomechanics hip

- Femoral component - including neck offset, neck length, neck version
- Acetabular component – cup medialization, acetabular version
 - o This should include Lewinnek safe zones

Total Hip Arthroplasty Approaches

- Direct anterior approach – indications, pitfalls, variations
- Lateral approach – indications, complications
- Posterior approach – indications, complications

Arthroplasty related complications

- THA instability – clinic management, ER management, evaluation, treatment algorithm
- Leg length discrepancy in THA
- Periprosthetic fracture surrounding THA and TKA – diagnosis, classification, treatment algorithm
- Periprosthetic joint infection – diagnosis, work-up (updated MSIS guidelines), medical and surgical management

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