Clinical Teaching Unit #3 (CTU#3) – Pediatric Surgery

Rotation Description

The service of pediatric surgery is part of CTU #3. The service is comprised of Drs. Kolar and Winthrop. Dr. Kolar and Dr. Winthrop are available (as per the call schedule) for all surgical patients less than the age of 18 years from 8 am until 5pm. After 5pm the pediatric surgeon is on call for all patients 12 and under. The pediatric surgeons are also available for consult by the surgical residents or adult surgeon on call at any time. If a patient less than the age of 18 years is taken to the OR for trauma, congenital issues or any surgical issue that is complex the pediatric surgeons would like to be contacted.

A rotation in Pediatric Surgery will give residents the opportunity to become familiar with the unique needs of infants, children and adolescents as surgical patients. Some of the surgical diseases encountered in children and adolescents are similar in their presentation, management and outcome with their adult counterparts; others are quite different. The fundamental principles of surgical care, however, are similar to those that govern surgical practice in other age groups.

Goals:

1. Define the principles of investigation and management of infants, children and adolescents requiring surgical treatment.
2. Gain practical experience in the assessment, management, and indications for surgical treatment of common paediatric conditions.
3. Learn to perform certain paediatric surgical procedures.
4. Learn the principles of decision-making regarding the timing of surgery for infants, children and adolescents with complex paediatric surgical problems, including the preparation and transport to a paediatric surgical centre for neonates requiring correction of congenital anomalies.

Medical Expert/Clinical Decision Maker

Knowledge: Basic Science and Anatomy

1. A knowledge of embryology (and anatomy) as it relates to clinical problems.
2. Know and recognize the differences in the normal physiology of the premature and full term infant, as well as the infant child and adolescent.

Knowledge: General clinical

1. Understand and know the principles of:
   a. pre- and post-operative care
   b. fluid therapy
   c. nutrition and metabolism
   d. wound care
   e. investigation of surgical conditions in infants, children and adolescents
   f. heat regulation in babies
2. Recognize:
a. The unique natural history of surgical diseases in children and use the information in reaching a diagnosis.
b. The limited host resistance and high risk of nosocomial infections in newborns, and the need for aseptic protocols to minimize environmental hazards.
c. The need to individualize drug dosage and fluid administration on the basis of weight (and the immature hepatic and renal function), and be able to calculate expediently fluid and electrolyte requirements using standard formulas.
d. The risk of apnea post anesthesia and post narcotic administration in small infants.
e. Practice correct assessment and initial management of the traumatized child and apply pediatric trauma principles in the initial resuscitation and management of traumatized children.

Knowledge: Specific Clinical Problems

1. Diagnose, evaluate and optimally treat the following conditions which could be managed by experienced general surgeons or referred to a pediatric general surgeon:
   a. Head and Neck: acute & chronic lymphadenitis, thyroglossal duct cyst, dermoid cyst, congenital torticollis, branchial cleft cyst and sinus, lymphangioma/hemangiolympangioma, tongue tie and thyroid disease.
   b. Abdomen: umbilical hernia, umbilical granuloma, inguinal hernia (age variation) pyloric stenosis, intussusception, Meckel's diverticulum, other vitelline duct abnormalities and appendicitis.
   c. Scrotum: hydrocele, undescended testicle, torsion of testis & appendix testis, epididymitis.
   d. Soft Tissue Masses: Have a structured approach to the diagnosis and treatment of soft tissue masses.
   e. Benign Breast Disease
2. Formulate a clear plan for the evaluation and treatment of a child presenting with: bilious vomiting, non-bilious vomiting, acute abdominal pain, chronic abdominal pain, constipation and upper and lower GI bleeding.
4. Diagnose and provide the initial management of several conditions which, while ideally managed in a special pediatric facility, may demand initial (and occasionally definitive) management locally because of urgency or distance: incarcerated inguinal hernia in the neonate, intestinal malrotation with volvulus, aspirated and ingested foreign bodies, acute abdomen in the neonate or infant, acute gastrointestinal bleeding, blunt abdominal and thoracic trauma.
5. Diagnose and refer the following problems that may be seen initially by a general surgeon but will almost always be best managed in a specialized pediatric facility: congenital lesions of the lungs and mediastinum, gastroesophageal reflux (surgical management), chest wall deformities (pectus excavatum and carinatum), solid tumors of childhood (e.g. neuroblastoma, Wilms' tumor, hepatoblastoma).
6. Diagnose and apply principles of initial care and care during transport in the following neonatal conditions whose definitive management should only be undertaken in
specialized pediatric facilities with qualified pediatric surgeons: congenital diaphragmatic hernia, esophageal atresia / tracheoesophageal fistula, gastrochisis / omphalocele, intestinal atresia, Hirschsprung's disease, imperforate anus, intestinal malrotation, major pulmonary parenchymal disease (congenital lobar emphysema, CPAM, etc.).

Knowledge: Technical

At the end of the rotation all surgical residents should have an appreciation of the technical issues related to the delicate tissues encountered in pediatric surgery and an understanding and proficiency (depending on experience) in a variety of skills associated with pediatric surgery (reduction of incarcerated hernia).

1. At the end of the rotation the Junior Resident will be able to:
   a. Manage the ward and emergency room patients with the guidance of senior surgical residents (to include prompt assessment of patients, efficient and appropriate ordering of tests).
   b. Complete opening and closure of wounds.
   c. Perform some components of laparoscopic or open appendectomies.
   d. Demonstrate that as a surgical assistant they have knowledge of the surgical procedure being undertaken and the associated anatomy.

2. At the end of the rotation the Senior/Chief Resident will be able to:
   a. Manage the Ward Team and perform consultations at the level of a Pediatric Surgical Fellow.
   b. Undertake common elective pediatric surgical procedures such as hernia repairs in infants over 6 months of age, lymph node biopsy, umbilical hernia repair, soft tissue mass excisions, I&D of abscesses, management of ingrown toenails, pilonidal disease, circumcision, minor oral procedures such as ranula, tongue tie and mucocele, breast mass excisions and insertion of endoscopic and surgical feeding tubes.
   c. Perform all or major components of urgent/emergent laparoscopic and open appendectomy, pyloromyotomy, scrotal exploration for acute testicular pain, surgical reduction of intussusception, bowel resection.
   d. Depending on experience and exposure undertake laparotomy for trauma and intestinal obstruction.

3. Both junior and senior residents are expected to assist whenever possible on:
   a. Most neonatal cases.
   b. Minimal access cases depending on the complexity.
   c. Removal of Solid tumors.

Communicator

1. Demonstrate the unique communication skills necessary to obtain thorough, focused pediatric histories from children, parents or other care-givers; elicit key physical signs in children despite potential poor compliance.

2. Convey pertinent information from the history and physical examination in different circumstances (over the phone, during ward rounds and conferences).
Queen’s University
Department of Surgery – Division of General Surgery
Rotation Specific Goals and Objectives

Collaborator

1. Understand the importance of collaboration with family physicians, pediatricians, surgical colleagues, nurses and other hospital and community health care providers in achieving optimal comprehensive care for children with complex general and surgical problems.

Leader

1. Recognize that many surgical problems, although conceptually and technically within the realm of expertise of general surgeons, are more appropriately managed where there are special pediatric facilities (special pediatric expertise in anesthesia, intensive care, diagnostic imaging, nursing, and laboratory facilities).
2. Actively participates in the discharge planning, and coordination of care of the complex pediatric patient.
3. Participate in the “Family Centered Care” approach to provision of pediatric care.

Health Advocate

2. Advocate for the safety of children as it relates to surgical problems (sporting injuries, helmet use, car seat use).

Scholar

1. Prepare for teaching rounds, ward rounds and operating room cases with adult learning principles and evidence-based medicine.
2. Facilitate the education of junior residents, medical students and other members of the healthcare team.
3. Pose questions that will provide the basis for clinical research.

Professional

1. Appreciate the unique emotional and ethical issues surrounding the care of a sick child and the need to involve parents, children's advocates and other health caregivers in many difficult situations.
2. Appreciate the sometimes complicated issues surrounding informed consent and refusal of treatment in children, especially in situations where "quality of life" is a major issue.
3. Value the critical need of ongoing systems of peer review, maintenance of competence, and evaluation of outcomes in the surgical management of sick children.
4. Appraise the ethics of research concerning children.