Minimally Invasive Services

Interventional Cardiology

Clinicians: David Sisson, Kate Scolan

Procedures
Heart and Great Vessels
- PDA closure
- Balloon valvuloplasty
- Pacemaker implantation
- Heartworm extraction
- Foreign body retrieval
- Dilation of caval or pulmonary veins
Vascular
- Catheter-directed thrombectomy and thrombolysis
- Intravascular foreign body removal

Interventional Radiology

Clinicians:
Lisa Brownlee
Helio de Morais
Jana Gordon
Sarah Nemanic
Craig Ruaux
Susanne Stieger

Procedures
Respiratory
- Nasopharynx
  - Nasopharyngeal stenting
- Trachea and bronchi
  - Tracheal stenting
  - Fluoroscopic-assisted tracheobronchial foreign body removal
- Lungs
  - Thoracoscopic lung lobectomy, total (+MIS)
  - CT-Guided lung biopsy
Gastrointestinal
- Esophageal jejunostomy tube placement (+ IE)
- Nasoesophageal jejunostomy tube placement (+ IE)
- Jejunostomy through PEG tubes (+IE)
- Colonic stenting
Genitourinary
  ▪ Urethra
    • Urethral stenting
    • Urethral balloon dilation
    • Antegrade urethral catheterization
  ▪ Bladder
    • Percutaneous cystolithotomy (+IE)
    • Percutaneous cystostomy tube placement
  ▪ Ureter
    • Ureteral stenting (+ MIS)
  ▪ Kidneys
    • Percutaneous nephrostomy tube placement
    • PCNL: Percutaneous nephrolyphotomy (+ IE)
Other
  ▪ Percutaneous tumor ablation (ethanol, radiofrequency, microwave, laser thermal, and cryo)

Vascular Interventional Radiology –VIR

Clinicians: Helio de Morais, Kate Scolan, David Sisson

Procedures
  Respiratory
    ▪ Nasopharynx
      • Chemoembolization of nasal tumors
      • Arterial embolization for nasal bleeding
  Hepatobiliary
    ▪ Liver, hepatic vessels, vena cava
      • Hepatic chemoembolization
      • Hepatic vascular stenting (for vascular obstruction secondary to tumors)
      • Percutaneous transjugular coil embolization for PSS
      • Glue embolization for hepatic malformations
  Genitourinary
    ▪ Bladder
      • Intrartherial chemotherapy
    ▪ Prostate
      • Intrartherial chemotherapy
  Vascular
    ▪ Trans-arterial embolization for hemorrhage or vascular malformation
    ▪ Catheter directed thrombectomy and thrombolysis
    ▪ Intravascular foreign body removal
Other
  ▪ Glue embolization of the thoracic duct
Interventional Endoscopy IE

Clinicians: Lisa Brownlee, Helio de Morais, Jana Gordon, Craig Ruaux

Procedures

**Respiratory**
- Nasopharynx
  - Laser ablation of nasal tumors
- Trachea and bronchi
  - Tracheal stenting
  - Tracheal balloon dilation
  - Bronchoscopic-assisted tracheobronchial foreign body removal
- Lungs
  - Thoracoscopic lung lobectomy, total (+MIS)

**Gastrointestinal**
- Esophageal balloon dilation
- Esophageal stenting
- PEG: Percutaneous endoscopically-placed gastric tubes
- Esophageal jejunostomy tube placement (+ IR)
- Nasoesophageal jejunostomy tube placement (+ IR)
- Jejunostomy through PEG tubes (+IR)
- Laser ablation of colonic polyps
- Anorectal balloon dilation

**Hepatobiliary**
- Biliary system
  - Biliary stenting (+ MIS)
  - Percutaneous cholecystostomy tube placement (+ MIS)

**Genitourinary**
- Urethra
  - Urethral balloon dilation
  - CLA-EU: Cystoscopic-guided laser ablation of ectopic ureters
  - Laser lithotripsy for urethral stones
  - Intraurethral Collagen injection
- Bladder
  - Laser lithotripsy for bladder stones
  - Cystoscopic-assisted stone removal
  - Percutaneous cystolithotomy
  - Laser ablation of bladder polyps
- Kidneys
  - PCNL: Percutaneous nephrolithotomy (+ IR or MIS)

- Vagina
  - Laser ablation of polyps
  - Laser ablation of persistent paramesonephric remnant
Minimally-Invasive Surgery MIS

Clinicians: Wendy Baltzer, Milan Milovancev, Bernard Seguin, Jennifer Warnock

Procedures

Heart and Great Vessels
- Thoracoscopic right auricular appendage resection—hemangiosarcoma
- Thoracoscopic subtotal/subphrenic pericardectomy
- Thoracoscopic pericardial window

Respiratory
- Nasopharynx
  - Laser ablation of nasal tumors
- Trachea and bronchi
  - Tracheal stenting
- Lungs
  - Thoracoscopic lung lobectomy, total (+IE or +IR)
  - Thoracoscopic lung lobectomy, partial
  - Thoracoscopic lung biopsy
- Pleural space
  - Thoracoscopic thoracic duct ligation—chylothorax

Gastrointestinal
- Laser ablation of colonic polyps
- Anorectal balloon dilation
- Laparoscopic pancreatic biopsy
- Lap-assisted full thickness gastrointestinal biopsies
- Lap-assisted gastropexy, prophylactic

Hepatobiliary
- Liver, hepatic vessels, vena cava
  - Laparoscopic liver biopsy
  - Laparoscopic liver lobectomy, partial
- Biliary system
  - Biliary stenting (+IE)
  - Percutaneous cholecystostomy tube placement (+IE)
  - Laparoscopic cholecystectomy with cholangiography

Genitourinary
- Urethra
  - Urethral stenting
  - CLA-EU: Cystoscopic-guided laser ablation of ectopic ureters
  - Hydraulic occluder placement
- Bladder
  - Percutaneous cystolithotomy
  - Percutaneous cystostomy tube placement
  - Laparoscopic cystopexy
- Lap-assisted cystoscopy
  - Ureter
    - Ureteral stenting
    - SUB: Subcutaneous ureteral bypass
  - Kidneys
    - Percutaneous nephrostomy tube placement
    - PCNL: Percutaneous nephrolithotomy
    - Laparoscopic nephrectomy
  - Vagina
    - Laser ablation of persistent paramesonephric remnant

Orthopedic:
  - Arthroscopy of stifle, elbow, shoulder, carpus, hip, tarsus
  - Minimally invasive fracture repair
    - Sacroiliac luxation
    - Humeral condylar physeal fractures
    - Other physeal fractures
    - Long bone fractures

Other
  - Percutaneous tumor ablation (ethanol, radiofrequency, microwave, laser thermal, and cryo)
  - Laparoscopic cisternal chyli ablation—chylothorax
  - Laparoscopic adrenalectomy