

# Inguínal Hernía

# Investigation and Treatment

Rural and Remote  
Halifax  
Thursday April 4 2019  
Roy Kirkpatrick





Northern Ontario  
School of Medicine  
École de médecine  
du Nord de l'Ontario  
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# Goals and Objectives

Outline history and evolution of hernia care

Discuss appropriate investigation of hernias

Discuss the global burden of disease and innovative approaches  
to meeting the burden

Evaluate the controversy around the use of mesh in hernia repair





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## CONFLICTS OF INTEREST

I have no commercial affiliations nor sponsorship



# Case Presentations

- ◆ 1) A Recent Case
- ◆ 2) Amyand's Hernia



# Amyand's Hernia

1735

First Documented Successful  
Appendectomy  
150 Years Before McBurney and  
Groves





History





Medicine, Science and Technology

A treatise on ruptures.  
By Percival Pott, ... The  
fourth edition: altered,  
corrected, and improved.

Percivall Pott





- ◆ Pott's Disease
- ◆ Pott's Fracture
- ◆ Chimney Sweeps' Disease
- ◆ Treatise on Ruptures 1756
- ◆ "All that can be done by surgery...is to replace the prolapsed body...in the belly...and to prevent them from flipping out again."
- ◆ 4 kinds of hernia: Children, Chronic, Incarcerated, Strangulated



# August Richter 1778

- ◆ Truss
- ◆ Strangulated Hernia





Don Antonio de  
Gimbernát

1793

“the operator’s nails put  
the patient to great  
inconvenience if he does  
not keep them cut close”





# William Halsted 1880

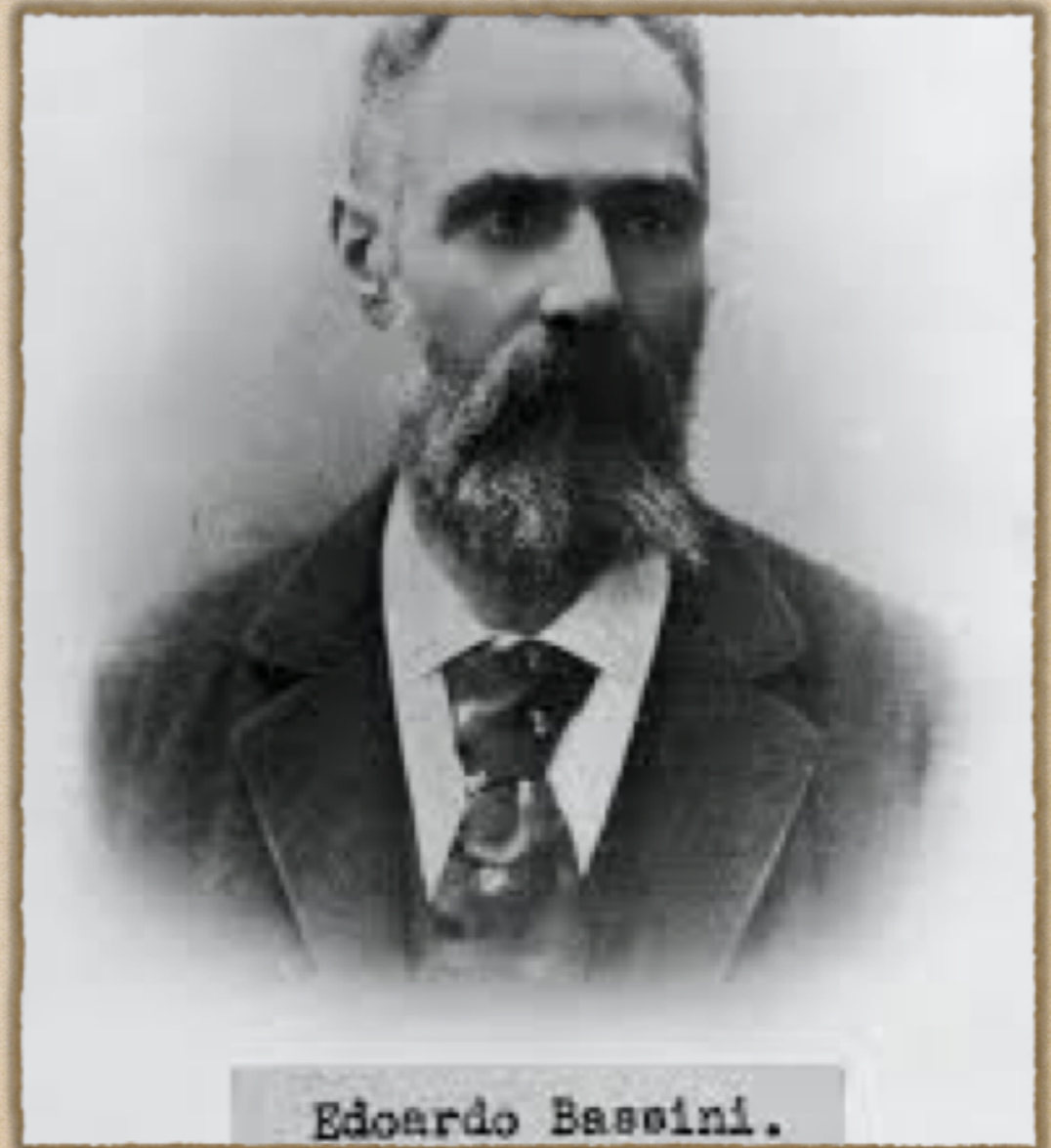
- ◆ Radical Mastectomy
- ◆ Surgical Residency
- ◆ Gloves
- ◆ Cocaine
- ◆ Spermatic Cord  
Transposition





# Edoardo Bassini 1884

- ◆ Posterior Wall Repair





# Alexander Hugh Ferguson 1907

- ◆ Medical School of Trinity University at Toronto
- ◆ Manitoba Medical College
- ◆ Chicago Post-Graduate Medical School
- ◆ “Don’t disturb the cord”





# William Gallie 1921

- ◆ Barrie, Ontario
- ◆ University of Toronto
- ◆ American College of Surgeons
- ◆ Tension Free Repair With  
“Living Sutures”





# Earle Shouldice

- ◆ Early Ambulation
- ◆ Local Anaesthesia
- ◆ Specialized Hospital
- ◆ Multilayer Repair





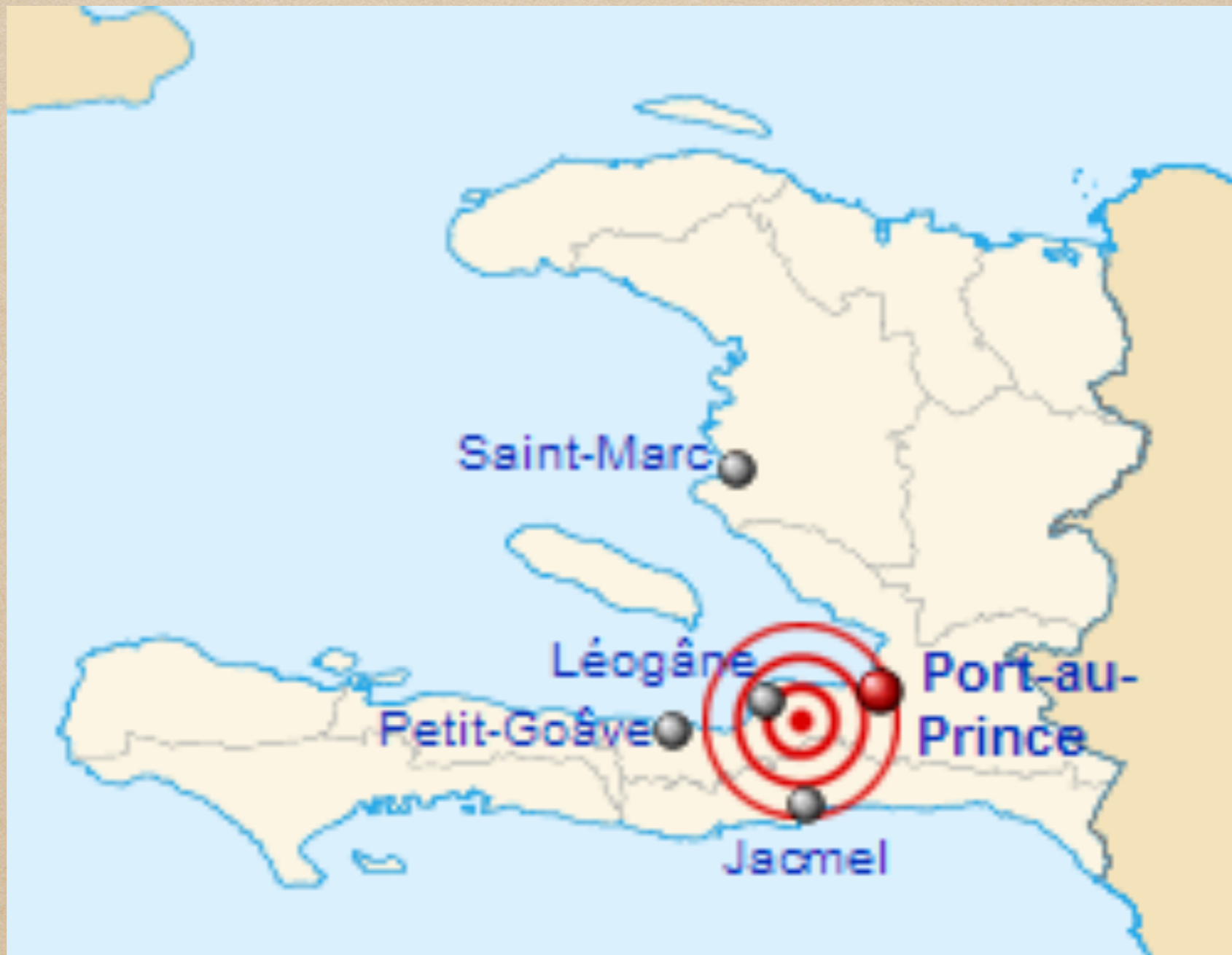
Chester  
McVay

Cooper's Ligament Repair





# Global Burden of Disease





- ◆ 7.7 - 30% of Adult Males
- ◆ 9.3 Disability Associated Life Years Averted Per Repair - \$63 per DALY averted
- ◆ Club Foot \$350 (Africa)
- ◆ Childhood Immunization \$438 (Caribbean)
- ◆ Oral Rehydration
- ◆ At Home Anti-retroviral Therapy for HIV/AIDS



# Unique Solutions

- ◆ Hernía Camps
- ◆ Mosquito Mesh



# Risk Factors

- ◆ NOT Constipation, Prostatism, Occasional Lifting
- ◆ Smoking
- ◆ Positive Family History
- ◆ Collagen Disease
- ◆ AAA
- ◆ Previous Appendectomy or Prostatectomy
- ◆ Ascites
- ◆ COPD
- ◆ Long Term Heavy Work



“They Say That Hard  
Work Never Killed  
Anyone, But I Thought  
Why Take The Chance?”

“Smoking Cessation is the  
Only Sensible Advice With  
respect to Risk Reduction”





Díagnosís



# Groin Swelling and Pain

- ◆ SWELLING Femoral Hernia
- ◆ Lymph Node
- ◆ Aneurysm
- ◆ Saphenous Varix
- ◆ Abscess
- ◆ Soft Tissue Tumour (Endometrioma)
- ◆ Scrotal Pathology
- ◆ PAIN Osteitis Pubis
- ◆ Low Back Pain - Radiation
- ◆ Adductor Tendonitis
- ◆ Hip Pain
- ◆ Ileopectineal Bursitis
- ◆ Endometriosis



# Physical Examination

- ◆ 92-93% Sensitivity and Specificity
- ◆ Usually Sufficient
- ◆ No Value Distinguishing Direct vs Indirect
- ◆ Femoral Hernia
- ◆ “If You Can’t, or Don’t Want, to do a Physical Examination - Ask Someone Who Can”





“Sometimes the Best Test is a Consultation”

Malcolm Wilson



# Plain Films

Hip Disease  
Osteitis Pubis





# European Hernia Society

## Algorithm for Obscure Pain or Swelling

- ◆ Ultrasound (If Expertise Available)
- ◆ If Ultrasound Negative -> MRI With Valsalva
- ◆ If MRI Negative -> Consider Herniography



**Rt inguinal region – Parallel & cranial to inguinal ligament**

**Pre-Valsalva maneuver**



**Post-Valsalva maneuver**



# Ultrasound

100% Sensitive in Patients Known to Have Hernias



# Choosing Wisely Canada



“Don’t Order a Routine Ultrasound for Umbilical and/or  
Inguinal Hernia”



- ◆ “Ultrasonography is a useful non-invasive adjunct to physical examination. In clinical occult groin hernia, ultrasound specificity in relation to surgical exploration is 81-100%, its sensitivity is 33% and up to 100% in clinical diagnosis of a groin hernia.”
- ◆ “In everyday practice, the sensitivity and specificity of ultrasonography for diagnosing inguinal hernia is low.”
- ◆ European Hernia Society 2009



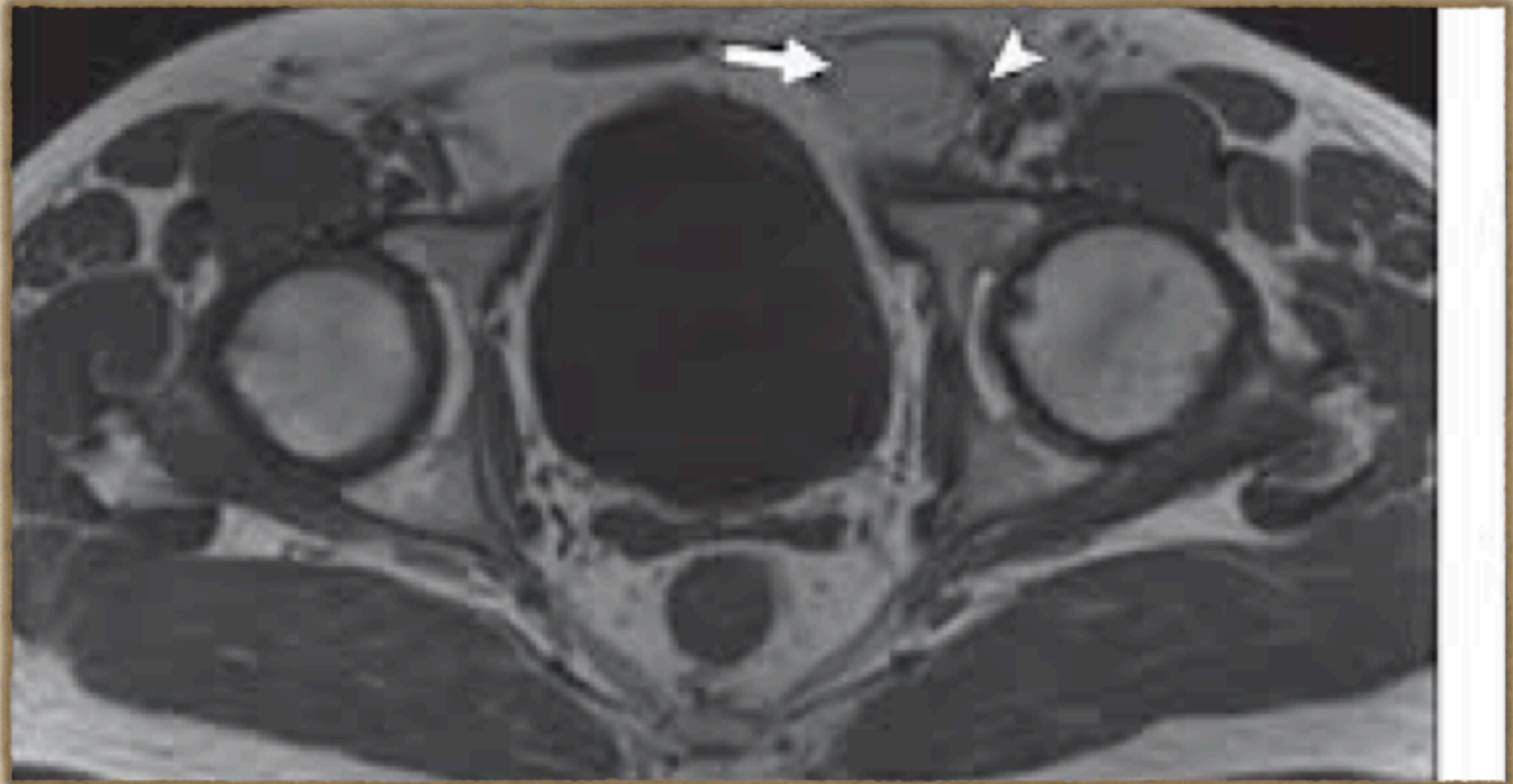


CT

Specificity 83%, Sensitivity 67-83%

"CT does not have a significant role in the diagnosis of inguinal hernia"





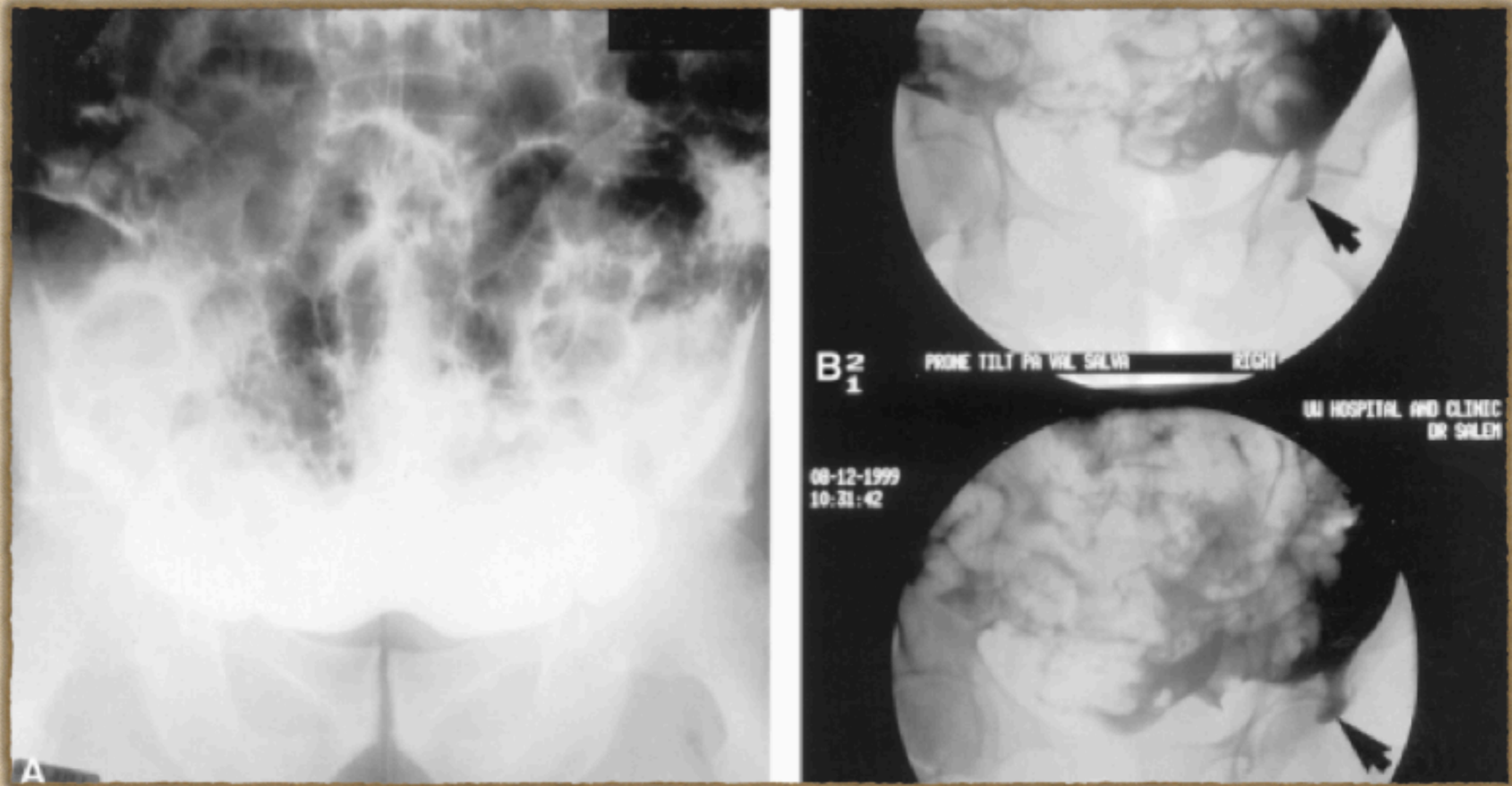
# MRI

Sensitivity and Specificity 94%

Other Pathologies

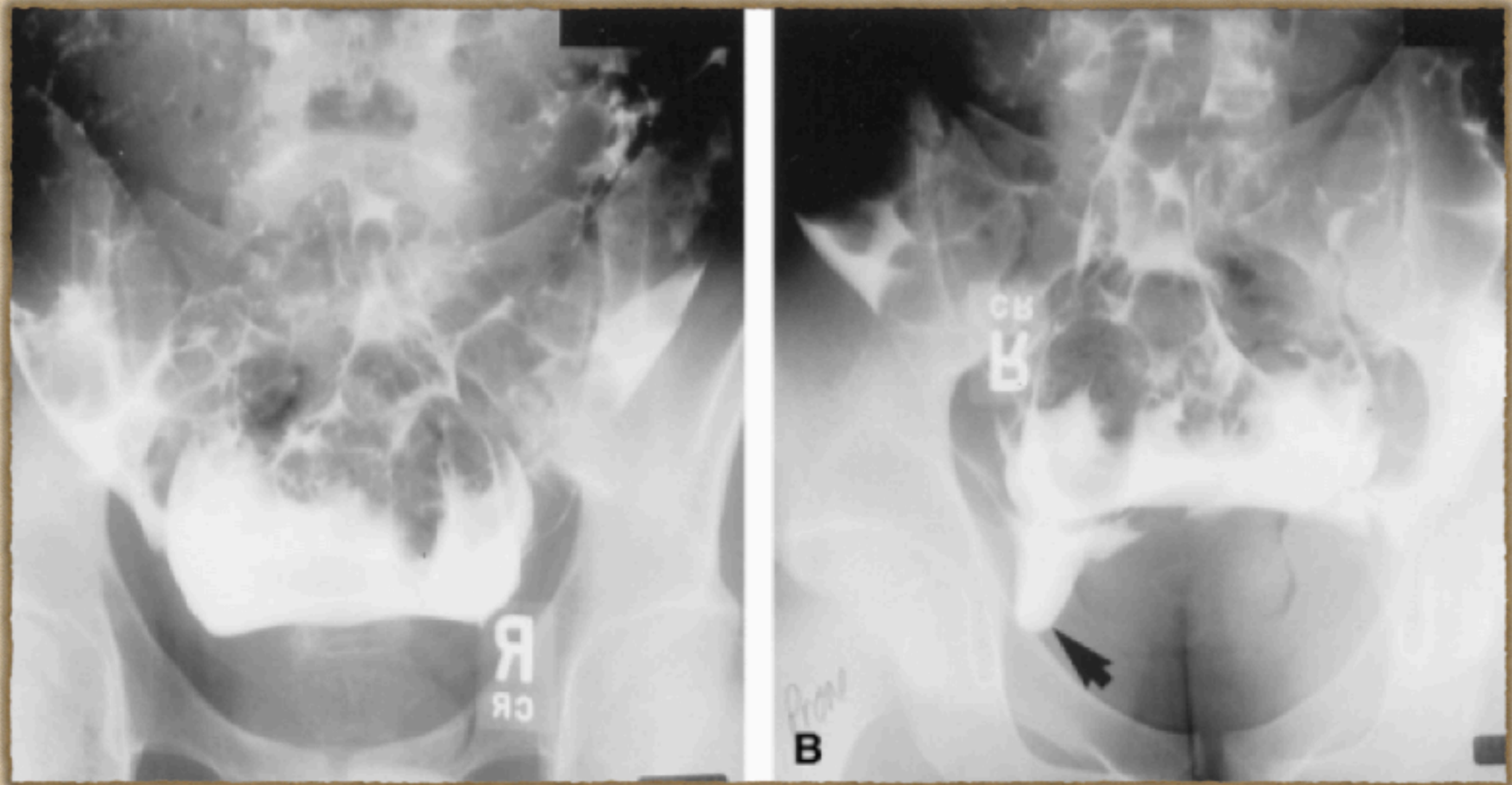
Sports Related Injuries





Herniography





Herniography



- ◆ Originally described at HSC for occult hernias and contralateral hernias
- ◆ Sensitivity 100%, Specificity 98-100% for Occult Hernias
- ◆ Identifies a hernia in 12-54% of cases where no other modality has been successful
- ◆ Identifies hernia in 25% of athletes with long standing groin pain
- ◆ Complications in 0-4.3% (Contrast Allergy, Intestinal Injury, Abdominal Wall Hematoma)



Laparoscopic Assessment  
of Contralateral Side



Treatment



# Strangulated

- ◆ REDUCE IT
- ◆ Analgesia
- ◆ Trendelenberg Position
- ◆ Ice
- ◆ Direct the Hernia Content Back Into the Inguinal Canal (don't splay it over the external ring)



# Incarcerated or Symptomatic

- ◆ FIX IT
- ◆ Elderly (>65!) and/or Infirm -> Marked Increase in Morbidity and Mortality (up to 21%) If Operated as an Emergency



# Asymptomatic

- ◆ Elective Surgery < .5% Operative Mortality
- ◆ Emergency Surgery > 5% Operative Mortality
- ◆ “Most Strangulations Occur in People Who Didn’t Know They Had a Hernia”
- ◆ Rural/Remote Military Exotic Tourism
- ◆ Two Major Trials of Watchful Waiting -> Crossover in 25%, Small Numbers of Adverse Events



# Choosing Wisely Canada



*“Avoid Repair of Minimally Symptomatic Inguinal Hernias, Where Appropriate,  
By Offering an Option of Watchful Waiting for Up to Two Years”*



# Choice of Operations

- ◆ Open Non-Mesh
- ◆ Open Mesh
- ◆ Laparoscopic



# Open Non-Mesh

- ◆ Bassini
- ◆ McVay
- ◆ Shouldice





150 Repairs per Week  
Lowest Rates of Recurrence and Post-op Pain  
Takes Longer  
Increased Length of Stay  
“Cherry Picking”



# Open Mesh Repairs

- ◆ Lichtenstein
- ◆ Plug and Patch
- ◆ Decreased Recurrence and Chronic Pain Compared to Non-Mesh (Including Shouldice)
- ◆ Chronic Pain Commoner in Cases Done By Residents



# Laparoscopic

- ◆ Decreased Wound Infection, Hematoma, Length of Stay
- ◆ Increased Serious Complications (Major Vascular and Visceral Injuries)
- ◆ Longer OR Time
- ◆ Increased Hospital Cost ? Decreased Societal Cost
- ◆ Decreased Recurrence Rate Compared With Open Non-Mesh, No Better (Perhaps Slightly Worse) Than Open Mesh Repairs
- ◆ Decreased Pain Initially, Evens Out Over Time
- ◆ Increasingly Utilized in Paediatric Surgery



# Complications

- ◆ Recurrence
- ◆ Wound Infection
- ◆ Chronic Pain (Neurogenic, Mesh Related) - Higher Rate When Residents Operate
- ◆ Bowel Obstruction
- ◆ Fistula
- ◆ Urinary Retention
- ◆ Visceral Injury
- ◆ Mesh Complications



**DEFECTIVE**

## Hernia Mesh Claim

**SJG** STEWART J. GUSS  
PERSONAL INJURY ATTORNEY



# Mesh Complications

- ◆ Numerous Recalls
- ◆ Intra-abdominal Positioning
- ◆ Degradation
- ◆ Migration
- ◆ "Meshoma"
- ◆ Folds
- ◆ Dysejaculation



# Treatment

- ◆ Medical Therapy
- ◆ Nerve Blocks
- ◆ Re-exploration    Neurectomy, Mesh  
  Explantation
- ◆ Alternative Modalities
- ◆ Litigation



# References

- ◆ Surgical Clinics of North America "Inguinal Hernia" 1993, 1998, 2003
- ◆ SURG 510 (UBC) "Surgical Care in International Health" (2012)
- ◆ European Hernia Society Guidelines (2009)
- ◆ Up-to-Date "Groin Pain", "Inguinal Hernia"
- ◆ Selected Readings in Surgery "Inguinal Hernia" ACS (2015)
- ◆ Abdominal Operations Maingot (1968)
- ◆ Cochrane Collaboration
- ◆ Choosing Wisely Canada