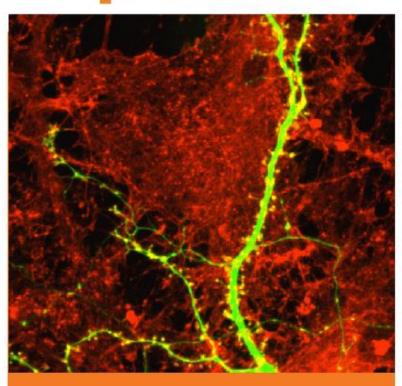


# 11th Annual Research Exposition



Tuesday, February 2, 2016



# Welcome to the Anesthesiology Research Exposition

**Oral Presentations** 

"Administrative database research: the promises and the pitfalls"

Robert White, MD

New York Presbyterian Hospital, Weill Cornell Medicine

Department of Anesthesiology

Van Poznak Scholar

Residency Class of 2018

"The effects of GABA-A receptor modulation by flumazenil on emergence from general anesthesia"

Seyed Safavynia, MD, PhD

New York Presbyterian Hospital, Weill Cornell Medicine
Department of Anesthesiology
Van Poznak Scholar
Residency Class of 2018

3:00pm - 3:45pm, P-03-300

**Special Research Seminar** 

"Establishing a career in perioperative research"

Kate Leslie, MBBS, MEpid, MHlthServMt, FANZCA, FAHMA

Professor, Department of Anaesthesia and Pain Management

Royal Melbourne Hospital

Chair, Advisory Board, Anaesthesia, Perioperative and Pain Medicine Unit
University of Melbourne

Chair, Australian and New Zealand College of Anaesthetists Clinical Trials Network Executive

4:00pm - 4:30pm, P-03-3-00

Reception 4:30pm - 5:00pm P3 Corridor

Poster Presentations 5:00pm - 6:00pm P-03-300

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## **Department of Anesthesiology Research Department**

Hugh C. Hemmings, Jr, MD, PhD, FRCA **Joseph F. Artusio Professor and Chair of Anesthesiology** 

# Kane O. Pryor, MD **Director of Clinical Research**

# Peter Fleischut, MD **Director of Center for Perioperative Outcomes**

Kane O. Pryor, MD Michele Steinkamp, RN

Farrell Cooke, BS Mariya Redko, BS

Sonal Jessel, BA Alison Gruber, BS

Stephen Marcott, BS Jonathan Galati, BS

Emma Rosenbluth, BA Cristina Veltri, BS

Diana Chen, BS

## Neuromuscular Relaxant Research.

John Savarese, MD Matthew Belmont, MD

Paul Heerdt, MD, PhD David Kopman, MD

Daniel Lahm, MD Cynthia Lien, MD

Jaideep Malhotra, MD Matthew Murrell, MD, PhD

Peter Savard, MD Ralph Slepian, MD

Hiroshi Sunaga, MD

## Center for Perioperative Outcomes Research

Peter M. Fleischut, MD Zachary A. Turnbull, MD

Hugh C. Hemmings, MD, PhD, FRCA

Kane O. Pryor, MD Gregory Giambrone, MS

Ramin Zabih, PhD Christian Tope, BS

Paul Christos, PhD Bohdan Hawryluk, MS

Robert White, MD Virginia Tangel, MA

Licia Gaber-Baylis, BA Matthew Alexander, BS

Sandy Iosso, BA Xian Wu, MPH

Akshay U. Bhat, MEng Christopher Chan

## CV Starr Laboratory for Molecular NeuroPharmacology

Alessio Accardi, PhD Crina Nimigean, PhD

Peter A. Goldstein, MD Dorothy Kim, PhD

Paul Riegelhaupt, MD, PhD Byoungcheol Lee, PhD

David Posson, PhD Philipp Schmidpeter, PhD

Gareth Tibbs, PhD Maria Falzone, BS

Rebecca Joyce, BS Mattia Malvezzi, BS

Malvin Vien, BA Lacey Ferraro, BS, RN

## **Laboratory of Molecular Anesthesiology**

Hugh C. Hemmings, Jr, MD, PhD, FRCA

Anna Adamo, BS Karl Herold, MD, PhD

Jimcy Platholi, PhD Zhenyu Zhou, PhD

Cheng Zhou, PhD Christina L. Bonvicino, BS

Pain Clinical Research

Neel Mehta, MD

Shakil Ahmed, MD

Shenella Bourne, RN

Amitabh Gulati, MD

Jatin Joshi, MD

Daniel Pak, MD

Sadiah Siddiqui, MD

Roniel Weinberg, MD

Lisa R. Witkin, MD

Neuroanesthesia Clinical Research

Peter Goldstein, MD

Kane Pryor, MD

Patricia Fogarty-Mack, MD

David Kopman, MD

Kingsley Storer, MD, PhD

Cardiac Clinical Research

Meghann Fitzgerald, MD

Natalia Ivascu, MD

Shanna Hill, MD

Shreyajit Kumar, MD

James Osorio, MD

Nikolaos Skubas, MD

Fun-Sun Yao, MD

June Chan, MD

Christopher Tam, MD

Obstetrics/Gynecological Clinical Research

Jamie Aaronson, MD

Sharon Abramovitz, MD

Alaeldin Darwich, MD

Farida Gadalla, MD, ChB

Emily Kahn, MD

Michael Kiselev, MD

Klaus Kjaer, MD, MBBA

Jeremy Pick, MD

Angela Selzer, MD

**Global Health** 

Gunisha Kaur, MD

Eric D. Brumberger, MD

Jasmit Brar, MD

Meghann Fitzgerald, MD

Lee Rasamny, MD

Angela Selzer, MD

Elizabeth Starker, MD

Sheida Tabaie, MD

Zachary Turnbull, MD

Shiyin Zhu, MD

**Pediatrics Research** 

Aarti Sharma, MD, MBBS

Franklin Chiao, MD

Jung Hee Han, MD

**General Clinical Research** 

Eric D. Brumberger, MD

Mary Casciano, MD

Peter M. Fleischut, MD

Peter Goldstein, MD

Christine Lennon, MD

Jaideep Malhotra, MD

Vinod Malhotra, MD

Matthew Murrell, MD

Anup Pamnani, MD

Lori Rubin, MD

Jon Samuels, MD

Jacques Scharoun, MD

Aarti Sharma, MD

Kingsley Storer, MD, PhD

Tiffany Tedore, MD

Yifan Xu, MD

Neuropsychopharmacology Research

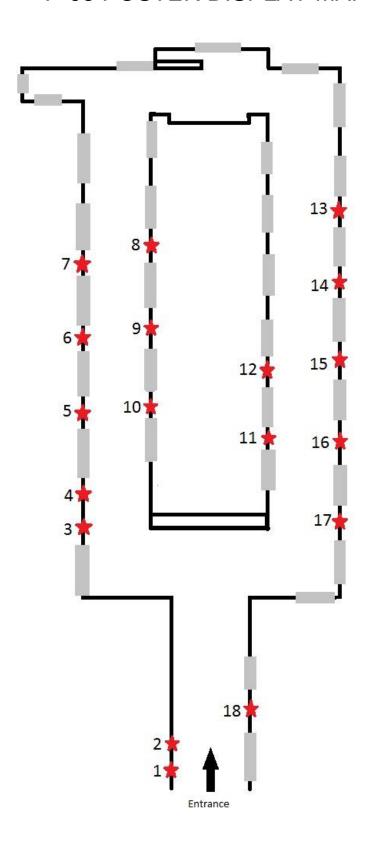
Kane O. Pryor, MD

Robert A. Veselis, MD

Meghana Mehta, MS

James Root, PhD

# P-03 POSTER DISPLAY MAP



# MAP KEY FOR POSTER DISPLAY

1. THE EFFECTS OF GABA<sub>A</sub> RECEPTOR MODULATION BY FLUMAZENIL ON EMERGENCE FROM GENERAL ANESTHESIA

Authors: SA Safavynia, G Keating, I Spiegel, J Fidler, M Kreuzer, DB Rye, A Jenkins, PS Garcia

2. EFFECTS OF ISOFLURANE ON THE DOPAMINE SYNAPTIC VESICLE EXOCYTOSIS **Authors:** Christina L. Bonvicino, Zhenyu Zhou, Hugh C. Hemmings, Jr.

- 3. RETROSPECTIVE INVESTIGATION OF READMISSION ASSOCIATED WITH PRIMARY PAYER STATUS **Authors:** Robert White, MD, Christopher K. Chan, Matthew J. Alexander, BS, Kelli O'Connell, BA, Sara Halpern, Akshay Bhat, MEng, Ramin Zabih, PhD, Peter M. Fleischut, MD, Kane O. Pryor, MD
- 4. TIMING AND OUTCOMES OF PERMANENT PACEMAKER PLACEMENT AFTER AORTIC VALVE REPLACEMENT

**Authors:** Zachary A. Turnbull, MD, Matthew J. Alexander, BS, Virginia Tangel, MA, Peter M Fleischut, MD, Xian Wu, MPH, Christopher K. Chan, Licia K. Gaber-Baylis, BA, Akshay Bhat, MEng, Ramin Zabih, PhD, Natalia S. Ivascu, MD, Gregory P. Giambrone, MS

5. THE ROLE OF PREOPERATIVE DEXAMETHASONE ON MATERNAL TEMPERATURE CHANGE DURING ELECTIVE CESAREAN SECTION UNDER SPINAL ANESTHESIA **Authors:** Steven Beaudry, DO, Virginia Tangel, MA, Klaus Kjaer, MD, MBBA

6. THE SOCIOECONOMIC BURDEN OF ROAD TRAFFIC ACCIDENTS IN INDIA AND THE UNIQUE ANESTHETIC CONSIDERATIONS: CASE REPORT OF ANESTHETIC MANAGEENT OF A ROAD TRAFFIC REPORT VICTIM

Authors: Shiyin S. Zhu

7. EFFECT OF A SINGLE DOSE OF INTRAVENOUS DEXAMETHASONE ON NAUSEA AND VOMITING WHEN ADMINISTERED PRIOR TO INTRATHECAL MORPHINE FOR CESAREAN SECTION: A RANDOMIZED, PLACEBO-CONTROLLED, DOUBLE-BLINDED TRIAL

**Authors:** Angela Selzer, Kane Pryor, Kelli O'Connell, Virginia Tangel, Gregory Giambrone, Jeremy Pick, Sharon Abramovitz, Farida Gadalla, Alaedin Darwich, Klaus Kjaer

8. COMPARISON OF GRAVITY FLOW EPIDURAL VS COMBINED SPINAL EPIDURAL FOR CESAREAN SECTION: A PROSPECTIVE, RANDOMIZED, DOUBLE-BLIND STUDY **Authors:** Shaul Cohen, MD, Hannah Xu, MD, Rotem Naftalovich, MD, MBA, Tinku Banerjee, PhD, Rong Zhao, MD, PhD, Scott Mellender, MD

9. THE ABILITY OF THE TRANSFUSION RISK UNDERSTANDING SCORING TOOL (TRUST) AND THROMBOELASTOMETRY FIBTEM A10 TO PREDICT BLEEDING AND TRANSFUSION IN POST-BYPASS CARDIAC SURGICAL PATIENTS

**Authors:** Michelle Shirak, MD, Melissa Cushing, MD, Michele Steinkamp, RN, Elizabeth Lemoine, BA, Thorsten Haas, MD, Natalia Ivascu, MD

10. IDENTIFICATION OF PAIN MANAGEMENT EDUCATION DEFICIENCIES AT A MAJOR ACADEMIC INSTITUTION AND RECOMMENDATIONS FOR A MORE ADEQUATE CURRICULUM **Authors:** David *Cassagnol MS, Neel Mehta MD* 

11. PRELIMINARY COMPARISON OF HIGH VERSUS LOW FREQUENCY STIMULATION AT A LARGE ACADEMIC INSTITUTION

Authors: Mary So, MD, Yili Huang, MD, Shakil Ahmed, MD, Neel Mehta, MD

12. A MULTIDISCIPLINARY PROTOCOL FOR ANTENATALLY DIAGNOSED PLACENTA ACCRETA: A RESTROSPECTIVE CASE SERIES

Authors: Jeremy Pick, MD, Sharon Abramovitz, MD, and Klaus Kjaer, MD, MBBA

- 13. MULTISTATE ANALYSIS OF POST-OPERATIVE MORBIDITY AND MORTALITY RATES FOR CAROTID ARTERY STENTING (CAS) AND CAROTID ENDARTERECTOMY (CEA) FOR CARTOID ARTERY STENOSIS, 2007-2011 Authors: Robert White, MD, Tiffany Peng, MD, Bess M. Storch, MD, Xian Wu, MPH, Licia K. Gaber-Baylis, BA, Gregory P. Giambrone, MS, Akshay U. Bhat, MEng, Ramin Zabih, PhD, Peter M. Fleischut, MD, Kane O. Pryor, MD
- 14. PRIMARY PAYER INSURANCE STATUS AND ITS EFFECT ON POST-OPERATIVE OUTCOMES **Authors:** Robert White, MD, Matthew J. Alexander, BS, Christopher K. Chan, Kelli O'Connell, BA, Xian Wu, MPH,
  Licia K. Gaber-Baylis, BA, Gregory P. Giambrone, MS, Michael Andreae, MD, Akshay U. Bhat, MEng, Ramin Zabih,
  PhD, Peter M. Fleischut, MD, Kane O. Pryor, MD
- 15. NON-INVASIVE CARDIAC OUTPUT MONITORING FOR CESAREAN DELIVERY UNDER EPIDURAL ANESTHESIA IN A PATIENT WITH MARFAN SYNDROME AND CARDIOMYOPATHY **Authors:** Steven Beaudry, DO, Jeremy Pick, MD
- 16. SIZING UP THE LIPID PATHWAY IN A TMEM16 PHOSPHOLIPID SCRAMBLASE **Authors:** *Mattia Malvezzi, Rabia Igbal, Anant K. Menon, and Alessio Accardi*
- 17. THE TREK1 PORE POTASSIUM CHANNEL: A MOLECULAR SIGNAL INTEGRATOR AND ANESTHETIC TARGET **Authors:** Paul M. Riegelhaupt, Marco Lolicato, Cristina Arrigoni, Kimberly Clark, Daniel L. Minor
- 18. STRUCTURE AND DYNAMICS OF THE MthK K+ CHANNEL SELECTIVITY FILTER DURING GATING **Authors:** David J Posson, Celine Boiteux, Toby W. Allen, and Crina M. Nimigean

## **RESEARCH PRESENTED IN ANESTHESIA CONFERENCES, 2015**

## American Society of Anesthesiologists (ASA)

 ANESTHETIC MANAGEMENT OF A 25-MONTH-OLD WITH COFFIN-SIRIS SYNDROME AND KNOWN DIFFICULT AIRWAY FOR MRI

**Authors:** Fardelmann, Kristen L, MD, and Chiao, Franklin, MD.

2. IMAGING ARTIFACTS DURING TRANSESOPHAGEAL ECHOCARDIOGRAPHY **Authors**: Anastasia D. Grivoyannis, MD, Anup Pamnani, MD, and Nikolaos J. Skubas, MD, FACC, FASe, DSc

3. AXILLARY BLOCK IN A 27 YEAR-OLD PATIENT USING THE DANCING NEEDLE TECHNIQUE IN PUNJAB, INDIA WITHOUT THE USE OF ULTRASONIC GUIDANCE

Authors: Lee Rasamny, MD, Gregory Kerr, MD, Gunisha Kaur, MD, Michelle Shirak, MD, Ruchi Gupta, MBBS, MD.

4. IN RESOURCE SCARCE INDIA: SUCCESSFUL LAPAROSCOPIC CHOLECYSTECTOMY WITH LARYNGEAL MASK AIRWAY PROSEAL FOR AN UNEXPECTED DIFFICULT AIRWAY

Authors: Zachary A. Turnbull

## American Society of Regional Anesthesia (ASRA)

1. A CASE OF NONSURGICAL ALTERNATIVES TO TREATMENT AND MANAGEMENT OF ARACHNOIDITIS **Authors:** Sarah *Choxi, MD, Mary So, MD, Neel Mehta, MD* 

## North American Neuromodulation Society (NANS)

1. CERVICAL INTRATHECAL PLACEMENT FOR RELIEF OF REFRACTORY METASTATIC BRACHIAL PLEXUS PAIN **Authors:** *Yili Huang DO, Mary So, MD, Julie H.Y. Huang, MD, MBA* 

## New York Academy of Medicine (NYAM)

1. POLYMIXIN-INDUCED RECURARIZATION REQUIRING POSTOPERATIVE REINTUBATION **Authors:** *Vikram Bhasin, MD, Jon Samuels, MD* 

2. AN ICU CASE OF UNRECOGNIZED AND PROLONGED ESOPHAGEAL INTUBATION DURING HOSPITAL TO HOSPITAL TRANSFER

Authors: Weiner, Brett MD, Chiao, Franklin MD

## The Society of Critical Care Anesthesiologists (SOCCA)

 ACUTE SUBDURAL HEMATOMA FOLLOWING CORONARY ARTERY BYPASS GRAFTING: A CASE REPORT Authors: Sheida Tabaie and Natalia Ivascu

## Society of Cardiovascular Anesthesiologists (SCA)

 BLUNT CARDIAC INJURY CONDUNDRUM Authors: Rohan Panchamia, MD, Anastasia D. Grivoyannis, MD, Emil N. Bogdanov, MD, Shanna S. Hill, MD

2. INTRACARDIAC TUMORS

Authors: Andrew Sosa, Emil Boadanov, and Nikolaos Skubas

## New York State Society of Anesthesiologists (PGA)

- 1. ELECTROPHYSIOLOGICAL ABLATION OF RECURRENT VENTRICULT TACHYCARDIA UNDER ECMO **Authors:** Panchali *Dhar, MD, David Graboff, CRNA, Steven Markowitz, MD*
- 2. PAIN MANAGEMENT AFTER EXPLORATORY LAPAROTOMY AND LARGE ABDOMINAL TUMOR RESECTION IN A 15 YO PATIENT WITH NEUROFIBROMATOSIS WHO WAS NOT A CANDIDATE FOR NEURAXIAL ANESTHESIA **Authors:** Ajay *Dharmappa, MD, R. Scott Dingeman, MD*
- 3. THORACIC PARAVERTEBRAL BLOCKS FOR BREAST LUMPECTOMY IN A PATIENT WITH FACIOSCAPULOHUMERAL MUSCULAR DYSTROPHY **Authors:** Jacob Jackson, MD, Angela Selzer, MD, Stephanie Cheng, MD
- 4. PERIPARTUM MANAGEMENT OF SEVERE FACTOR XI DEFICIENCY ROLE FOR ROTEM? **Authors:** *Emily B. Kahn, MD, Maria T. De Sancho, MD, Sharon E. Abramovitz, MD*
- 5. UNANTICIPATED DIFFICULT INTUBATION DUE TO UNRECOGNIZED LARYNGEAL CYST **Authors**: Jenica Lampl, MD, Sabrina Wheatley, MD, Mina Patt, MD, Marc Cohen, MD, Panchali Dhar, MD
- 6. LEFT ATRIAL TEAR FOLLOWING BLUNT FORCE TRAUMA **Authors:** Christopher W Tam, MD, James A Osorio, MD
- 7. ANESTHETIC MANEGEMENT OF TRACHEAL FOREIGN BODY IN A CHRONICALLY TRACHED PATIENT **Authors:** Stephanie Willet, MD, Natalia Ivascu, MD

## New York State Conference for Anesthesiology (NYSCARF)

- 1. AN ATYPICAL PRESENTATION OF PERIPARTUM CARDIOMYOPATHY **Authors:** *Brar JS, Kelleher DC, Darwich A, Gadalla F, Abramovitz S.*
- 2. A MIRROR IMAGE ARTIFACT IN 3-DIMENSIONAL TRANSESOPHAGEAL ECHOCARDIOGRAPHY **Authors**: Anastasia D. Grivoyannis, MD, Anup Pamnani, MD, and Nikolaos J. Skubas, MD, FACC, FASe, DSc
- 3. CHALLENGES OF FLUID RESUSCITATION DURING CYTOREDUCTIVE SURGERY (CRS) AND HYPERTHERMIC INTRAPERITONEAL CHEMOTHERAPY (HIPEC) **Authors:** Daniel Pak, MD, Jacob Jackson, MD, Minda Patt, MD
- 4. ANTICOAGULATION MANAGEMENT OF SUBDURAL HEMATOMA EVACUATION IN A PATIENT WITH A LEFT VENTRICULAR ASSIST DEVICE (LVAD)

Authors: Daniel Pak, MD, and Jon D. Samuels, MD

5. CATASTROPHIC ARTERIAL THROMBOSIS IN AN INFANT UNDERGOING NEUROBLASTOMA RESECTION **Authors:** *Rohan K. Panchamia, MD, Anahita Dabo-Trubelja, MD* 

## Association of University Anesthesiologists (AUA)

LENGTH OF STAY AND READMISSION FOR CARDIAC SURGERY
 Authors: Zachary A. Turnbull, Natalia S. Ivascu, Hugh C. Hemmings, Andrea Poon, Elizabeth Lemoine, Gregory
 P. Giambrone, Xian Wu, Licia Gaber-Baylis, Akshay U. Bhat, Ramin Zabih, Peter M. Fleischut

# **POSTERS FROM RESEARCH CONFERENCES, 2015**

# American Society of Anesthesiologists (ASA):

## Anesthetic Management of a 25-month-old with Coffin-Siris Syndrome and Known Difficult Airway for MRI

Fardelmann, Kristen L., M.D. and Chiao, Franklin M.D. Department of Anesthesiologyé, Weill Cornell Medical College, New York, NY

Providing anesthesia in a remote location creates a unique set of challenges for the anesthesiologist. This can be further complicated by the patient's specific comorbidities. We describe anesthetic management of a 25-month-old with Coffin-Siris Syndrome and known difficult airway for MRI.

Three perfections.

Three patients with coarse facial features, sparse scale Three patients with coarse facial features, sparse scalp hair, and hypoplasia of the fifth digit nail/hyphalanges were initially described in the 1970s by Drs. Grange S. Coffin and Evelyn Siris. Over the next 45 years, 80 probands of Coffin-Siris Syndrome patients have been identified internationally with varying features. In 2012, Sother et al. studied all 80 known probands to classify patients with CSS.

- Two Prerequisite Features:

   Hypo/splasia of the fifth digit phalanges/nails

   Degree of intellectual and/or developmental delay

  These features must be present, however, are not sufficient
  for diagnosis.

- Ectodermal Changes:

   Hypertrichosis/Hirsutism (93%)

   Paradoxically sparse scalp hair (68%)

   Dental anomalies (96%)

Constitutional Characteristics: Short stature (66%) Intrauterine growth retardation/failure to thrive (67%)

- Organ Based Anomalies:

  Congenital heart defects (46%)

  Spinal anomalies (66%)

  Craniofacial anomalies:

  "Classic" CSS

- Coarse facies
   Bushy eyebrows
   Thick vermillion border of the lips
   Variant\* CSS
   Less coarse, more refined facial features
   Thinner eyebrows
   Thin vermillion border of the lips

Etiology: Gene mutation in the SWI-SNF/BAF Pathway.3

### Case Presentation:

Case Presentation:
This patient was a 25 month old, ex full term, 10.4kg M
with PMH of Coffin-Siris Syndrome, chiari malformation type
I, encephalocele, developmental delay, panhyopolitularism,
ASD with spontaneous closure, CERD, choanal atresia,
cranifocial abnormalities and known difficult airway who
presented for MRI brain and spine.

- Vital Signs:
  BP 94/62 mmHg
  HR 110 beats/min

#### Pertinent Physical Exam:

Dysmorphic facies, anopthalmic, wide-set skii creases over orbital area, slightly small mouth opening, high arched palate and mild micrognathia.



#### Anesthetic Management:

Anesthetic Management:
Difficult airway cart was readily available outside MRI suite. Inhalational induction with 100% oxygen and 5% sevoflurane was performed with patient maintaining spontaneous ventilation. A 22 gauge IV was placed in the left antecubital after induction. Due to airway obstruction, a chin lift and jaw thrust were performed and subsequently a guedel airway was placed successfully with resolution. The patient received 17.5 mgg dexmedetomidine IV-infusion over 10 minutes followed by a dexmedetomidine infusion at 1.75mgg/kg/hr. The patient tolerated the imaging procedure well with spontaneous ventilation throughout without need for further airway intervention. Minimal decrease in HR (10-20 bpm) and no change in BP were noted.





DEXMEDETOMIDINE SEDATION FOR PEDIATRIC MRI 407

Table 3 Compution of adjavant porto-burbital and refotusing require-

Depredeteration	Demodetamidise	Demodstweids
due 1 (n = 416)	dote 2 (n = 164)	dne 3 in + 367
34 (8.2%)	17 (10.4%)	4 (2.4%)*
112 (36.9%)	25 (15.2%) <sup>2</sup>	25 (15.0%)*
65 (15.6%)	24 (14.6%)	32 (19.2%)
112 (26.9%) 65 (15.6%)	25 (15.2%) <sup>b</sup> 28 (14.6%) h <sup>-1</sup> ; dose 2, belon dos	25 (15.0% 32 (19.2%
	day 1 (n = 476) 34 (8.3%) 112 (36.9%) 65 (15.6%) besten rate 1.0 og kg <sup>1</sup>	date 1 (n = 426) Amr 2 (n = 164) 34 (8.2%) 17 (30.4%) 112 (36.9%) 25 (15.2%) <sup>2</sup>

Mason, Keira P., David Zurakovski, Steven E. Zgleszewski, Caroline D. Robson, Maureen Carrier, Paul R. Hickey, and James A. Dinardo. "High Dose Deumed as the Sole Sedative for Pediatric MRL" Pediatric Anesthesia 18 5 (2008): 403-11.

Weill Cornell Medical College

#### Discussion:

Discussion:
In our case, dexmedetomidine, an alpha-2 adrenergic agonist, provided a safe and effective anesthetic. Our patient remained immobile for MRI while maintaining spontaneous verillation. High dose dexmedetomidine, with loading doses of 2-3mcg/kg and infusion rates of up to 2 mcg/kg/hr have been used effectively to optimize MRI imaging in pediatric patients. <sup>24</sup>

- Advantages:

   Limits use of opioids, benzodiazepines, and propofol all which may lead to airway obstruction and apnea wholds use of general anesthesia

   Maintains spontaneous ventilation in a patient with a known difficult airway

   Decreases the incidence of post-operative delirium

   Shorter induction and departure from MRI scanner due to lack of airway manipulation 2-4

Initiations: Hemodynamic changes – potential for hypertension with bolus and hypotension with influsion, but incidence in pediatric literature is low. Potential for bradycardia. Slower but not statistically significant discharge from PACU <sup>2,4</sup>

Pediatric mobile airway carts, an anesthesia machine with gas scavenging and suction, full MRI compatible motioning devices, MRI compatible infusion pumps and emergency equipment have been created over time at our institution to ensure high quality anesthesia care in remote locations. 1

Conclusions:
In a patient with dysmorphic facies and known difficult
airway in a remote location, we were able to show that
adequate sedation was established for an MRI procedure
using doxmedetomidine. We believe this is a viable
technique for patients with similar presentations.

- References

  1. Lerman, Jerold, Chafles J. Coté, and David J. Steward. "Aresthesia in Remote Locations." Nanual of Periatric Ansethesia (2015): 822-37.

  2. Massan, Ares P. Lavid Zundoveki. Steven E. Zijestzevaki, Carolina D. Dase Deurschedoriscilia es the Scie Editate for Periatria (NRI). "Pridiatric Anesthesia 18,5 (2008): 403-11.

  Schrief Viegers S. Deadorf M.A. "Clinical feebures, diagnostic criteria, Schrief Viegers S. Deadorf M.A." Clinical feebures, diagnostic criteria, Schrief Viegers D., David of M.A. "Clinical feebures, diagnostic criteria, Schrief Viegers D., David Coll. App. 253-256.

  A. Tobias, Joseph D., and John W. Serkerbosch, "India Escenerox with Deurscelotomidine in Paciettic-Sped Patents." Pediatric Anesthesia 12.2 (2002): 171-75.

# **Imaging Artifacts During** Transesophageal Echocardiography



Anastasia D Grivoyannis, MD, Anup Pamnani, MD, and Nikolaos J Skubas, MD, FACC, FASE, DSc Department of Anesthesiology, Weill Cornell Medicine - Weill Cornell Medical College, New York, NY

#### Exhibit Description:

Exhibit Description:
Ultrasound imaging results from the interaction between the ultrasound beam and biologic tissue. Generation of the 2D image is based on the principles listed in Table 1. When these assumptions are violated, artifacts are generated. Imaging artifacts generated during echocardiography can be a source of misleading information and misclaignosis as they does not convey anatomic information. This is the case when the displayed structure is not real, or a real structure is misplaced, absent, enhanced, or attenuated. In this echo exhibit, we summarize the most commonly encourtered imaging artifacts in 2D. most commonly encountered imaging artifacts in 2D echocardiography, Table 2.

It is obvious that a thorough understanding of the mechanism of artifact generation is necessary to optimize imaging and avoid misinterpreting anatomic data, which may lead to erroneous diagnosis. Visitors of this exhibit should expect to acquire skills in recognition, analysis, and interpretation of transesophageal echocardiographic images containing ultrasound artifacts.

#### Learning Objectives:

- 1. Define and describe how ultrasound artifact can be
- Define and describe how ultrasound artifact can be generated on transesophageal echocardiography (TEE)
   Differentiate among the different types of ultrasound artifact
   Analyze several TEE images, reviewing each for 2D artifact or no artifact
   Categorize the type of artifact seen in the TEE images presented
   Specify how a particular artifact may have been produced

- Ultrasound travels in a straight line
  A structure or object (reflector) generates
  reflection (echo) only once
  Echoes are generated only from reflectors
  located within the main ultrasound beam
- 4 The intensity of the echoes is related to the
- acoustic Characteristics of the reflector

  The position of the reflector on the display
  monitor is proportional to the round trip travel
  time of the ultrasound beam

  The speed of sound in human tissue is constant

Assumptions made during 2-Dimensional Imaging

#### Multiple reflections Lines in a "step-ladder" appearance, usually in a straight path Calcified wall of aorta, pulmonary artery catheter balloon, calcified valves Comet tail/ring down Continuous echoes (linear tails) Aortic plaque deposits, collection of microbubbles Mirror image Identical structure distal to original reflector Descending aorta and aortic arch, prosthetic valves Linear artifact Intra-aortic linear structure often mistaken for a dissection flap Dilated ascending aorta (>5.0cm) or atrial/aortic diameter <0.6 Misplaced reflections Side lobe / grating lobe "Arc-like" echoes displayed on both sides of a true object Highly reflective wires or catheters, aortic plaques, calcified valves Missing reflections Acoustic shadowing Hypoechoic or anechoic areas distal to strong reflectors Enhancement Hyperechoic areas distal to weak reflectors Pericardium, boundaries of ventricular wall

Table 2.
Types of imaging artifacts and their characteristics



Figure 1. Reverberation artifact from

tracheal rings during insertion of the TEE probe (UE aortic views in short (left) and long (right)



Figure 2.

Comet tail artifact noted in the UE LAX view of the aortic arch. A mirror image of the aorta is also noted distal to the actual



A side lobe artifact & acoustic

shadowing artifacts due to calcium deposit in the anterior wall of the aortic arch (UE LAX view). Note enhancement of the aortic wall.



Acoustic shadowing is noted distal to a prosthetic mitral valve in this ME 4C view. Note the enhancement of the septum.

- Teaching Points:

  1. Artifacts can occur near or far from a reflector and cross anatomic borders.

  2. Reverberations are false images caused by the back and forth traveling of an echo. They manifest as horizontal or perpendicular lines, or even as a duplicate image of a reflector.

  3. A strong reflector may be displayed inside a distal structure such as a dilated aorta and mimic a dissection flap. The artifact will be displayed at twice the distance of the reflector from the probe.

  4. Color Doppler can be particularly helpful in assessing whether a displayed structure is true or an artifact.

  5. Alternative imaging planes should be used when a strong reflector causes distal shadowing. Adjusting time-gain compensation can help reduce the effects of shadowing and enhancement artifacts.

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## Axillary block in a 27 year-old patient using the dancing needle technique in Punjab, India without the use of ultrasonic guidance

NewYork-Presbyterian

☐ Weill Cornell Medical Center

Lee Rasamny, M.D. <sup>1</sup>, Gregory Kerr, M.D. <sup>1</sup>, Gunisha Kaur, M.D. <sup>1</sup>, Michelle Shirak, M.D. <sup>1</sup>, Ruchi Gupta, M.B.B.S., M.D. <sup>2</sup> <sup>1</sup>Department of Anesthesiology, Weill Cornell Medical College, New York, NY; <sup>2</sup>Department of Anesthesiology, Sri Guru Ram Das Instit

ri Guru Ram Das Institute of Medical Sciences and Research, Punjab, India

Background:

In October 2014, the Global Health Initiative at Weill Cornell Medical College hosted its second trip to Punjab, India. The participants (two CA-3 resident physicians and an attending physician) spent the trip at Sri Guru Ram Das Heapstal participanting in the anesthetic care of patients, while also focusing on global health education. We report a case of a 27 year-old gentleman undergoing a wound debridement after a firearm acident to his left hand. The lack of available ultrasonic guidance or nerve stimulator produced the complexity of this

Case Report:

A 77 year-old ASA class 1 patient with no past medical history presented for a wound debridement after a firearm accident to his left hand. After a discussion of the risks and benefits with the patient, a regional anesthetic with an axillary block was agreed upon as the primary anesthetic and to all divith post-operative pain control. The patient was placed in the supine position with his arm abducted to 90 degrees. Sedation was achieved with lorazepam. Under sterile conditions, the axillary aftery was palpated and the superficial skin anesthetized with 5% lidoragine. A 20-augue needle was then inserted it us farefror to the with 2% lidocaine. A 20-gauge needle was then inserted just anterior to the axillary artery. Given the lack of ultrasound availability, proximity to the artery was assured by achieving pulsatility of the 20G needle. After negative aspiration, 20mL of a 1:1 mixture of 0.25% bupivacaine and 1.5% mepivicaine was injecte 20th, or a 1:1 mixture of 0.25% bupracaine and 1.5% mepivacine was injected with aspiration every 5mt. The needle was then removed and directed just posterior to the axillary artery. Pulsatility was again achieved thus assuring appropriate proximity to the axillary artery. Another 20mL of the same mixture was injected. After both injections were completed the patient's arm was adducted back to an anatomic position to assure local anesthetic did not track up. The hand was tested for lack of sensation and the surgery was started. Post-operatively the patient's pain was well controlled, obviating the need for any narrotics in the remover zone. narcotics in the recovery room.





Punjab, India is an area home to a complex interplay of factors between politics, Punjab, India is an area home to a complex interplay of factors between politics, societal paradigms, and unfortunate human rights issues. In an area where financial constraints influence the medical care, regional anesthesia offers an economical option to achieve surgical anesthesia. Additionally, regional anesthesia limits the amount of narcotic required for adequate analgesia, which is of great importance in an area with an extremely high rate of narcotic abuse and dependence. A complicating factor in increasing the prevalence of regional anesthesia is the lack of ultrasound availability in the area. Punjab, and the entire country of India, suffers from an unfortunate human rights issue known as feticide. Illegal clinics continue to exist to carry out the illicit action of sex determination leading to abortions of female fetuses. For if the ultrasound machine is acquired by any person and illegally used for sex determination, the owner of the machine is subject to imprisomment. Additionally, each time the ultrasound machine is subject to imprisonment. Additionally, each time the ultrasound machine is used the practitioner must attest on a specific form that the machine has not been used for sex determination. The machine is also intermittently ssessed by a governing body to assure appropriate use by checking all store images. The lack of ultrasound however has been overcome by the creativity of images. The tack of utrasolute involver has been overcome by the creativity or regional anestieologists in the area. The dancing needle technique is only one of the many examples of such creativities. This case illustrates the ever present connections between international health, human rights issues, and sociologic norms in an area as complex as Punjab, India.

## In Resource Scarce India: Successful Laparoscopic Cholecystectomy With Laryngeal Mask Airway ProSeal for an Unexpected Difficult Airway



ogy, NewYork-Presbyterian Hospital/Weill Cornell Medical College, New York, NY

HPI: A 40 year-old, ASA 1, female was scheduled for a laparoscopic cholecystectomy for cholelithiasis.

PMH: Unremarkable

PSH: None
Allergies: None
Labs: Unremarkable

#### Airway Exam:

- Mallampati: II. Wide mouth opening Thyromental distance: 2 Finger Breaths
- Normal Flexion and extension of the neck · No overbite or obstructing frontal teeth

- Patient induced with propofol, butorphanol and rocuronium uneventfully
- Mask ventilated without difficulty
  First direct laryngoscopy was attempted with a Macintosh 3
  blade that provided a class IV view
- blade that provided a class IV view

  Patient subsequently repositioned with a shoulder roll and a
  second direct laryngoscopy was attempted with a Macintosh
  4 blade providing a class IV view
  Given that fiberoptic scopes are unavailable in regional
  community hospitals in India, secondary to costs and
- resources, alternatives to airway manag
- employed LMA ProSeal was placed and ventilation was achieved An orogastric tube was placed via the LMA ProSeal for
- decompression of gastric contents and air Case proceeded uneventfully.





Note, if a fiberoptic intubation is needed for an anticipated or planned difficult airway the fiberoptic scope can be ordered two weeks in advance from the local pulmonologist on loan, however, emergency situations continue to challenge our emergency difficult intubation guidelines in resource poor locations in rural India.

# American Society of Regional Anesthesia (ASRA)



## A Case of Nonsurgical Alternatives to Treatment and Management of Arachnoiditis

Sarah Choxi, MD<sup>1</sup>, Mary So, MD<sup>2</sup>, Neel Mehta MD<sup>3</sup>

Fellow, Department of Anestheslology, Northwestern University, Feinberg School of Medicine, Chicago

Fellow, Department of Anestheslology, Well Cornell Medical College, New York, NY

Assistant Professor, Department of Anesthesiology, Well Cornell Medical College, New York, NY



#### INTRODUCTION

Inflammation of the arachnoid + adherence of nerve roots to each other ⇒ a pain

CT Myelogram illustrating intermittent clumping of the left-sided nerve roots of the cauda equina at L3-4, likely representing

arachnoiditis (arrow)

- disorder.\*

  Not well defined clinical diagnosis: intractable pain and progressive weakness
  Etiology

  Infectious and introgenic causes (prior spinal surgery, neuraxial anesthesia or steroid injections)

  Pathophysiology still being investigated

  Currently no therapeutic or diagnostic gold standards exist

  Rare, thus randomized trials not available to guide a recommended treatment algorithm.²

We present a case of arachnoiditis that failed surgical intervention with a spinal cord stimulator but was successfully treated utilizing conservative options of pain

#### ILLUSTRATION



Outline of our patient's treatment:

1. Dose escalation of home medications (fentanyl patch, oral 1.

Dose escalation of home medications (fentanyl patch, oral dilaudid and gabapentin)

Persistent pain and worsening weakness of the left leg Trial of oral steroids and anti-inflammatory medication

Initial improvement of symptoms followed by recurrence

Caudal Epidural Steroid Injection

Initial improvement of SCS and Implantable Pulse Generator revealed a property functioning SCS

Interrogation of SCS and Implantable Pulse Generator revealed a property functioning SCS

Attempts to adjust impedances to optimize pain were met with increasing pain in the area of stimulation<sup>4</sup>

Patient requested removal of SCS and IPG

Explantation (Anticonvulsan depressants depressants

CASE REPORT

A 30-year-old male with a history of scoliosis developed intractable low back and left leg pain six months after undergoing spinal cord

stimulator (SCS) surgery for failed back surgery syndrome. The patient reported excellent pain relief for several months up until a mechanical fall, after which he began experiencing severe recurrence of his pain along with progressive weakness in the left

leg. The clinical history combined with the radiographic findings suggested arachnoiditis (see Figure).<sup>3</sup>

- No improvement in pain or weakness
  Adjustment of neuropathic agent, anti-inflammatory and opioid analgesics combined with physiotherapy and ongoing
- psychotherapy

  Patient was able to regain function in his leg with significant relief of his back pain

## DISCUSSION

We propose that an algorithmic and multimodal approach to treatin arachnoiditis may offer some resolution for intractable pain and progressive weakness from lumbar arachnoiditis when surgical options are limited.

- Early Treatment (<3 months since causative exposure)5
- Systemic corticosteroids
  Anti-inflammatory agents to prevent formation of adhesions
  Goal: Prevent formation of adhesions
  Long term management (>3 months, chronic Arachnoiditis)
- Neuropathic pain medication (anticonvulsant and/or anti-

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Arachnostille, Clarical Progressors, Evolution, and Management, Plant Medicine, April
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# North American Neuromodulation Society (NANS)



Cervical Intrathecal Catheter Placement for Relief of Refractory Metastatic Brachial Plexus Pain Yili Huang, D.O., Mary So, M.D., Julie H. Y. Huang, M.D., M.B.A. Weill Cornell Medicine, Department of Anesthesiology

NewYork-Presbyterian

## Introduction

Intrathecal drug delivery is a safe and effective option for treatment of cancer pain refractory to conventional therapies. While, these catheters are usually placed in the lumbar spine for lower limb or pelvic pain, drug delivery to higher spinal regions may help target more cephalad pathologic pain. Only a few case reports of intrathecal catheters placed in the cervical/ upper thoracic spine have been described in the iterature.

## Case

A 43-year-old woman with a history of tethered conus and stage IV adenocarcinoma of the lung s/p chemotherapy and radiation treatment. presented with severe 8/10 (NRS) pain of the right neck, shoulder, and upper arm. It was associated with numbness and weakness in the cervical nerve root/brachial plexus distribution, which has progressed for 6 months. MRI revealed tumor involvement of the right brachial plexus C7-T1 nerve roots, inferior trunk with extension into the distal segments of the right brachial plexus.

## **Brachial Plexus MRI**



#### Intrathecal Pump Trial

Having failed conservative pain therapy including escalating doses methadone, IV dilaudid, lidocaine patch, and oxycodone ER, the patient underwent an epidural catheter trial for an intrathecal pump (ITP)



serted into the

Weeklong trial of epidural Dilaudid 60 mcg/ mL and Bupivacaine 0.0625% at 5cc/hour resulting in improvement of pain level to 3/10 with return of mobility and function of her

## Implantation

Because of her tethered conus, which may lead to ventral migration of the catheter limiting its effectiveness and potential cord injury, ITP implantation was performed with laminectomy and durotomy at T9 with the catheter tip placed at T2.

## Results

ITP morphine was started at 5.5mg/day and titrated to 7.5mg/day over the next month while the patient continued to experience palliative pain relief with return to function until her passing.

#### Conclusion

Very few cases of cervical/high thoracic placement of ITP are found in the literature. These ITP were all placed for malignant pain from neck/thorax/ upper extremities. The catheters were inserted between T2-T5 and the tip placed between C5-C7.

The patient's unique history of tethered conus and presentation of right arm pain due to tumor involvement of the brachial plexus makes her an deal candidate for palliative placement of cervical/ high thoracic ITP.

Given its effectiveness, we believe that cervical/ high thoracic ITP catheters should be considered a part of the armamentarium in the treatment of refractory upper extremity cancer pain

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# **New York Academy of Medicine (NYAM)**

## Polymixin-induced Recurarization Requiring Postoperative Reintubation



## Vikram Bhasin, MD, Jon Samuels, MD

Polymyxin antibiotics are effective against most gram-negative bacteria. 1 Concerns regarding neuromuscular weakness have limited their use.

#### Case Presentation:

45-year-old male with post-ERCP pancreatitis complicated by multiple polymicrobial abscesses, scheduled to undergo debridement of necrotic tissue under general anesthesia. Prior drainage of his abscesses grew multiple microbes, so he was started on polymyxin, meropenam, and fluconazole. In the OR, he received scheduled doses of meropenam and polymixin. His induction, intubation, and intraoperative course were uneventful. He received full reversal with neostigmine 5 mg, and atropine 1.8 mg. A nerve stimulator showed 4 twitches with no visible fade. He was alert, oriented, following commands, breathing spontaneously with good tidal volumes, and was extubated. He developed difficulty breathing, initially thought to be due to partial laryngospasm, which resolved with positive pressure. He continued to feel weak with discoordinated movements. The nerve stimulator showed zero twitches indicating recurarization. He received neostigmine 2mg with atropine 0.6mg and was re-intubated

#### Discussion:

This patient had neuromuscular weakness after he initially showed evidence of return of neuromuscular function. This recurarization was likely due to polymyxin. Although he had received polymyxin during his hospital course, this was the first time he had received it alongside a neuromuscular blocking

The reported incidence of neuromuscular blockade with polymyxin use has been low. When comparing data between 1962 to 1977 and 1995 to 2005<sub>2</sub>, it is noted to have decreased.

The use of polymyxin can still have tangible morbidity even through the reported rate of complications is low.

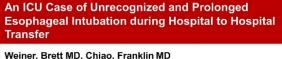
## Figure 1: Anesthetic Record



g 4. Intraoperative clinical course showing overall stable respiratory parameters and hemodynamics. Exhibated in OR, observed and re-inhibated

ceterances.
Lea CS 10° Viterary of irrections due to Centecenem Has spant room Nigorian Pathogers. Infoct Cremches. 2014 Sno. 48(5):149-84. Falagos ME, Sackbook SK Tusch of obstyration is applicable revised the entiance from the and rocal country. Of Care. 2006.

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## Weiner, Brett MD, Chiao, Franklin MD

There are numerous complications that can arise when patients are transported between medical institutions. It is the detection and recognition of these problems that can become difficult and requires problems that can become difficult and requires upitalized to the medical provider to recognition and treat such issues before they can cause harm to the patient. As medical providers, we are aided by monitors and devices to detect such complications and their use becomes essential even during detection of routine mislakes such as an esophageal intubation.



An 83 year old female with past medical history significant for Alzheimer's dementia with depressive features presented as a transfer from an outside hospital in the setting of twenty-four hours of neurologic deterioration.

- Prior to admission, two episodes of falls with head strike but without loss of consciousness
  Head CT at the outside hospital demonstrating a left cerebellar hematoma, a large right frontal hemorrhagic
  contustion and bilateral acute on chronic subdural hematomas
  At the outside hospital, inhabitate for airway protection
  Decision made to transport the patient to our hospital for possible operative intervention

- Patient was intubated on consecutive attempts into the esophagus. Two chest x-rays were obtained following each intubation and prior to transfer which showed an esophageal intubation.
- Following the second chest x-ray, the patient had already been discharged for transfer No attempt was made to inform the accepting hospital of this mistake

- Patient immediately vomited into circuit once connected to the ventilator No episodes of desaturations were noted following arrival Senior anesthesia resident performs tube exchange via Cook Catheter with direct visualization using McGrath larryngoscope Caprography was not obtained to verify successful and correct placement of the endotracheal tube following the exchange
- the exchange Significant abdominal distension became notable on physical exam Chest x-ray obtained (as shown) and demonstrated an esophageal intubation

## Figure 2: Incidence and Relative Risk Ratio for Complications Following Esophageal versus Non-Esophageal Intubation<sup>5</sup>

Complication	Non-Esophageal intubation (%)	Esophageal Intubation (%)	Relative Risk	95 % Confidence Interval for Risk Ratio
Hypoxemia	13.1	64.7	12.14	9.03-16.31, P < .001
Regurgitation	2.4	24.7	13.14	8.76-19.68, P < .001
Aspiration	0.8	12.8	17.22	9.43-31.43, P < .001
Bradycardia	1.5	21.3	17.77	11.12-23.39, P < .001
Dysrhythmia	4.1	23.8	6.37	4.44-9.14, P < .001
Main Stem Bronchial Intubation	4.8	14	3.23	2.12-4.90, P < .001
Cardiac Arrest	0.7	10.2	15.07	7.88-28.82, P < .001

The incidence of esophageal intubations following emergency airway management has been reported to be around 5%. 'Recognition of an inadvertent ecophageal intubation is paramount in order to prevent associated morbidity and mortality humaned to the patient including hypoxia secondary to apnea, abdominal distension with associated vomiting and appration secondary to an unprotected airway and bowel perforation.

Patient was spontaneously breathing during transfer Hypoxia secondary to apnea was avoided Remained at high risk for other complications including bo

- Direct visualization of the endotracheal tube passing through

- Direct visualization of the endotracheal tube passing throt the vocal cords. Auscultation of bilateral breast sounds. Auscultation of cheef rise bilaterally Foggling of the endotracheal Fiberopic for endotracheal Fiberopic for endotracheal endotracheal graph visualization of the endotracheal graph visualization of the Cheest radiograph visualization graphs of Cheest radiograph visualization of the Fiberopic forms of the endotracheal graph visualization of the endotracheal graph visualization of Cheest radiograph visualization of the endotracheal supplies of endotracheal supplies endotracheal endo

However, despite the various methods available to determine correct placement (oflowing an endotracheal intubation, none of the available techniques has proven to be 100% accurate further indicating the importance of vigilance on the part of the practitioner to detect a complication and act accordingly.<sup>3</sup>

# The Society of Critical Care Anesthesiologists (SOCCA)

## Acute subdural hematoma following coronary artery bypass grafting: A case report

Weill Cornell Medical College

## Sheida Tabaie §,\*and Natalia Ivascu §

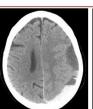
leurological complications following cardiac urgery have potentially devastating consequen ccording to recent studies, the risk of ischemic According to recent studies, the risk of ischemic stroke post-coronary artery bypass grafting is 1-5%. I However, intracranial bleeding complications are infrequently reported following cardiac surgery, Despite its relative rarity, early recognition of intracranial bleeding is of paramount importance as there are emergend interventions that can markedly improve outcomes in the post-surgical period.

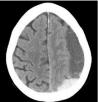
#### Pre- and Intra-operative Course:

re- and intra-operative Course:

A 70 year-old freate with no history of a bleeding disorder presented to an outside hospital with a NSTEM. She received a 300 mg dopidogrel load NSTEM. She received a 300 mg dopidogrel load Sevesel CAD. The patient was stanted on a heparin drip and was transferred to our hospital five days later for definitive treatment. The heparin drip continued until the night prior to surgery. She remained supratherapeutic on the heparin drip despite decreasing the dose, with PTT -150 for two days. She was also started on aspirin 325 mg daily. Three days after admission, the patient underwent 3-vessel CABG without complication. Conventional CPB was used, including heparinization and protrainine reversal. There were no intraoperative complications, and the only exogenous blood products administered were two rogenous blood products administered were two nits of packed red blood cells.







CT images highlighting the L hemispheric subdural hemorrhage with partial effacement of the L lateral ventricle and a 4 mm midline shift

Her post-operative course was unremarkable, with no episodes of bleeding or hypotension. She was started on prophylactic SQ heparin twice a day on POD #1, and the aspirin 325 mg was continued daily. The platelet count fell to 80.000 immediately post-operatively, after which it remained above 100,000. All other coagulation labs were within inormal limits. On the morning of POD 87, the patient had an acute change in mental status associated with a right hemiparesis. Upon examination, the patient was oriented to self and was able to briskly follow commands, but had a moderate to severe expressive preater than receively earbasia, and a right hemiparesis. The acute stroke team was activated. On neurology evaluation, the patient had an Initial National Institutes of Health Stroke Scale score of 8. She remained hemodynamically stable with no hemodynamical superior and minimal oxygen supplementation via nasal cannula. A stat contrast head CT revealed a large left hemispheric subdural hemorrhage with partial effacement of the left lateral ventricle and a 4 mm midline shift consistent with a hyperacute subdural hemotrhage with partial effacement of known head trauma during the hospitalization or prior to the hospitalization. All anticoagulation was held and the patient received one unit of platelets prior to a left cranitoring for excending of the subdural hematoma. The post-operative course was unremarkable, and the patient made a full recovery with no residual deficits.

#### Conclusion:

Conclusion:

Acute subdural hematomas are generally precipitated by head trauma. With no evidence of head trauma in this case, the etiology remains unclear. A literature search of subdural hematomas following cardiac surgery reveals several case reports 2<sup>2,4,5,4,7</sup> A possible etiology includes the pre-operative anticoagulation regimen combined with heparinization for CPB leading to a bleed from learing of the dural bridging verns secondary to rapid intra-operative correbral fluid shifts. <sup>2</sup> However, given the acuty of the subdural hematoma, it is less likely to have begun while on CPB with delayed presentation until POD #3. Interestingly, the adult case reports identified in the literature had a wide range in timing of presentation from POD #2 to POD #42. Based on the limited data, it appears that intracranial hemorrhage following cardiac surgery does not commonly occur in the immediate pos-operative period. Thus, it is critical to establish a neurological baseline in the immediate pos-operative period. Thus, it is critical to establish a neurological baseline.

References:

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Neuroloocal complications of cardiac surgery. The Lancet Neurology 2014; 13: 493-Amount of the common control of the common c

# Society of Cardiovascular Anesthesiologists (SCA)

## Blunt Cardiac Injury Conundrum

☐ Weill Cornell Medical Center

Rohan Panchamia, MD, Anastasia D. Grivoyannis, MD, Emil N. Bogdanov, MD, Shanna S. Hill, MD. NewYork-Presbyterian Hospital – Weill Cornell Medical Center, New York, NY

#### Background:

Blunt cardiac injury (BCI) has a wide spectrum of manifestations ranging from clinically asymptomatic to lethal cardiogenic shock.

Incidence reported 8.71%:

Myocardial contusion, most commonly reported 8.RA/RV most bliedy by austran injury

Left-sided (CA/IV) injuries range.

53M brought to the ED after being pinned between two tractor-trailers.

CT chest/abdomen/pelvis was notable for multiple right rils fractures, bilateral pulmonary contusions, right pneumothorax, and hemopericardium without evidence of tamponade.

He was intubated for hypoxia and was started on norepinephrine and phenylephrine infusions for significant hypotension. A bedside TIE showed a moderate-large pericardial effusion with tumporade physiology.

The patient was taken to the operating room for a pericardial window. He arrived to the OR on maximum concentrations of vasopressors receiving frequent bolisses of epinephrine to maintain his mean arterial pressures >60 mmHg. He was placed on low tidal volume ventilation. A TEE continmed TTE findings and displayed a linear echodensity between the epicardium and myocardium of unclear clinical significance.

Full conventional sternotomy was made for exploration. Bright red blood was noted to be buskly pouring from the mediastimum leading to complete elfacement of arterial line tracing. The patient was emergently heparinized, cannulated, and placed on CPB. Evaluation of all mediastimal structures revealed a tear in the inferior pulmonary vein as it entered into the LA. This was repaired and the patient was slowly weared and separated from CPB after full resuscitation.

Coagulopathy was treated with the administration Coagulopathy was treated with the administration of profitnombia complex concentrate (PCC), cryopracipitate (CPT), platekts, and protamine sulfate as guided by ROTEM. After hemostatic control was carefully achieved, the stemum was closed and the patient was taken to the ICU. He suffered no long-term sequelae.

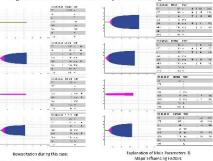
#### Image 1: Pulmonary Vein Tear identified, while on CPB





Image 2: linear echodensity identified between epicardium and myocardium (TTE)

## Figure 1: Rotational thromboelastometry (ROTEM) during and after CPB



• 2 units pRBCs • 2500 IU PCC • 500cc cell-saver • 10 units

agulation factors, direct anticoagulants, platelets platelet function, fibrinogen platelet function, fibrinogen, factor XIII fibrinolysis

#### Techniques employed for airway management & ventilation:

- Low tidal volume strategy should be used to improve post-op survival in patients with acute lung injury (ALI).
- Volatile anesthetics may have a role in regulating the pro-inflammatory response in the lungs.
- Permissive hypercapnia could provide lung protection in the setting of ALI.

#### Surgical considerations which impact anesthesia decision-making:

- Pump-dose heparin should be drawn up and readily available prior to sternotomy.
- Emergent bypass requires effective communication between the anesthesiologist, surgeon and perfusionist.

#### Teaching Points:

- BCI presentations vary but should be highly suspected when other thoracic injuries, such as pneumothorax and pulmonary contusion, are present.
- Point of care hemostatic assays provide an accurate reflection of coagulation function and may reduce total blood component administration, potentially decreasing the incidence of multi-organ failure and ARDS.

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## Intracardiac Tumors



## Weill Cornell Medical College

## Andrew Sosa, Emil Bogdanov, and Nikolaos Skubas

Introduction:

A Typisch and Intelleprenented for removal of a 3.4 x 3 cm mass located on the spee of this LV. His past medical tiscory was significant for medical tiscory and discovered on southor following screening. After induction of general enablesian stransceptingal eithor was porformed, which doministated a 3-cm southort following the significant form of the significant form significant form of the significant form

a melanoma. A large protion of the mass was resected and was confirmed by pathology to be consistent with melanoma. The remainder of the mass invaded the intential septum and no further attempt was maded to remove it. The residual LV mass was not ressected out to the high surgical risk and limited benefit given the likely dissominated disease such as the control of the residual LV mass for the residual LV mass for the residual LV mass for the residual and the residual residua



Papillary Fibroelastoms- Most common tumor of cardiac valves. It ually is <1cm and affects the acrtic or mitral valve

Osteosercome- make up 3-9% of cardiac sercomes. Most monly they are located in the LA and produce respiratory symptom



Tumor Type	Echo Findings
Myxoma	Mobile, heterogeneous tumor Connected to IAS, usually in IA
Lipoma	Homogenous, hyperechoic mass, Can appear hypoechoic if located in the pericardial space
Papillary Fibroelastoma	Located on downstreamside of valvular surfaces. Create a characteristic shimmer at tumor blood interface, and display frond like projections
Rhabdomyoma	Multiple small lobulated homogenous and hyperechoic masses in the RV
Angiosarcoma	Large echogenic mass with poor demarcation of borders in the RA

Conclusion:
Primary cardiac tumors are fortunately a relative rare occurrence with an inocostic of less than 0.1% in the general population. 76% of these tumors are beingly, mostly mysomas, vs. 25% which are meligrant and are usually sarromans. (1) Secondary or melistrated cardiac burnos are 30-40 times more frequent than primary conditions and the secondary control time or the condition units with a nestimated indication of 16-18.3% of patients with meligrancy. Meliastinos to the fourt are usually only seen in widesproad disconnected disease.

Molanoma in particular has a landoncy to molasiasize to fee heart, and autopsy studies of patients with melanoma have observed in accidence of up to 45%. (3) Melanomas can affect all areas of the heart, but most commonly than the studies of the studies of the studies of humans are usually confusioned protonomen due to rarily of clinical symptoms. When symptoms do prosent met common are naute perioristics, perioristical elitusion, congostive heart failure, airroventricular blocks, arriad tempratrials, and francier licithmes dratios. The prognosis in these cases is girn, with an average life years (2) given (rings of the rinder to 15%.)

Given the proposalty of melanorma to metastasis to the inglet calls of the heart, and its fact of clinical symptoms, screening of palents heart prior to comulation is critical, in the case of our patient, consulation was originally planned to be via the right afrait algorithage. However, after the discovery of the mass, this plan was self-cent to VCSSVC cumulation. In the future, weekingtion of the right critical in patients with a history of melanorine should be provided and prior to cumulation to evide sectional provided and prior to cumulation to evide sectional to a cover a consultation.

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# **New York State Society of Anesthesiologists (PGA)**

## Electrophysiological Ablation of Recurrent Ventricular Tachycardia under ECMO



## Panchali Dhar, MD1, David Graboff, CRNA1, Steven Markowitz, MD2

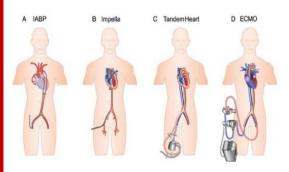
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The patient is a 67 year old male with hypertrophic cardiomyopathy discovered on MRI following syncope resulting in a motor vehicle accident. A coronary angiogram showed no significant CAD and an EF of 60%. An ICD was implanted and he started treatment with amiodarone.

A year later he began to have episodes of ventricular tachycardia treated with antitachycardia pacing by his ICD. He underwent two unsuccessful attempts at electrophysiological ablation. A third ablation session was complicated by sustained polymorphic ventricular tachycardia and cardiac arrest requiring ACLS for 2 minutes. He was started on mexelitine and discharged home.

He continued to have frequent episodes of VT daily, treating with anti-tachycardia pacing and/or shocks. The episodes lasted up to 10 minutes associated with lightheadedness and dizziness.

A fourth attempt at VT ablation using peripheral ECMO support was conducted. General anesthesia was induced and femoral veno-arterial ECMO was started. During ECMO, ventricular tachycardia was purposefully induced to locate the pathologic foci. The ablation study lasted 10 hours. The patient continued to have episodes of VT after the procedure. He was extubated 24 hours later without any evidence of cognitive deficits. He ultimately required a fifth procedure using an Impella device and trans-coronary ethanol for successful ablation.





## Ablation Procedure

The patient was brought to the electrophysiology laboratory and general anesthesia was induced. During the case, ECMO flows, SvO2, MAP, and cerebral oximetry were monitored. The adequacy of gas exchange support was verified by blood gases from a radial arterial catheter. The hemodynamic effects of VA ECMO upon the myocardium were gauged by following the pulsatility of the arterial waveform. ECMO flows were maintained between 3-4 L/min. A phenylephrine infusion added hemodynamic support. The inhaled sevoflurane served mainly as an amnestic. MAP ranged 50-70 mmHg and PaO2 ranged 170-279 mmHg. An epicardial catheter was inserted through the subxiphoid approach. Mapping was also performed in the left ventricle through the left femoral artery. Programmed stimulation resulted in multiple episodes of VT. During VT the MAP held steady at 55-70 mmHg and cerebral oximetry ranged R53-65/ L 57-69

- There are four types of percutaneous left ventricular assist devices (pLVAD) used for hemodynamic support during catheter ablation of VT: IABP, Impella, Tandem Heart System and most recently, ECMO.
- ECMO is the only system capable of a true total support at very high ventricular rates of 300 bpm, during ventricular fibrillation, and even in the setting of RV failure
- ECMO provides both hemodynamic and respiratory support. Circuit components are chosen to allow for at least 50-75 cc/kg/min of flow in adults. It provides 60-80% of the predicted resting cardiac output. The remaining 20-40% of venous return flows normally through the native pulmonary circulation.
- The femoral venous cannula withdraws blood. Blood is then pumped through the membrane oxygenator allowing for oxygen uptake and carbon dioxide removal, and this arterialized blood is returned to the systemic circulation through the femoral artery.

### **Learning Point**

This case demonstrates the advantage of ECMO support during VT ablation because it maintains cerebral perfusion and oxygenation. ECMO facilitates mapping during hypotensive VT and protects the brain from ischemic injury.

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## Pain management after exploratory laparotomy and large abdominal tumor resection in a 15 yo patient with neurofibromatosis, who was not a candidate for neuraxial anesthesia



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#### Summary

In this case report, we describe a 15 year old patient with neurofibromatosis who was unable to receive neuraxial anesthesia for post-operative pain management. The patient underwent exploratory laparotomy and tumor resection, but received effective postoperative analgesia using multimodal analgesics, including acetaminophen, ketorolac, ketamine, and gabapentin. The case further illustrates successful use of gabapentin as a pain adjuvant in a pediatric patient, which has not been thoroughly described in the literature

Figure 1



Xray of patient showing Harrington Rods

#### Case Report

A 15 year old male with a PMH significant for a large malignant intraabdominal tumor. Neurofibramatosis type 1, with both plexiform and dermal neurofibromas, scoliosis post Harrington rod placement and exercise induced asthma presented for exploratory laparotomy for a resection of an intrabdominal

tumor.

Intraop: It was determined that the patient was not a candidate for neuraxial anesthesia due to placement of previous Harrington rods (figure 1) with a large posterior cervical to lumbar incision and multiple dermal neurofibromas which covered the back extensively (Figure 2). In anticipation of post operative pain management, the patient was given 300mg of gabapentin, 1 hour prior to incision. Intraoperatively the patient was induced with propofol, fentanyl, and rocuronium. A ketamine IV bolus of 0.5mg/kg was given at induction. The patient was placed on a ketamine infusion intraoperatively at 0.25mg/kg/hr, and maintained on sevoflurane. Fentanyl was titrated intraoperatively to supplment analgesia. Due to extensive blood loss and large amounts of fluid resuscitation, the patient was kept intubated post-operatively and transferred to the PICU, where he remained on a ketamine infusion at a

rate of 0.1-0.2mg/kg/hr, with IV morphine given prn.

Postop: On post operative day (POD) #0, the patient was remained intubated, sedated, but arousable and able to answer. questions appropriately. The patient reported pain scales of 3-4/10. The patient was successfully weaned to extubation on POD #1, and transitioned to a hydromorphone IV PCA, weaned off the ketamine infusion and continued on gabapenting 100mg PO Q8h. The patient reported pain scales of 1-4/10 on POD #1. On POD #2, standing ketorlac and acetominophen were added to the pain regimen, with reported pain scales decreasing to 1-2/10. On POD #3, the patient was weaned from the dilaudid PCA, the ketorlac and acetominophen

transitioned to prn, and the patient was started on standing oxycontin and prn oxycodone. Pain scales were reported as 1/10 on POD #3. POD #4, the patient was discharged home with reported 0/10 pain on oxycontin and oxycodone prn. Figure 2



ermal neurofibromas similar to presentation of

#### Discussion

Post -operative pain management in pediatric patients has become a major concern and challenge (1,2). This is especially evident in the fact that post-operative pain in the pediatric population remains undertreated (2). Effective pain control in the post-operative setting has many advantages including fewer pulmonary and cardiac complications (3). Faster recovery, early ambulation and improved patient satisfaction are among the other benefits of optimal pain control (3). This case highlights successful pain management in a pediatric patient using a multimodal approach in a patient who was not a candidate for neuraxial anesthesia. The case further candidate for neuraxial anesthesia. The case further illustrates successful use of gabapentin as a pain adjuvant in a pediatric patient, which has not been thoroughly described in the literature. The use of systemic ketamine in pediatric patients has been shown to decrease pain scores in the post-operative setting (1). However, the use of systemic ketamine has failed to show an opoid sparing effect (1). The use of a single dose of gabapentin preoperatively has also failed to show opoid sparing effects and has failed to demonstrate decreases in pain scores in pediatric patients (4).

This case demonstrates a favorable effect on pain scor and pain management with the use of both systemic ketamine and gabapentin used around the clock until discharge. In addition to these two agents, we utilized acetominophen and ketorlac for optimal pain control. Further investigation regarding the use of gabapentin around the clock and/or with ketmaine may be worth investigating, specifically in the pediatric population.

References:

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# Thoracic Paravertebral Blocks for Breast Lumpectomy in a Patient with Facioscapulohumeral Muscular Dystrophy



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#### Case:

A 59-year-old woman with FSHD presented for left breast lumpectomy and sentinel lymph node biopsy. She had the following medical history:

- · Recurrent pneumonia
- Asthma
- Severe restrictive lung disease and reduced DLCO (requiring home O<sub>2</sub>)
- · Dysarthria and dysphagia
- Inability to lie flat secondary to shortness of breath and GERD
- TMJ disorder

A preoperative pulmonology consult recommended leaving the patient intubated if she were to undergo general anesthesia, with postoperative ICU admission.

## Anesthetic Technique:

- Standard ASA monitors in the sitting position
- 2. Five liters O2 via nasal cannula
- Light IV sedation (midazolam 2mg and ketamine 20mg)
- Palpation of surface landmarks, skin preparation and local anesthetic skin wheals (Fig. 1a)
- Ultrasound-guided paravertebral injections of 5 mL per level of 0.5% bupivicaine with 1:200,000 epinephrine and preservative-free dexamethasone for levels T2-T6 on the left side (Fig. 1b and Fig. 2)
- Glycopyrrolate 0.2mg to reduce oral secretions
- Maintenance of sedation with small boluses of ketamine

This case report is presented with the express permission of the patient, who is not personally identified. Special thanks for mapping soin Egunos taland to are reprinted with permission from Dr. Ray Greengess, MD (ref. 1).

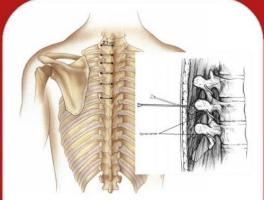


Fig 1a: Superficial skin markings for left breast lumpectomy. Fig 1b: Needle "walked off" transverse process into paravertebral space.

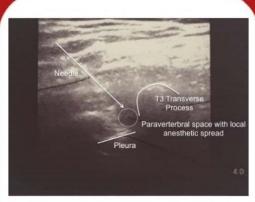


Fig 2: Ultrasound image of local anesthetic injection into the left T3 paravertebral space.

## Facioscapulohumeral Muscular Dystrophy:

FSHD, a dominantly inherited disorder, is the third most common dystrophy after Duchenne and myotonic muscular dystrophy. It is characterized by progressive skeletal muscle weakness across facial, back, and upper arm muscles that often affects muscle groups asymmetrically.<sup>2</sup>

## Conclusions:

A lack of publications exists describing the anesthetic management of patients with FSHD. Patients with this type of muscular dystrophy who undergo general anesthesia, even for ambulatory surgical cases, may require prolonged intubation and postoperative care in the ICU until they can be safely extubated. Anesthesia was provided with long-acting paravertebral blocks combined with light IV sedation. The patient was discharged home the same day of surgery with adequate analgesia and stable respiratory function.

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# Peripartum Management of Severe Factor XI Deficiency – Role for ROTEM?



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## Background:

Severe factor XI deficiency (activity level <15%) presents a unique challenge in the obstetric population. While there is no standard of practice regarding the management of these parturients, it is recommended that patients undergo factor replacement therapy in the peripartum period and those at high risk for bleeding receive antifibrinolytic therapy postpartum. This still leaves the question of how we should assess the effects of these interventions towards effective hemostasis in these high risk patients. Could rotational thromboelastometry (ROTEM) be of use in guiding therapy in these patients?

#### Case:

A 34yo G2P1 with a history of severe Factor XI deficiency (baseline factor XI <1%, 2% at 35 weeks gestation) and post-partum hemorrhage after her first delivery by cesarean section (CS) in 2013 now presents for repeat CS. Management of her first delivery included 4U FFP preoperatively which normalized her aPTT from her baseline of 60 seconds to 35 seconds but only increased her Factor XI level from <0.1% to 17%. She received an additional 2U FFP intraoperatively with EBL of 1500-1800cc. An additional 4U FFP was given postoperatively with TXA. For this delivery, a total of 5U of FFP (15cc/kg) was transfused. Baseline coagulation and ROTEM were measured and compared to post-FFP values. The aPTT normalized from 61.4 to 27.6 and the ROTEM clotting time (CT) on INTEM also normalized from 268 seconds to 172 seconds.

Figure 1: Baseline INTEM showing prolonged clotting time (normal 122-208)

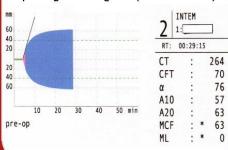
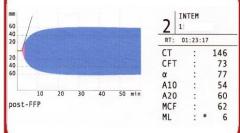


Figure 2: INTEM after 5units of FFP given



## Conclusions:

Although previous recommendations include factor replacement therapy titrated to a level of 30-40% normal activity, in this case that would have required excessive plasma transfusion beyond what available studies showed the patient needed to form an effective clot. With the risk of infection, adverse transfusion reactions, and alloimmunization increased with each unit transfused, therapy should be guided in a way to achieve effective hemostasis while limiting potential harm. While further research linking ROTEM results with clinical outcomes is needed, based on the findings in this case there is a great potential for using ROTEM, at least adjunctively, to demonstrate effective hemostasis following peripartum replacement therapy in patients with severe Factor XI deficiency.

Given the normalization of coagulation studies with the evidence of strong clot formation without fibrinolysis on ROTEM analysis, spinal anesthesia was performed and cesarean section proceeded without incident. Factor XI showed an increase from 2% to 25%. The EBL was 800cc and the postoperative course was unremarkable with no evidence of postpartum hemorrhage. The patient was started on a TXA infusion prophylactically postpartum. There was never any evidence of fibrinolysis post-partum.

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## Unanticipated Difficult Intubation due to Unrecognized Laryngeal Cyst



Jenica Lampl MD, Sabrina Wheatley MD, Minda Patt MD, Marc Cohen MD, Panchali Dhar MD NewYork-Presbyterian Hospital, Weill Cornell Medicine, New York, NY

## Pre Operative Evaluation

70yo female for elective robotic ventral hemia repair PMH:

- · Morbid obesity (BMI 42)
- Type 2 diabetes
- Hypertension
- · 20 pack year tobacco history
- Shortness of breath at rest, dyspnea on exertion, productive cough, and hoarseness

#### Pre op studies:

- · Normal chest CT
- Sleep study diagnostic of OSA (did not use CPAP)
- Echocardiogram with EF 60%, diastolic dysfunction



Laryngeal cyst prior to resection

## **Operative Course**

A RSI was performed and intubation was attempted with size 4 McGrath video laryngoscope. Posterior pharyngeal and laryngeal structures were difficult to distinguish due to active bleeding. A mass was noted partially covering the vocal cords. A 7.0 ETT was successfully passed and placement confirmed. Intraop course was uneventful. The patient remained intubated post operatively for further evaluation of the suspected laryngeal mass.



Cyst after puncture

## Post Operative Course

The patient returned to the OR the following day. Evaluation by ENT with an anterior commissure laryngoscope was initially unremarkable. The bleeding was attributed to a laceration of the right lingual tonsil, which was now hemostatic. The patient was then extubated in the OR after meeting criteria. Immediately after extubation she became stridorous, tachypneic, and endorsed difficulty breathing. Oxygen saturation was 96% on 100% facemask despite administration of nebulized epinephrine. A flexible nasal fiberoptic scope was inserted to view the laryngeal aperture: this exam revealed an a 1cm pedunculated mass obstructing the cords and creating a ball valve effect with respiration. The patient was reintubated. Re-examination with a rigid laryngoscope revealed the mass attached to the right aryepiglottic fold: it was now pushed up alongside the ETT. The mass was punctured, revealing tenacious white mucous and confirming the diagnosis of laryngeal cyst. The cyst was aspirated and the peduncle excised. The patient was extubated the next day after receiving dexamethasone.



Clear vocal cords after resection

#### References

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### Discussion

Unrecognized laryngeal cysts can lead to "cannot intubate, cannot ventilate" scenarios<sup>4,6,7,8</sup>. Incidence in adults is on the order of 1 in 1600 based on incidental findings during endoscopies<sup>1</sup>. The pathophysiology is chronic mucosal irritation causing blockage and dilation of ducts<sup>2,3</sup>. Symptoms can include sore throat, dysphonia, dysphagia, odynophagia, dyspnea, and globus sensation, but most are asymptomatic and discovered incidentally<sup>3,4</sup>. Despite their benign nature, there is potential for these cysts to present as airway emergencies requiring tracheostomy<sup>6</sup>. The treatment of choice is complete removal by marsupitazition or electrocautery; aspiration alone can result in recurrence<sup>6</sup>. Spontaneous resolution may occur <sup>3</sup>.

Both recognized and unrecognized cysts can result in difficult intubation46.78. If a cyst is known to exist preoperatively, transoral or transnasal fiberoptic intubation is the technique of choice238. When awake fiberoptic is not an option, an ENT anterior commissure laryngoscopye may be more suited to pass distal to a large, mobile cyst7. Other modalities such as Macintosh or Miller blades, videolaryngoscopes, and bougies may be unsuccessful at displacing a pedunculated cyst from the vocal cords48. Blind or forceful intubation can lead to cyst rupture, bleeding, and aspiration4. An LMA may be rendered useless as a rescue device as pedunculated cysts can still obstruct ventilation; however, they can be used as conduits for fiberoptic intubation<sup>6.9</sup>. In the case of a previously unrecognized cyst, resection should be undertaken prior to extubation 7,8

In this case, an unrecognized large supraglottic cyst was the cause of our patient's chronic shortness of breath, hoarseness, and cough. Extensive preoperative cardiac and pulmonary evaluations did not reveal the true source of her symptoms, and the cyst was discovered upon intubation during elective surgery. Fortunately, intubation with a styletted tube was successful, though it pushed the cyst inferiorly, and made it difficult to visualize with the ETT in place. Only extubation and nasal fiberoptic exam adequately demonstrated the ball valve effect the cyst created. Laryngeal cysts should be considered in the differential diagnosis for dyspnea and hoarseness if cardiac and pulmonary workups are unremarkable.

# Anesthetic Management of Tracheal Foreign Body in a Chronically Trached Patient



## Stephanie Willet, M.D., Natalia Ivascu, M.D.

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A tracheal foreign object is a life threatening emergency: most concerning for airway obstruction creating respiratory insufficiency, manipulation of the airway leading to increased oxygen consumption, airway hypoxia, and even cardiac arrest. Before induction of anesthesia, he site, degree, and timing of obstruction must be carefully addressed. Of utmost moortance is how to establish adequate gas exchange while not obstructing the surgeon's view or pathway of foreign body emoval, as well as establishing a contingency plan should the trachea become completely obstructed. We present a challenging case, not only because the foreign object is lodged at the level of the carina, but the object in question is the distal end of a transected, rare tracheostomy tube. Proximally, only a fractured tracheostomy tube remains in the tracheostoma and difficult anatomy above renders oral endotracheal nearly impossible.



AirLon Tracheostomy/Laryngectomy Tube - Set, Inhalation, Air-Lon

## Figure 1: Pre-op CXR AP

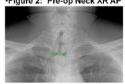


Case Scenario:

A 73-year-old man presented to the Emergency Department with increased clear secretions and inability to pass an inner cannula through his tracheostomy tube for 3 days. His past history consisted of a sever electrical burn injury in 1985, which required emergent tracheostomy and chronic tracheostomy tube for the past 30 years. Additional medical history included coronary artery disease, history of NSTEMI (EF 31% with kainesis of distal anterior wall), disbetes mellitus type 1, chronic kidney insufficiency, and hypertension. Notably, his prior burn injury resulted in difficult anatomical curvature and significant supraglotic scar lissue, thus requiring a unique tracheostomy tube (Air-lon/Tracoe) not available at our institution. His airway history included a tracheostomyphagen listual resection and 4 occurrences of tracheal stenosis requiring dilation and tracheostomy wexhange. Chest X-ray and flexible fiberoptic bronchoscopy (FFB) via the tracheostomy two trache sides and inferior tip of the fractured segment at the carina seated longitudinally (Figure 1 & 2).

At the time, the patient's airway was stable (oxygen saturation 98%) on humidified 21% oxygen via trach collar. Patient was urgently scheduled for foreign object removal via FFB in the OR. We planned local anesthetic topicalization and general anesthesis without neuromuscular blocking agent to maintain spontaneous ventilation. General anesthesia included a balanced technique: Sendfurane via cuffed endortanelal tube through stoma and low-dose Propofol infusion. Case was booked in the emergency cardiothoracic room in case extracorporal membrane oxygenation was required if complete tracheal obstruction ensued.

#### Figure 2: Pre-op Neck XR AP



Newly fractured tracheostomy tube with distal fragment caudally located with inferior tip at the level of the carina.

The oropharynx was anesthetized with 4% lidocaine solution. Midazolam 2mg, Glycopyrrolate 0.2 mg, Lidocaine 80mg, Dexamethasone 10mg were administered intravenously. A 5.0 uncuffed tube securely fit into the residual tracheostomy tube to deliver inhalational agent. FFB was then advanced through the mouth, however vocal cords were difficult to visualize secondary to distorted anatomy, thus requiring multiple attempts. The fractured end of the tracheostomy tube was identified at the carina with irrounding granulation tissue. Lidocaine 2% solution was used to topicalize the trachea. Patient maintained adequate used to topicalize the trachea. Patient maintained adequate spontaneous ventilation on 100% FIO2, however coughing and restlessness prompted initiation of 1.4 MAC of Sevoflurane and lov-dose Propofol initiation of 30mcg/kg/min. Pressure support between 10-20 cmH20 was used to maintain tidal volumes at 6-8cc/kg, secondary to mechanical instrumentation in the trachea. The pulmonary team then mobilized the fragment proximally with rat tooth forcesp. however circulan rarrowing necessitated serial balloon dilations for 45 seconds each. Volatile rat toon forceps, nowever circular narrowing necessarians serial balloon dilations for 45 seconds each. Volatile anesthetic was discontinued and Propotol influsion with boluses of 20mg IV provided anesthesia during dilation. Significant tracheal swelling and minor mucosal bleeding were controlled with irrigation of dilute Epinephrine 0.1 mogics and cold normal saline. The fragment was then again pulled back proximally but further tracheal stenosis was encountered. Ullimately, angled forceps were advanced through the stoma, grasping the edge of the fragment and mobilizing it past the proximal stenosis. This required several attempts during periods of non-ventilation while the entire tracheastomy tube was removed. Between altempts, the endofrancheal tube was placed into the stoma and positive pressure ventilation assisted spontaneous efforts. The patient was given additional Dexamethasone and antibiotics in the recovery room and then discharged to the floor.

#### Conclusion:

As the surgeon and anesthesiologist share management of a potentially obstructed airway, clear communication and a detailed anesthetic and operative plan should be discussed, including methods of induction, ventilation during bronchoscopy, and maintenance of anesthesia. An induction that maintains spontaneous ventilation minimizes the risk of converting a partial proximal obstruction to a complete obstruction, air leakage around the scope, and disruption of ventilation when attempting to retrieve the foreign body. As airway trauma and rupture are significant and potentially fatal complications, it is also essential to avoid coughing and bucking secondary to the ntense stimulation from the pronchoscope. Administration of IV and opical lidocaine diminishes airway reflexes and allows the use of less intravenous and inhaled anesthetic. It has been previously reported that a total IV technique with spontaneous ventilation was associated with a higher incidence of body movement, breath holding, and laryngospasm in comparison with an inhaled technique. Maintenance of spontaneous ventilation using local anesthetic topicalization and a balanced technique of inhaled and IV anesthetics allows for suitable bronchoscopy conditions and a consistent level of anesthesia.

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# **Left Atrial Tear Following Blunt Force Trauma**



## Christopher W Tam, M.D., James A Osorio, M.D.

Department of Anesthesiology, Weill Cornell Medicine New York, NY

A 53 year ole made with no significant port mericul/surgical timotry who presented to our institution via an inflame as a trauma. Pattern reported tailouding one brock and getting pixtured by another at indianous speed. CCS 15 on arrival. CT hendriches were majority. CT does suggested intulping the fluctures on the right saled proundshores and herropercondian that did not suggest temporated, CT does read their majorities are suggested to provide our PAST. To patient the research and the patient was them subsequently trought to the SSC. For further research attention and patient was the past control or arrival. A behalf of the particular and patient was the past control or arrival. A behalf of the particular and patient was the particular and marked respirated as a control of the particular and transitionally decade to effect the arrival and transitionally cause for the patient was found attained to patient was found attained to patient was found to have a self-utima, and superior planeautry were tear. Patient recovered in the CTECL post-op, however, common was complicated by ARDS due to patients with the CTECL post-op, however, common was complicated by ARDS due to patients are control to lave a self-utima and superior planeautry were tear. Patient recovered the CTECL post-op, however, common was complicated by ARDS due to patients and the control of a left stail does for the patient was considered to the patient was consi

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Berlische ultrassungraghty has been shown to be a valuable tool in the ICU setting for rapid work up, diagnosis and treatment of patients. Bedside ultrassongraphy will continue to expand and utilized in improving overrall patient care and clinical ordennes.

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# **New York State Conference for Anesthesiology (NYSCARF)**

## An atypical presentation of peripartum cardiomyopathy



Brar JS, Kelleher DC, Darwich A, Gadalla F, Abramovitz S. Department of Anesthesiology, Weill Cornell Medicine, New York, NY

## Introduction:

Peripartum cardiomyopathy (PPCM) is a rare disorder of left ventricular dysfunction and heart failure with an incidence of approximately 1 in 3000 live births ith an estimated mortality of 1.3-2% [1]. PPCM can develop during the last month of pregnancy up to within 5 months post-partum, but the etiology remains unclear with viral, autoimmune, and idiopathic causes hypothesized [2]. This is a case of an atypical presentation of

A 37 year-old female G1P0 at 34 weeks and 2 days gestation with hypothyroidism and gestational diabetes presented with preterm premature rupture of membranes and breech presentation. The patient's preoperative vital signs were pulse 97 bpm, blood pressure 134/80 mmHg, and oxygen saturation 98% on room air. Spinal anesthesia for primary Cesarean section was performed with a 27gauge needle. 1.6 mL hyperbario bupivacaine 0.75%, morphine 200 mcg, and fentanyl 20 mcg. Following induction of anesthesia, the patient complained of nausea, which was assumed to be related to hypotension, and was treated with She phenylephrine. hypertensive to SBP 180s and the developed sustained bradycardia, prompting emergent Cesarean section.

# Figure 1

Following delivery, the patient's oxygen saturation and systolic blood pressure both decreased to the mid-80s. Following multiple baluses of phenylephrine, the systalic blood pressure was maintained in the 110s and the exvigen saturation improved to the low 90s. The patient remained asymptomatic and denied any chest pain or dyspriea. Intraoperative fluids included 1000 mL crystalloid, 250 mL oxytocin (0.6 unit/mL), with an estimated blood loss of 1000 mL and urine output of 500mL.

While in the recovery room, the patient developed tachycardia (120-140 bpm) with oxygen saturation in the low-80s. Although remained asymptomatic, arterial blood gas confirmed hypoxemia (paO2 44 mmHg) Computerized tomography of the chest revealed ground glass attenuation in bilateral lungs with pulmonary venous distention and interlobular septal thickening consistent with pulmonary edema without evidence of emboli (Figure 1).



Tienethoradic echocardiog em iparasternal short axis view. 2A Endi diastictio view. 2D Endisystetio view i Images diactay severely reduced fractional shortening.

Intravenous furosemide was administered and cardiology consultation was obtained. A transthoracic echocardiogram diffuse hypokinesis, severely reduced global left ventricular function, calculated ejection fraction of 25%, mild to moderate mitral regurgitation. and mild pulmonary hypertension (Figure 2). Metoprolol and enalapril treatment were initiated, and the patient was discharged home on postoperative day 5 with plans for follow-up echocardiogram in 4-5 months.

PPCM is a diagnosis of exclusion: however it should be considered in patient presenting with heart failure during the peripartum period. PPCM usually presents with orthopnea, dyspnea. pitting edema, cough, palpitations of chest pain [3]. Risk factors include advanced age, multiparity, black race, multiple gestation, obesity, pre-eclampsia, hypertension [2]. This patient did not complain of any classic symptoms of PPCM and lacked many of the described risk factors. A high index of suspicion for PPCM is essential for timely diagnosis. Approximately 50% of patients recover baseline recover ventricular function within 6 months Predictors post-partum. outcome recovery of ejection fraction at 2 months and initial left ventricular end-diastolic dimension >5.6 cm, while predictors of poor outcome include left ventricular thrombus and black race [4].

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## A Mirror Image Artifact in 3-Dimensional Transesophageal Echocardiography

Weill Cornell Medicine

Anastasia D Grivoyannis, MD, Anup Pamnani, MD, and Nikolaos J Skubas, MD, FACC, FASE, DSc Department of Anesthesiology, Weill Cornell Medicine - Weill Cornell Medical College, New York, NY

INTOGUCION:

The development of real-time acquisition and online display of three Time development of real-time acquisition and online display of three Time of the Control of the Control

We present the case of a 3D TEE artifact noted during the insertion of a pulmonary artery (PA) cathotor.

Case:

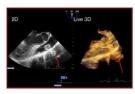
A 28-year-old man with mitral regurgitation secondary to bleaket prolapse and a control when repair, the seat orthonous healthy. Todovoro, and secondary of an attential time, the under offensive healthy. Todovoro, and excitational interest interest interest interest and excitational and attential time. In underset interest interest and excitational and a facilitation of Pailings X7-25 tally sampled metals array TEE transducer was inserted through the undersety. The transducer was connected to a Philips E33 ultrasound system with cortine 30 echocardographic speakities. As Perturdarences sheeting forces that the right internal jugular who under ultrasound guidance using the 20 episonic prote (147-75). Subsequently, and FP An attray catheter (Hospire Inc.) was inswited through the sheath and the balloon tip intitled with 1.5 in of on man stainer to all vasiculations and advancement of the PA catheter was attempted under TEE guidance.

As the PA catheter traversed the right ventricle (RV), a distinct artifact was noted distal to the RV outflow tract (Figures 1 - 3).

The artifact appeared to be a replication of the balloon-lipped PA catholor. It had a reduced signal intensity and was located immediately adjacent to the PA catholor, cutside of the RV. These characteristics bore a distinct resemblance to a 'mirror-image artifact''.

The PA cathotor was floated successfully and the balloon was deflated when the tip was properly positioned in the PA.





- Ultrasound travels in a straight line
   A structure or object (reflector) generates reflection (echo) only once
   Echoes are generated only from reflectors located within the main ultrasound beain
   The intensity of the echoes is related to the acceptance of the reflector months of the reflector of t

3D ultrasound imaging is built upon the same principles as 2D ultrasound imaging.

Discussion:
Imaging artifacts are frequently encountered in 2D echocardiography. Mirror image
artifacts are generated when the main ultrasound beam encounters a highly
reflective interface, such as an intra-cardiac structure, such as a PA catheter. The
additional distance traveled by the ultrasound will explore an additional image (a
mirror image) distal to the reflective interface. The additional image is frequently less
echopereic than the true structure and is usually located in the direction of the main
ultrasound beam.

The attlact (the minor image of the PA calheler) was probably generated by the highly reflective, saline-filled balloon. The fravel of the ultrasound beam between the proximal and oldstal sizes of the balloon generated a minor PA catherly balloon which exhibited feetures bytical of artifact, i) it was not inside a cardiac structure, i) it was less achogeneric and ii) it mirrored the shape and motion of a real structure. These feetures were apparent in 2D, as well as, 3D TEE.

In general, 3D ultrasonographic imaging is comprised of 2D imaging data. In "five" mode (as in our case), or ECG-friggered multi-beat acquisition, a pyramidal 3D volume set is "brill" upon ultrasound refections that obey 2D utrasoural imaging principles. These are summarized in Table 1. Consequently, 3D imaging is succeptible to pitfalls shrailar to those encounted in convenience in Convenience and Convenience

There are multiple reports of the use of five 3D echocardiographic imaging during catheter-based interventions in the catheterization lab. The description of this artifact highlights the piffalls that may confound echocardiography guided procedures.

#### References:

- References:

  1. Supra; J. Shornan SC, Salgo IS et al. Line 3-bit increasonal "remoscophagoal Extraordiography: Inhal Experience Using the Fully-Sampled Maria Arriy Probe J Am Coll Extraordiography: Inhal Experience Using the Fully-Sampled Maria Arriy Probe J Am Coll Extraordiography: Inhal Experience Using Three dimensional embourcegory: The benefits of the studies of creason. J Am Coll Extraordiography: Sold Sample, 1 Sol

## **Challenges of Fluid Resuscitation During** Cytoreductive Surgery (CRS) and Hyperthermic Intraperitoneal Chemotherapy (HIPEC)



## Daniel Pak M.D.,\* Jacob Jackson M.D.,\* Minda Patt M.D.

Department of Anesthesiology, NewYork-Presbyterian Hospital/Weill Cornell Medicine, New York, NY

\*Authors contributed equally to this work

### Introduction:

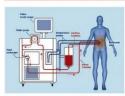
CRS in conjunction with HIPEC is an

Factors complicating intraoperative fluid

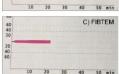
 Long duration procedure (8-10+ hours) Large exposure of the peritoneal cavity Drainage of ascites fluid
Extensive debulking
Increased intra-abdominal pressure
Hyperdynamic state of HIPEC phase

#### Patient History:

A 59-year-old, 75 kg male with primary peritoneal mesothelioma presented for scheduled CRS and HIPEC. His diseas course was complicated by persistent chylothorax requiring a left-sided chest tube, significant ascites, and malnutrition for which he was receiving total parenteral nutrition (TPN). He had no other







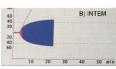




Table 1. Fluid balance. The net fluid balance was 11.75 L. The patient weighed approximately 1kg over dry weight postoperatively.

Table 1. Fluid t	alance
Fluid Intake (cc)	
LR	18000
Albumin 5%	1500
pRBC	1750
FFP	400
Cryoprecipitate	100
Net Intake	21.75 Liters
Fluid Output (oc)	
Urine Output	2500
Ascites	5000
EBL	1500
Chest Tube	500

Albumin 5%	1500
pRBC	1750
FFP	400
Cryoprecipitate	100
Net Intake	21.75 Liters
Fluid Output (oc)	
Urine Output	2500
Ascites	5000
EBL	1500
Chest Tube	500
NGT	500
Net Output	10.00 Liters

# Discussion:

#### CRS

Insensible fluid losses are estimated to be 12 mL/kg/hr, in contrast to 6-8 mL/kg/hr for other major abdominal surgeries.

 Systematically recording fluid outputs -oysientatically recording fluid outputs, following trends in fluid status monitors, and checking point-of-care tests is essential to achieve normovolemia.

+HIPEC involves perfusion of a chemotherapy solution at 42-43° C into the abdominal cavity, increasing intra-abdominal pressure. (Fig 1)

 Heat stress from the chemotherapy decreases systemic vascular resistance and increases heart rate, creating a hyperdynamic state.<sup>2</sup> Without adequate intravascular volume, patients are at high risk for poor perfusion during this period.

## Conclusion:

The physiologic imbalances incurred by patients undergoing CRS with HIPEC are multifactorial, and achieving adequate fluid resuscitation requires knowledge of the fluid demands and metabolic derangements specific to this surgery.

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Schmidt C, Creutzenberg M, Piso P, Hobbhahn Bucher M. Peri-operative anaesthetic management cytoreductive surgery with hyperthermic intraperitons chemotherapy. Anaesthesia. 2008;63(4):389-395.

## Case Details:

Post-induction right radial arterial line
•Right internal jugular double lumen Cordis and peripheral IVs

## Monitoring Techniques

·Pulse pressure variation (PPV) from arterial line

\*Pulse pressure variation (PPV) from arterial line

\*Central venous pressure (CVP) from central line

\*Non-invasive cardiac output monitoring (NICOM)

\*Urine output from foley catheter

\*Point-of-care blood gas, electrolyte and metabolite analysis using epoo® Blood Analysis System

\*Coagulation studies with ROTEM thromboelastometry (Fig 2)

·Intravenous fentanyl, propofol, and rocuronium Intubation under direct laryngoscopy

Maintenance
-MAPS maintained between 60-80 mm Hg with IV fluids, blood products, and vasopressor therapy (Table 1)
-Total surgical time: 14 hours, 14 minutes

Postoperative Care

Transported to the ICU intubated. He was extubated postoperative day (POD) 3 and discharged home POD 40 with outpatient follow-up

## **Anticoagulation Management for Subdural** Hematoma Evacuation in a Patient with a Left **Ventricular Assist Device (LVAD)**



Daniel J. Pak, M.D. and Jon D. Samuels, M.D.

#### Introduction:

- Anticoagulation is necessary to avoid Anticoagulation is necessary to avoid thrombotic events in patients with LVAD devices. This risk is low with HeartMate II LVAD and occur when INR < 1.5 while risk of hemorrhage is greatest when INR >2.5. Following LVAD implantation, suggested anticoagulation includes warrafarin (goal INR 2.0-3.0) and aspirin 325mg per day 11.
- A 52 year-old woman presented for an emergent left craniotomy for subdural hematoma evacuation following new bi-frontal headaches and right arm
- Past medical history notable for non ischemic cardiomyopathy (LVEF 10%) status-post bi-ventricular AICD placeme and LVAD implantation in 2014 as a bridge to heart transplantation. She also bridge to heart transplantation. She also had a history of pulmonary hypertension hypertension, hyperlipidemia, and adult onset diabetes mellitus. She was enticoagulated with warfarin, and her INR
- Non-contrast head CT demonstrated isodense left subdural hematoma with rightward midline shift, compression of the lateral ventricle, entrapment of the right lateral ventricle and downward left uncal herniation (Figure 1).
- Per institutional protocol, a cardiologist on the heart failure team was present in the operating room for the duration of the surgical procedure.



Figure 2. Post-surgical non-contrast head CT: following left frontotemporal craniotomy.

- Standard ASA-mandated monitors were placed and patient's AICD was turned off with a magnet.
- Pre-induction femoral arterial line and femoral vein CVC were inserted for hemodynamic monitoring and frequent arterial blood gases.
- Anesthetic induction was performed with intravenous fentanyl, propofol, phenylephrine, and rocuronium followed by intubation under direct laryngoscopy.
- Mean arterial pressures were maintained at 60-80 mmHg with a low dose infusion of phenylephrine.
- After discussion with the heart failure cardiologist and neurosurgeon, it was decided to reverse the patient's anticoagulation. Two units of FFP were given intraoperatively with subsequent INR of 1.2.
- Following surgery, the patient was transported to the neurosurgical ICU intubated due to salvos of intraoperative ventricular tachycardia to the 160's.
- The patient was extubated on postoperative day 1, and discharged to a rehab facility on POD 19 without new neurologic deficit

#### Discussion:

- There is no consensus of target INR in the setting of intracranial hemorrhage, but life-threatening bleeding necessitates cessation of anticoagulants and reversal with FFP/PCC, platelet transfusions [1].
- When to restart anticoagulation depends on the severity and duration of bleeding. IV anticoagulation with short half-life (i.e. UFH, DTI) is recommended so that it can be reversed if re-bleeding occurs. Warfarin can be restarted once the patient is thought to be stable on parenteral agent [2,3].
- Device thrombosis is difficult to detect; XR, d-dimer are not useful. Look for evidence of RBC hemolysis (LDH >2.5x) as well as echo guided ramp studies [1].

#### Conclusion:

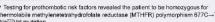
When contemplating reversal of therapeutic anticoagulation of a LVAD patient suffering a CNS hemorrhage, the perioperative team must balance the risk of systemic intravascular thrombosis from reversal with conservative therapy and possible neurologic sequelae. Resuming anticoagulation should be postponed until risk of further bleeding diminishes, in this case one month following surgery.

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# Weill Cornell

## Catastrophic Arterial Thrombosis in an Infant **Undergoing Neuroblastoma Resection**





DISCUSSION:

\* Testing for prothombotic risk factors revealed the patient to be homozygous for thermolabile methylenetetrahydrofolate reductase (MTHFR) polymorphism 677C—T Ala™24 mutation

\*\*MTHFR gene mutation creates an enzyme with reduced activity for homocysteine metabolism, which has been linked to the development of venous and arterial thrombococlusive events

\*\*Arterial thrombotic events in the pediatric population are rare occurrences and incidence is not widely known

\*\*The presence of the homozygous genotype is important in the context of general aneesthesia.

amesthesia

The use of nitrous oxide is associated with catastrophic neurological outcomes and even death, as nitrous oxide inhibits vitamin B12 with an effect possibly lasting for days due to its irraversible chemical nature

Triggering events, especially in the perioperative period, are multifactorial and include surgical stress, oxidative stress, immobilization and enhanced infiammatory response, all of which can contribute to an increased likelihood of thrombo-occlusive events

Folis Asid



## Conclusions:

- Our patient had undetected homozygous MTHFR deficiency
  Atterial thrombosis in children is a rare phenomenon and when present should be
  investigated as an underlying disorder can befound in 95% of cases
  Routine screening is not justified as prevalence is low
  To prevent future thrombosmbolic events in patients with homozygous MTHFR gene
- mutation, patients should be appropriately anticoagulated

References: redictate deficiency but if I velorit 1,6 2002; 1921-59; 495-75.

2. Au EM, ct. at MITTER CRITT gene mater or as in its depth of extended stroke; a hospital passod statis; Eur J Nouro. Ust 2005; 12(1): 40-4.

3. Catala N, et al. Incidence of and tals tactors for childhood thrombosis; a single-senter experience in Artistar, Turkey Pediatr Hematic Oncord. Ja 2009; 2001; 11:20.

## Rohan K. Panchamia, M.D.1, Anahita Dabo-Trubelja, M.D.2

## Introduction:

- Introduction:

  Neuroblastoma is an embryonal malignancy of the sympathetic nervous system, arising from neural crest cells which normally differentiate into cells of the adrenal medulla responsible for catecholamine synthesis 50% of cases originate from unlateral or bilateral adrenals, however, neuroblastoma may present anywhere where neural crest cells are found

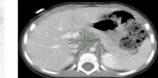
  Patients may present with abdominal pain, weight loss, nausea/vomiting, diarrhea, bone pain, and/or pelpable mass.

  Favorable prognostic factors include favorable histology, non-amplified N-myc gene, patient's age less than 2, and stage 1, 2, or 43 disease

  Physiological characteristics an anesthesiologist must consider include: 1, ariway displacement or compression from neuroblastoma tumors in the neck or posterior mediastinum; 2, vascular compression of large vessels, 3, gastric outlet obstruction, 4, tumors surrounding large vessels; 5, tumors secreting catecholamines; and 6, effects from chemotherapy agents



http://www.nant.org/pix/inss.jpg



CT abd/pelvis: 3.8 x 2.6 cm partially calcified heterogeneous paravertebral mass, encases cellac and superior mesenteric aderies and left renal vein, and partially encases the renal arteries

#### Case Details:

23I-MIBG scan

- 14 month old female with a history of stage 3 neuroblastoma, no other comorbidities, presented to our institution for a left thoracoabdominal exploration and
- -As the surgeon made preparations to close, the patient's SBP's almost immediately decreased from 90's (general trend) to 60's mmHg, accompanied by an elevation in
- decreased from 90's (géneral trend) to 60's mmHg, accompanied by an elevation in heart rate

   Several 20 colkg boluses of isotonic crystalloid fluid were administered with no change in hemodynamics; a dopamine infusion was started for refractory hypotension. Surgical exploration revealed the small bowel to be diffusely dusky and isohemic; the surgeon identified a thrombus in the superior mesenteric artery (SMA)

   An ABG returned with a pH 7.047 in the setting of profound lactate acidosis with a lactate of 10.4 mmol/L.

   Vascular surgery was consulted for an SMA embolectomy and heparin 250 units IV was given.
- Vascular surgery was consulted for an SMM-embodecurity and repetit for some in a very was given. As the case progressed, dopamine was up-titrated to maintain MAPs > 40 mmHg. The patient's lactate continued to rise in spite of reperfusion to the SMM, leading to significant vasoplegia and requiring the addition of an epimephrine influsion. A Whipple procedure was performed and the patient was closed, left in discontinuity. She was transported to the PICU intribated, on dopamine and epimephrine influsions.

# **Association of University Anesthesiologists (AUA)**



## Length of Stay and Readmission for Cardiac Surgery

☐ Weill Cornell Medical Center

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Department of Anesthesiology, New York-Presbyterian Hospital<sup>3</sup> Weill Cornell Medical College, New York, NY, <sup>3</sup>Department of Healthcare Policy and Research, Division of Biostatistics and Epidemiology, Weill Cornell Medical College, New York, NY, <sup>4</sup>Cornell University, Ithaca, NY



## Background:

- · Variability of length of stay (LOS) and associated factors have not been fully explored in an
- uncomplicated cardiac surgery population.

  We sought to understand determinants of increased length of stay (LOS) and its variability after uncomplicated cardiac surgery.

#### Methods

- State Inpatient Databases, Healthcare Cost and Utilization Project, Agency for Healthcare Research and Quality
- Population: Patients undergoing six mutually exclusive groups of invasive cardiac surgery from
- Population: Patients undergoing six mutually exclusive groups of invasive cardiac surgery 2007-2011 in California, Florida and New York

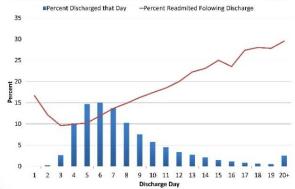
  ➤ Isolated aortic valve surgeries [AVR]; mitral valve surgeries [MVR]; AVR and MVR [AVR/MVR]; AVR with coronary artery bypass grafting (CABG) [AVR/CABG]; MVR with CABG [MVR/CABG] MVR with CABG [MVR/CABG].

  LOS and comorbidities were identified
- . Multivariable regression analysis (MVA) utilized to determine factors associated with LOS
- greater than the median

   Utilized unique identifiers to determine 30-day readmission rates
- Records with an indication of postoperative complications or death were excluded

- 139,175 discharges met study inclusion criteria: 68,2% CABG, 13,3% AVR, 7,4% MVR, 1,3%
- AVR/MVR, 7.2% AVR/CABG, 2.1% MVR/CABG, and 0.4% AVR/MVR/CABG
  Overall median age was 66, 70.5% were male, 71.1% were white, 52.2% Medicare, and median modified Deyo Index<sup>2</sup> was zero
- Median LOS for the cohort was 7 days (Q1: 5, Q3: 10)
- MVA predictors of prolonged LOS included surgical type [AVR/MVR/CABG (OR 2.59, 2.15-3.12) and AVR/MVR (OR 1.80, 1.63-2.00), when compared to CABG]; female gender (OR 1.33, 1.29-1.36); age ≥75 (OR 1.55, 1.45-1.65), and payer [Medicaid (OR 1.23, 1.18-1.27), Medicaid (OR 1.23, 1.1
- 2.14, 2.04-2.24), when compared to private insurance (OR 1.29, 1.10-127), included (OR 2.14, 1.94-2.24), when compared to private insurance (OR 1.19, 1.13-1.26), and renal disease (OR 1.84, 1.74-1.94) also predicted increased LOS
- AVR (OR 0.62, 0.60-0.65) and MVR (OR 0.77, 0.74-0.81) had a lower OR of prolonged LOS Despile uncomplicated postoperative courses LOS had significant variability, and the overall rate of 30-day readmissions was 14.8%
- The percentage of patients discharged on each postoperative day shows wide variation with a peak at 6 days (Figure 1). 30-day readmission rates were lowest for discharges on days 3-5

#### Figure 1. Readmission rates and percent discharged by length of stay<sup>†</sup>



#### Discussion:

- LOS following uncomplicated cardiac surgeries is associated with various factors including age, gender, payer, co-morbidities, and extent of procedure performed
- . It is reasonable to take these factors into account when developing approaches to help
- Further research is necessary to assess factors in the minimally invasive cardiac population, and to validate these findings

#### References:

## **CLINICAL RESEARCH STUDIES**

1. THE INFLUENCE OF ANESTHETIC DEPTH ON PATIENT OUTCOME AFTER MAJOR SURGERY (THE BALANCED ANESTHESIA STUDY)

**PI:** *Kane O. Pryor, MD* Protocol #: 1405015113

A prospective, randomized clinical trial of 'deep' versus 'light' anesthesia to examine whether anesthetic depth alters perioperative outcome.

2. RESTRICTIVE VERSUS LIBERAL FLUID THERAPY IN MAJOR ABDOMINAL SURGERY (RELIEF)

PI: Kane O. Pryor, MD Protocol #: 1405015112

A multicenter, randomized clinical trial assigning subjects to "Restrictive" or "Liberal" IV fluid regimens. Fluid is regulated from the start of surgery until 24 hours post-op, after which disability-free survival is tracked for one year

3. PREVENTION OF DELIRIUM AND COMPLICATIONS AFTER SURGICAL TREATMENT (PODCAST)

PI: Kane O. Pryor, MD Protocol #: 1209013008

This is a multi-institutional, randomized control study that tests whether a low dose of ketamine can prevent post-operative pain and delirium.

4. PROSPECTIVE, DOUBLE BLIND, PLACEBO CONTROL STUDY OF ACETAMINOPHEN IV ON HOSPITAL LENGTH OF STAY IN MORBIDLY OBESE INDIVIDUALS UNDERGOING ELECTIVE LAPAROSCOPIC SLEEVE GASTRECTOMY

PI: Peter A. Goldstein, MD Protocol #: 1503016056

Examining the efficacy of acetaminophen-iv on reducing hospital stay and associated hospital costs in morbidly obese individuals undergoing elective laparoscopic sleeve gastrectomy.

5. ROTEM SIGMA PERFORMANCE EVALUATION-METHOD COMPARISON WITH PREDICATE DEVICE AND REFERENCE INTERVALS

PI: Hugh C. Hemmings Jr., MD, PhD, FRCA

Protocol #: 1406015207

The aim of this study is the performance evaluation of the new ROTEM sigma coagulation analyzer in comparison to the current ROTEM delta thromboelastometry system.

6. TRIAL OF RIASTAP VS CRYOPRECITPITATE TO LOWER OPERATIVE TRANSFUSIONS

PI: Nikolaos J. Skubas, MD, DSc

Protocol #: 1408015402

This pilot study aligns with the strategic plan to reduce allogeneic blood product use and decrease unnecessary laboratory costs, and to improve the appropriate use of transfusion guidelines and reduce unnecessary RBC transfusions. Further, this study will help to answer whether RiaSTAP is a more effective product to treat bleeding than cryoprecipitate. This study involves the use of a safer therapeutic, fibrinogen concentrate, to improve patient care and patient safety. This product does not require the time-intensive process of thawing; therefore, delays in patient care can be avoided by having the product readily available in the OR.

7. USE OF ROTATIONAL THROMBOELASTOMETRY (ROTEM) TO CHARACTERIZE COAGULATION ABNORMALITIES IN BURN PATIENTS: A PROSPECTIVE PILOT STUDY

PI: Christine Lennon, MD Protocol #: 1404014977

Specific aims of the proposed pilot study are to use bedside blood analysis with ROTEM in severe burn patients to provide preliminary information on the nature of coagulation abnormalities and compare subject ROTEM coagulation profiles within 24 hours of burn injury (day 1) and on days 2, 3, 5, 7, 14 and 21 after burn injury.

8. PROMISE: PROSPECTIVE, RANDOMIZED STUDY OF MULTICOLUMN IMPLANTABLE LEAD STIMULATION FOR PREDOMINANT LOW BACK PAIN

PI: Neel Mehta, MD Protocol #: 1209013020

A prospective, multi-center, randomized, open-label, parallel-group design to compare Medtronic neurostimulation systems to optimal medical management in treating patients with chronic pain.

9. A PHASE III CASE SERIES CLINICAL STUDY OF THE REVERSAL OF THE ANTICOAGULANT EFFECTS OF DABIGATRAN BY INTRAVENOUS ADMINISTRATION OF 5.0G IDARUCIZUMAN (BI 655075) IN PATIENTS TREATED WITH DABIGATRAN ETEXILATE WHO HAVE UNCONTROLLED BLEEDING OR REQUIRE EMERGENCY SURGERY OR PROCEDURES. RE-VERSE-AD (A STUDY OF THE RE-VERSAL EFFECTS OF IDARUCIZUMAB ON ACTIVE DABIGATRAN) TRIAL

PI: James A. Osorio, MD Protocol #: 1403014899

Open-label, multicenter, multinational study, with a single treatment arm, idarucizumab. Primary objective is to demonstrate reversal of the anticoagulant in patients who have been treated with dabigatran etexilate who either have uncontrolled bleeding requiring medical intervention, or who need emergency surgery or a procedure for a condition other than bleeding where therapeutic anticoagulation might increase the risk of intra- and post-operative bleeding.

10. THE UTILIZATION OF MOBILE PHONE TECHNOLOGY TO QUANTITATIVELY ASSESS FUNCTIONAL OUTCOMES OF CHRONIC PAIN PATIENTS – A FEASIBILITY STUDY

PI: Lisa R. Witkin, MD Protocol #: 1409015460

Assessing the feasibility and value of using smart phone applications to collect objective, quantitative functional data from patients under active treatment for chronic pain.

11. BRAIN DYNAMICS IN DIFFERENT STAGES OF AROUSAL AND ANESTHESIA

PI: Kane O. Pryor, MD Protocol #: 1106011763

There are two fundamentally different ways in which the level of consciousness can be temporarily altered: sleep and general anesthesia. The main aim of this proposal is to compare and contrast the changes in brain dynamics that characterize transitions to and from sleep and anesthesia. Among the questions that we will focus our analysis on are the following: 1) Are changes in brain dynamics abrupt or gradual? 2) Can changes in the level of consciousness be understood in terms of changes to the topology of functional brain networks (see statistics section below)? 3) Is there hysteresis in the transitions to and from anesthesia and sleep?

## **SURVEY STUDIES**

 A DESCRIPTIVE STUDY OF PEDIATRIC PAIN MANAGEMENT RESOURCES IN NEW YORK STATE AMONG CHILDREN'S AND MIXED-PRACTICE HOSPITALS IN LOWER AND HIGHER SOCIOECONOMIC AREAS PI: Franklin Chiao, MD

Protocol #: 1410015621

This is a survey study to examine a new medical issue related to pediatric pain management. This study will address how many hospitals have a pediatric pain management service in New York State, and the differences in the presence of pain management services within the pediatric population, between mixed practice and children's hospitals, and between hospitals in lower and higher socioeconomic areas.

2. GLOBAL HEALTH INITIATIVES IN ANESTHESIOLOGY RESIDENCY PROGRAMS

PI: Gunisha Kaur, MD

The purpose of this study is to assess current global health education and international electives in anesthesiology residency programs via survey method.

A SURVEY OF INTRAVENOUS (IV) REMIFENTANIL USE FOR LABOR ANALGESIA AT ACADEMIC CENTERS IN THE UNITED STATES (US)

PI: Jaime Aaronson, MD

This is a survey being distributed to directors of obstetrical anesthesiology across the United States regarding the use of IV remifentanil for labor analgesia at academic centers.

## **REGISTRY STUDIES**

1. RELIEF: A GLOBAL REGISTRY TO EVALUATE LONG-TERM EFFECTIVENESS OF NEUROSTIMULATION THERAPY FOR PAIN

PI: Shakil Ahmed, MBBS Protocol #: 1309014281

A prospective, multi-center, global registry of Boston Scientific Corporation neurostimulation systems for interventions and their frequency and the treatment of pain.

2. ANESTHESIOLOGY EDUCATION RESEARCH REGISTRY

**PI:** Kane O. Pryor, MD Protocol #: 1403014915

To design and establish a retrospective and prospective data registry of anesthesiology residents' performance on a variety of examination metrics. All data will be deidentified. The aim of this registry is to assess the utility of various metrics in predicting resident performance outcomes. These metrics will include but not be limited to: clinical rotation performance assessments, United States Medical Licensing Examination (USMLE) scores, and Anesthesia Knowledge Test (AKT) scores. Performance outcomes will include but not be limited to scores on the In-Training Examination (ITE) and American Board of Anesthesiology (ABA) board examination.

## 3. CHRONIC PAIN REGISTRY

PI: Lisa R. Witkin, MD Protocol #: 90401349

The purpose of this study is to establish a retrospective chronic pain patient data registry for patients with chronic pain, and to use the patient data registry and Practice Based Evidence (PBE), and Clinical Practice Improvement (CPI) methodology to identify specific pain management interventions that are most effective for specific patient types with chronic pain.

3. PEDIATRIC CRANIOFACIAL SURGERY PERIOPERATIVE REGISTRY (PCSPR)

**PI:** Franklin Chiao, MD Protocol #: 1504016130

This is a multi-center registry to capture information relating to the perioperative course and management of children undergoing craniofacial reconstructive surgery. The aggregate multi-institutional data set will be used for benchmarking for national quality improvement efforts

## RETROSPECTIVE STUDIES

1. A RETROSPECTIVE ANALYSIS TO DETERMINE THE ASSOCIATION OF INTRAOPERATIVE FIBTEM VALUES WITH POSTOPERATIVE BLEEDING, COAGULATION LABORATORY VALUES, AND BLOOD PRODUCT ADMINISTRATION IN CARDIAC SURGICAL PATIENTS

PI: Natalia Ivascu, MD Protocol #: 1312014647

This study is a retrospective observational analysis to demonstrate a potential relationship between thromboelastogram results and blood product requirement, postoperative bleeding frequency thus potentially paving the way for future prospective studies and guiding future endeavors for transfusion algorithm development.

 EARLY VS LATE STROKE AFTER CARDIAC SURGERY: VARIABILITY IN LOCATION AND OUTCOME PI: Natalia Ivascu, MD

Protocol #: 1504016129

This is a retrospective chart review looking at cardiac surgery patients and the association between timing of stroke onset and anatomic location of CVA.

3. A PROSPECTIVE, RANDOMIZED, DOUBLE-BLINDED STUDY TO EVALUATE THE EFFICACY OF INTRAVENOUS DEXAMETHASONE FOR NAUSEA PROPHYLAXIS PRIOR TO DURAMORPH AND BUPIVACAINE SPINAL ANESTHESIA FOR SCHEDULED CESAREAN SECTION

PI: Klaus Kjaer, MD, MBBA Protocol #: 1207012632

This is a study to analyze if dexamethasone is given intravenously before duramorph in a spinal anesthetic, would it reduce the incidence of nausea and vomiting. Patients who present for scheduled (non-emergent) cesarean section will be given either intravenous dexamethasone or placebo prior to receiving a duramorph containing spinal anesthetic. We will then compare the incidence of nausea and vomiting and the use of rescue anti-nausea medications in both groups.

4. RETROSPECTIVE ANALYSIS ON THE EFFECT OF INTRAOPERATIVE DEXMEDETOMIDINE ADMINISTRATION PATTERN ON INCIDENCE OF POST-OPERATIVE COGNITIVE DYSFUNCTION PI: Cynthia A. Lien, MD

Protocol #: 1510016708

This project primarily seeks to determine whether dexmedetomidine administration during elective supratentorial craniotomies impacts the incidence of post-operative delirium, as compared to no administration of dexmedetomidine. Secondarily, we will measure 1. Whether the pattern of dexmedetomidine administration impacts post-operative delirium rates within 72 hours of surgery and 2. Whether intraoperative dexmedetomidine use was associated with other indicators of morbidity including the length of ICU stay and hemodynamic/respiratory status

 RETROSPECTIVE ANALYSIS ON THE IMPACT OF QUANTITATIVE MONITORING ON DOSING AND ANTAGONISM OF RESIDUAL NEUROMUSCULAR BLOCK

PI: Cynthia A. Lien, MD Protocol #: 14120165765

This is a retrospective study to determine if use of the TOF-Watch (a monitor of depth of paralysis that quantifies the response) (1) changes clinicians' dosing of neuromuscular blocking agents, (2) increases the time interval between dosing of medications to reverse muscle paralysis and emergence from anesthesia, or (3) guarantees that patient muscle strength is adequately recovered before the patient is discharged to the post-anesthesia recovery unit (PACU).

 REMIFENTANIL-INDUCED HYPERALGESIA AND ADJUNCTIVE PREVENTION: A RETROSPECTIVE ANALYSIS

PI: Kane O. Pryor, MD Protocol #: 1106011726

A retrospective analysis to gain a better understanding of the post-operative pain requirements of patients who received Remifentanil for neurological surgery.

## **COMPLETED STUDIES NOW IN DATA ANALYSIS**

1. THE EFFECT OF INTRAVENOUS ANESTHETICS ON FEAR LEARNING AND MEMORY PI: Kane O. Pryor, MD

Protocol #: 0710009434

130 healthy adult volunteers were given a very low dose of an anesthetic drug intravenously. While they were receiving the drug, subjects performed a series of memory tests and a fear conditioning experiment, which are set up like a very simple computer game. To create the fear response, subjects occasionally received a mildly uncomfortable shock to their arm. The subject is able to determine the highest level of shock that they will receive. This study was conducted to learn exactly how the drugs affect the way people process fear and emotion. This knowledge might one day be used in the treatment of psychiatric disorders.

2. NEUROIMAGING THE EFFECT OF INTRAVENOUS ANESTHETICS ON AMYGDALA-DEPENDENT MEMORY PROCESSES

PI: Kane O. Pryor, MD Protocol #: 0710008933

An fMRI study to establish whether intravenous anesthetics cause a common change in amygdala and hippocampal function during memory processes, or whether the effects on these brain structures are dissociable.

3. RATE OF GENERAL ANESTHESIA USE FOR CESAREAN DELIVERY AMONG ANESTHESIOLOGISTS WITH AND WITHOUT FELLOWSHIP TRAINING IN OBSTETRIC ANESTHESIA

**PI:** Klaus Kjaer, MD, MBBA Protocol #: 1410015567

This is a retrospective chart review to look at all cesarean cases between 2009-14, restricted to those occurring during non-routine operating hours, to consider the problem that general anesthesia presents a higher risk for morbidity/mortality compared to neuraxial anesthesia during cesarean section deliveries (10-fold higher risk for pregnant patients compared to non-pregnant patients), but it is nevertheless sometimes used, perhaps for poor reasons. The hypothesis is that ob-fellowship trained anesthesiologists are better trained to make this decision and that non-fellowship trained attendings over-use general anesthesia.

## **CENTER FOR PERIOPERATIVE OUTCOMES STUDIES**

#### 1. ANESTHESIA QUALITY INSTITUTE

PI: Peter M. Fleischut, MD Protocol #: 1208012821

The Anesthesia Quality Institute (AQI), established by the American Society of Anesthesiologists, is home of the National Anesthesia Clinical Outcomes Registry (NACOR).

NACOR is a registry of anesthesiology data that includes billing/administrative data, quality/perioperative events data, anesthesia information management system (AIMS) data, and electronic medical record (EMR) data. The Department of Anesthesiology at Weill Cornell Medical College (WCMC) Participated in this registry and produced two peer-reviewed publications utilizing these data.

## 2. DATA REGISTRY

PI: Peter M. Fleischut, MD Protocol #: 1208012815

To establish a retrospective and prospective pre-, intra-, and postoperative anesthesiology data registry for patients who have received anesthesia services at New York-Presbyterian Hospital/Weill Cornell Medical College since 2001.

## OUTCOMES RESEARCH UTILIZING THE HCUP STATE INPATIENT SAMPLE DATABASE

PI: Peter M. Fleischut, MD Protocol #: 1308014181

Outcomes research studies are performed using existing Health Cost and Utilization Project (HCUP) State Inpatient Sample Databases, an existing publicly available de-identified database. This Protocol has resulted in the creation of collaborations with Anesthesiology, Thoracic, and General Surgery resulting in three publications in top-tier Thoracic surgery journals and three additional studies in the submission phase.

**4.** MULTICENTER PERIOPERATIVE OUTCOMES GROUP (MPOG) AND ANESTHESIOLOGY PERFORMANCE IMPROVEMENT AND REPORTING EXCHANGE (ASPIRE) PERFORMANCE SITE **PI:** Hugh C. Hemmings, MD, PhD, FRCA

Protocol #: 1208012817

The Multicenter Perioperative Outcomes Group (MPOG) is a consortium of anesthesiology departments of academic medical centers with electronic perioperative information systems. The purpose of MPOG is to allow multi-institutional collaboration for the purpose of accelerating outcomes research in perioperative medicine.

## **UPCOMING STUDIES...**

 A RANDOMIZED CONTROLLED TRIAL OF REGIONAL VERSUS GENERAL ANESTHESIA FOR PROMOTING INDEPENDENCE AFTER HIP FRACTURE (REGAIN)

PI: Tiffany Tedore, MD Protocol #: 1511016763

Randomized, multicenter, active comparator study of two alternative standard care approaches to anesthesia (spinal versus regional) for hip fracture on recovery of ambulation at approximately 60 days.

2. VALIDITY OF PRISM-5-OP INTERVIEWS FOR USE IN STUDIES OF PRESCRIPTION OPIOIDS PI: Neel Mehta, MD

Protocol #: 1410015582

Determining the validity and reliability of the Psychiatric Research Interview for Substance and Mental Disorders, DSM-5 version (PRISM-5), and the feasibility of using PRISM-5 to get a better understanding of patients' experiences with opioid pain medications.

3. TWO DOSE NEURAXIAL MORPHINE FOR PREVENTION OF POSTDURAL PUNCTURE HEADACHE (PDPH)

PI: Jaime Aaronson, MD Protocol #: 1509016603

This study aims to determine the efficacy of two doses of neuraxial (either epidural or intrathecal) preservative-free morphine (PFM) to prevent headache after ADP in parturients.

**4.** RETROSPECTIVE IDENTIFICATION OF PREDICTORS OF POSTOPERATIVE RESPIRATORY OUTCOMES IN A LARGE ACADEMIC INSTITUTION, 2010-2015

PI: Peter M. Fleischut, MD Protocol #: 1512016802

Building upon previous research efforts, the proposed retrospective case-control study is designed to identify demographic characteristics, procedure types, anesthesia medications, and PACU medications associated with post-operative respiratory complications.

5. SPINAL CHORD STIMULATION EDUCATION DURING PAIN FELLOWSHIP: UNMET TRAINING NEEDS AND FACTORS THAT IMPACT FUTURE PRACTICE

PI: Neel Mehta, MD Protocol #: 1507016431

Examining how current ACGME accredited pain fellowships are educating their fellows about spinal cord stimulators (SCS) in order to identify unmet training needs for teaching about SCS, assess SCS training practices in current and past fellows, and measure opinions about the role of industries in SCS training.

# 6. ANESTHESIA RELATED FACTORS AFFECTING PARENTAL SATISFACTION IN PEDIATRIC AMBULATORY SURGERY

PI: Aarti Sharma, M, MBBS Protocol #: 1512016819

This is a survey questionnaire to assess parent's perception of anesthesia care, as young children may not be able to effectively express their concerns and parent expectations may be variable from one institution to another.

## 7. EPIDEMIOLOGY AND IMPACT OF MEDICATION ERRORS IN THE PERIOPERATIVE SETTING

**PI:** Zachary A. Turnbull, MD Protocol #: 1507016373

Perioperative medication errors occur not infrequently, and may result in meaningful incremental healthcare resource consumption and patient harm. This study is looking to investigate the anesthesia medication error rates and consequences at large academic hospitals, where providers-in-training are concentrated.

8. MYBEHAVIOR CBP: MOBILE PERSUASION BY ADAPTING TO USER BEHAVIOR AND PREFERENCES FOR CHRONIC PAIN MANAGEMENT

PI: Lisa R. Witkin, MD Protocol #: 1511016768

Investigating the effectiveness of a mobile phone application, MyBehavior, in promoting exercise and activity for people living with and managing chronic back pain.

9. EVALUATION OF A NEW MOBILE TECHNOLOGY TO ASSESS POST-OPERATIVE PAIN

PI: Peter M. Fleischut, MD Protocol #: 1405015155

A preliminary pilot of a real-time innovative mobile application has been developed and added to current post-surgical pain management processes in a single PACU location since January 2014. This system does not affect the current standard of care, but instead is integrated seamlessly into current care. The system incorporates a real-time alert notification to the acute pain service providers when a patient has an escalating postsurgical pain score, allowing these providers to respond more quickly to a patient in need of immediate attention. We hypothesize that implementation of this innovative technology will reduce pain scores of >7 for post-surgical patients. To test this hypothesis we intend to conduct an analysis of pre-/post intervention data. Additionally, we intend to analyze multiple time points including, time to acknowledgement, time to treat the patient, and the time a patient is in severe pain.

