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<td>e29 2012 ACCF/AATS/SCAI/STS expert consensus document on transcatheter aortic valve replacement: Developed in collaboration with the American Heart Association, American Society of Echocardiography, European Association for Cardio-Thoracic Surgery, Heart Failure Society of America, Mended Hearts, Society of Cardiovascular Anesthesiologists, Society of Cardiovascular Computed Tomography, and Society for Cardiovascular Magnetic Resonance</td>
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Expert Review

538 Implications and management of anemia in cardiac surgery: Current state of knowledge

Gabriel Loor, MD, Colleen G. Koch, MD, MS, MBA, Joseph F. Sabik III, MD, Liang Li, PhD, and Eugene H. Blackstone, MD, Cleveland, Ohio

Interventions that prevent or correct anemia, such as pharmacologic agents or red blood cell transfusion, are associated with increased postoperative morbidity and mortality. We review the counterbalancing adverse outcomes associated with tolerating perioperative anemia to begin to understand the balance of risks between treating and not treating anemia.

Congenital Heart Disease (CHD)

547 Fast-track extubation after modified Fontan procedure

Masato Mutsuga, MD, PhD, Luis G. Quiñonez, MD, Andrew S. Mackie, MD, SM, Colleen M. Norris, RN, PhD, B. Elaine Marchak, MD, Jennifer M. Rutledge, MD, Ivan M. Rebejka, MD, and David B. Ross, MD, Edmonton, Alberta, Canada

Fast-track extubation in the operating room after a modified Fontan operation is feasible. It is associated with lower CVP, lower positive fluid balance, and decreased need for inotropes in the intensive care unit. Extubation in the operating room is associated with earlier chest tube removal and shorter ICU and hospital length of stays.

553 A method of transcutaneously adjustable pulmonary artery banding for staged left ventricular retraining

Daniel J. DiBardino, MD, Kellianne Kleeman, BS, and Edward L. Bove, MD, Ann Arbor, Mich

A method for the placement of a transcutaneously adjustable pulmonary artery band that allows subsequent adjustments to be made without the need to reenter the chest is described. Adjustments were successfully performed in all patients requiring band revision. This method facilitates a gradual increase in ventricular afterload that can be performed as a minor procedure.

557 Predictors for use of temporary epicardial pacing wires after pediatric cardiac surgery

Punkaj Gupta, MBBS, Patricia Jines, MD, Jeffrey M. Gossett, MS, Mit Maurille, NCET, Frank L. Hanley, MD, V. Mohan Reddy, MD, Christina Y. Miyake, MD, and Stephen J. Roth, MD, MPH, Little Rock, Ark, and Stanford, Calif

The objective of this study was to determine the predictive factors for the need of pacing wires after pediatric cardiac surgery. Need for cardioversion in the operating room, presence of 2 or more intracardiac catheters, severely reduced ventricular ejection fraction, and high serum lactate level were independent predictors for the use of pacing wires in the early postoperative period.

563 Experimental and numeric investigation of Impella pumps as cavopulmonary assistance for a failing Fontan

Christopher M. Haggerty, BS, Francis Fynn-Thompson, MD, Doff B. McElhinney, MD, Anne Marie Valente, MD, Neelakantan Saikrishnan, PhD, Pedro J. del Nido, MD, and Ajit P. Yoganathan, PhD, Atlanta, Ga, and Boston, Mass

We investigated the potential to use 3 existing microaxial Impella pumps as cavopulmonary assistance for a failing Fontan. The right ventricular RP device showed potential to decrease central venous pressure because of the ability to direct flow into the branch pulmonary artery.

(continued on page 16A)
570  Improving and standardizing capture of pediatric cardiac surgical complications
Ganesh Shanmugam, MS, MCh, FRCS, FRCSC, Lauren L. Clark, BSc, Hayley J. Burton, RNFA,
Andrew E. Warren, MD, MSc, FRCPC, Stacy B. O’Brienes, MSc, MD, FRCS(C), and
Camille L. Hancock Friesen, MSc, MD, FRCS(C), FACS, Halifax, Nova Scotia, Canada

There is no standardized program-wide monitoring of the incidence and severity of
complications in pediatric cardiac surgery. Using standard definitions, 33% of the procedures
(84/292) in a retrospective analysis were associated with 150 complications. A linear
relationship was found between the frequency and severity of complications and surgical
complexity.

577  Risk factors for neurodevelopmental impairments in school-age children after
cardiac surgery with full-flow cardiopulmonary bypass
Michael von Rhein, MD, Anastasia Dimitropoulos, MD, Emanuela R. Valsangiacomo Buechel, MD,
Markus A. Landolt, PhD, and Beatrice Latal, MD, MPH, Zurich, Switzerland, and Mainz, Germany

Little is known of the outcomes and the risk factors for adverse outcomes in children undergoing
full-flow cardiac repair. At school age, the intellectual and neurodevelopmental outcomes are also
poorer in children without a genetic comorbidity. Postoperative complications and
sociodemographic variables play a more important role than the surgical parameters in the
prediction of outcome.

Acquired Cardiovascular Disease (ACD) 584  Long-term mechanical circulatory support (destination therapy): On track to
compete with heart transplantation?
James K. Kirklin, MD, David C. Nafiel, PhD, Francis D. Pagani, MD, PhD, Robert L. Kormos, MD,
Lynne Stevenson, MD, Marissa Miller, DVM, MPH, and James B. Young, MD, Birmingham, Ala,
Ann Arbor, Mich, Pittsburgh, Pa, Boston, Mass, Bethesda, Md, and Cleveland, Ohio

Among patients subjected to destination therapy continuous flow LVAD in the INTERMACS
Registry who were not in cardiogenic shock, a particularly favorable survival group was
identified with 1- and 2-year survivals of 88% and 80%. Important subsets of continuous flow
DT patients now enjoy survival that is competitive with heart transplantation out to about 2
years.

604  Long-term comparison of thoracic endovascular aortic repair (TEVAR) to
open surgery for the treatment of thoracic aortic aneurysms
Nimesh D. Desai, MD, PhD, Kristen Burch, BS, William Moser, MS, Pat Moeller, BS,
Wilson Y. Szeto, MD, Alberto Pochettino, MD, Edward Y. Woo, MD, Ronald M. Fairman, MD, and
Joseph E. Bavaria, MD, Philadelphia, Pa

We compared the long-term outcomes of TEVAR with the 3 commercially available stents
grafts for thoracic aortic aneurysms to control patients undergoing open surgery. TEVAR is
a safe and effective procedure to treat thoracic aortic aneurysms with improved perioperative
and similar long-term results as open thoracic aortic repair. TEVAR-treated aneurysm
diameters initially decrease and then stabilize over time.

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612 Nationwide trends and regional/hospital variations in open versus endovascular repair of thoracoabdominal aortic aneurysms
Joshua M. Liao, BS, Faisal G. Bakaeen, MD, Lorraine D. Cornwell, MD, Kiki Simpson, MS, Scott A. LeMaire, MD, Joseph S. Coselli, MD, and Danny Chu, MD, Houston, Tex

We examined national trends in the use of TEVAR and OTAR to treat thoracoabdominal aortic aneurysm. During 2005 to 2008, the frequency of OTAR remained stable, whereas the use of TEVAR increased significantly. Additionally, TEVAR was more common in regions and hospitals where OTAR was less often performed.

617 Influence of operative strategy for the aortic arch in DeBakey type I aortic dissection: Analysis of the German Registry for Acute Aortic Dissection Type A
Jerry Easo, MD, Ernst Weigang, MD, PhD, Philipp P. F. Hödl, MD, Michael Horst, MD, Isabell Hoffmann, MS, Maria Blentner, MS, PhD, and Otto E. Dupont, MD, PhD, for the GERAADA study group, Oldenburg and Mainz, Germany

Patients treated with an extensive approach including total aortic arch replacement for AADA may have a favorable long-term prognosis, although they may have a higher perioperative risk. Analyses of the GERAADA show no significant differences between hemiarch and total arch replacement in 30-day mortality, onset of new neurologic deficit, or malperfusion deficit.

624 Effect of anterior strut chordal transection on the force distribution on the marginal chordae of the mitral valve
Muralidhar Padala, PhD, Lazarina Gyoneva, BS, and Ajit P. Yoganathan, PhD, Atlanta, Ga

Transection of the secondary chordae on the anterior leaflet of the mitral valve to relieve leaflet tethering and reduce regurgitation is an experimentally proven procedure to correct functional mitral regurgitation. In the present study, we sought to investigate whether transecting the secondary chordae would have an effect on the marginal chordal force on the same leaflet.

634 Staged percutaneous coronary intervention and minimally invasive valve surgery: Results of a hybrid approach to concomitant coronary and valvular disease
Orlando Santana, MD, Michael Funk, MD, Carlos Zamora, MD, Esteban Escolar, MD, Gervasio A. Lamas, MD, and Joseph Lamelas, MD, Miami Beach, Fla

A staged approach of percutaneous coronary intervention followed by minimally invasive valve surgery may be an effective approach for selected patients with suitable coronary and valvular anatomy when compared with a standard median sternotomy.

640 Magnetic resonance imaging versus echocardiography to ascertain the regression of left ventricular hypertrophy after bioprosthetic aortic valve replacement: Results of the REST study
Ingo Breitenbach, MD, Wolfgang Harringer, MD, Steven Tsui, MD, Mario Jorge Amorim, MD, Marie-Christine Herregods, MD, PhD, Jan Bogaert, MD, Juan Jose Goiti, MD, and Gino Gerosa, MD, Braunschweig, Germany, Cambridge, United Kingdom, Porto, Portugal, Leuven, Belgium, San Sebastian, Spain, and Padua, Italy

We measured a significant decrease in LVMI with echocardiography and MRI, 6 months after AVR. The decrease in LVMI was statistically significant, regardless of valve model or size. Because echocardiography overestimated its decrease, measurements of LVMI with cardiac MRI are recommended.

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Perioperative Management (PM)

646 Carbon dioxide insufflation in open-chamber cardiac surgery: A double-blind, randomized clinical trial of neurocognitive effects
Krish Chaudhuri, MBBS, Elsdon Storey, D Phil, Geraldine A. Lee, MPhil, Michael Bailey, PhD, Justin Chan, MBBS, Franklin L. Rosenfeldt, MD, Adrian Pick, FRACS, Justin Negri, FRACS, Julian Gooi, FRACS, Adam Zinnem, FRACS, Donald Esmore, MD, Chris Merry, FRACS, Michael Rowland, FRACS, Enjarn Lin, FANZCA, and Silvana F. Marasco, MSc, MBBS, FRACS, Melbourne and Richmond, Victoria, Australia

Despite widespread use of carbon dioxide insufflation in cardiac surgery, there is scant evidence to support this. In a randomized, controlled trial examining potential reduction in postoperative neurocognitive decline, 125 patients were randomly allocated to receive carbon dioxide or placebo. No differences in neurocognitive functioning were detected 6 weeks postoperatively.

654 Nadir hematocrit during cardiopulmonary bypass: End-organ dysfunction and mortality
Gabriel Loor, MD, Liang Li, PhD, Joseph F. Sabik III, MD, Jeevanantham Rajeswaran, MSc, Eugene H. Blackstone, MD, and Colleen G. Koch, MD, MS, MBA, Cleveland, Ohio

Nadir Hct is associated with more end-organ dysfunction and increased resource usage and mortality. Preoperative anemia is the most significant risk factor for low nadir Hct. The identification and treatment of preoperative anemia might eliminate the risk associated with both anemia and red blood cell transfusion.

663 Use of modified ultrafiltration in adults undergoing coronary artery bypass grafting is associated with inflammatory modulation and less postoperative blood loss: A randomized and controlled study
Anali G. Torina, MS, Lindemberg M. Silveira-Filho, MD, PhD, Karlos A. S. Vilarinho, MD, MS, Pirooz Eghtesady, MD, PhD, Pedro P. M. Oliveira, MD, PhD, Andrei C. Sposito, MD, PhD, and Orlando Petrucci, MD, PhD, São Paulo, Brazil, and St Louis, Mo

Modified ultrafiltration is an efficient method for fluid management in the intraoperative period and can reduce blood loss and the need for blood transfusions in adults after coronary artery bypass grafting. However, modified ultrafiltration is associated with an increase in some inflammatory serum markers.

671 Early readmission for congestive heart failure predicts late mortality after cardiac surgery
Richard Lee, MD, MBA, Natalie Homer, BS, Adin-Cristian Andrei, PhD, Edwin C. McGee, MD, S. Chris Malaisrie, MD, Preeti Kansal, MD, and Patrick M. McCarthy, MD, Chicago, Ill

The effect of early readmission for CHF is established in the medical, but not cardiac surgery, patient population. A single-institution, retrospective study of cardiac surgery patients showed readmission for CHF to independently predict worse survival. Targeted postoperative management may be warranted in this patient group.
Comparing microvascular alterations during minimal extracorporeal circulation and conventional cardiopulmonary bypass in coronary artery bypass graft surgery: A prospective, randomized study

Peter Donndorf, MD, Franziska Kühn, MD, Brigitte Vollmar, MD, PhD, Jan Rössner, MD, PhD, Andreas Liebold, MD, PhD, Philipp Gierer, MD, PhD, Gustav Steinhoff, MD, PhD, and Alexander Kaminski, MD, PhD, Rostock and Ulm, Germany

Minimal extracorporeal circulation (MECC) systems have been associated with beneficial clinical outcomes. The current study aimed at comparing microvascular alterations during conventional extracorporeal circulation (CECC) and MECC during CABG. Analysis of the sublingual functional capillary density suggests an advantageous recovery of the microvascular perfusion in MECC compared with CECC.

Dysregulated gene expression of extracellular matrix and adhesion molecules in saphenous vein conduits of hemodialysis patients

Yongxin Sun, MD, Wenjun Ding, MD, Qiang Wei, MD, Zhenya Shen, MD, and Chunsheng Wang, MD, Shanghai and Suzhou, China

The present study disclosed that some extracellular matrix genes show significantly different activity in the saphenous vein conduits of hemodialysis patients undergoing coronary artery bypass grafting. The preoperative profile could provide useful clues regarding saphenous vein quality, prompting adjustment in the surgical strategy.

Endothelial preservation of the minimally manipulated saphenous vein composite graft: Histologic and immunohistochemical study

Ho Young Hwang, MD, PhD, Min-A Kim, MD, PhD, Jeong Wook Seo, MD, PhD, and Ki-Bong Kim, MD, PhD, Seoul, Korea

Three segments of saphenous vein were obtained from 20 patients. Histologic and immunohistochemical studies revealed well-preserved endothelium in the saphenous vein composite graft. Saphenous veins harvested with minimal surgical manipulation for use in Y-composite grafts had better endothelial preservation.

Endothelial nitric oxide synthase enhancer for protection of endothelial function from asymmetric dimethylarginine–induced injury in human internal thoracic artery

Chao Xuan, MPhil, Feng-Jun Chang, MD, Xiao-Cheng Liu, MD, Xiao-Yan Bai, MD, Xiao-Long Liao, MD, Guo-Wei He, MD, PhD, DSc, and Jing-Song Ou, MD, PhD, FCCP, Tianjin and Guangzhou, China; and Portland, Ore

Endothelial function may be damaged by asymmetric dimethylarginine. The endothelial nitric oxide synthase enhancer AVE3085 reverses asymmetric dimethylarginine–induced endothelial dysfunction in human internal thoracic artery by upregulation of endothelial nitric oxide synthase expression and inhibition of superoxide anion production. This suggests potential endothelial protection to improve long-term graft patency.
704 Uniquely shaped cardiovascular stents enhance the pressure generation of intravascular blood pumps

Amy L. Throckmorton, PhD, James P. Carr, BS, William B. Moskowitz, MD, James J. Gangemi, MD, Christopher M. Haggerty, BS, and Ajit P. Yoganathan, PhD, Richmond and Charlottesville, Va; and Atlanta, Ga

This study presents the evaluation of uniquely shaped filaments and diffuser blades in the development of a protective stent for an intravascular cavopulmonary assist device for single ventricle patients. The integration of these novel features onto protective stents could be broadly applied to all intravascular blood pumps with the benefits of improving flow control, lowering the operational rotational speed, reducing the risk of hemolysis and thrombosis, and enhancing energy transfer.

710 Outcome of living-donor lobar lung transplantation using a single donor

Hiroshi Date, MD, Takeshi Shiraishi, MD, Seiichiro Sugimoto, MD, Tsuyoshi Shoji, MD, Fengshi Chen, MD, Masafumi Hiratsuka, MD, Akifumi Aoyama, MD, Masaaki Sato, MD, Masao Yamane, MD, Akinori Iwasaki, MD, Shinichiro Miyoshi, MD, Toru Bando, MD, and Takahiro Oto, MD, Kyoto, Fukuoka, and Okayama, Japan

We retrospectively investigated 14 critically ill patients who had undergone living-donor lobar lung transplantation using a single donor at 3 lung transplant centers in Japan. The 3- and 5-year survival was 70% and 56%, respectively. Single living-donor lobar lung transplantation provides acceptable results for sick patients who would die soon otherwise.

716 Extracorporeal membrane oxygenation as a bridge to lung transplantation and recovery

Jeffrey Javidfar, MD, Daniel Brodie, MD, Alex Iribarne, MD, MS, Julissa Jurado, MD, Matthew LaVelle, MSE, Keith Brenner, MD, Selim Arcasoy, MD, Joshua Sonett, MD, and Matthew Bacchetta, MD, New York, NY

Extracorporeal membrane oxygenation is a safe and effective means of bridging well-selected patients with refractory respiratory failure to lung transplantation or return to their baseline condition.

722 Aortic valve repair by sinotubular junctional remodeling to eliminate aortic regurgitation in donor cardiac allograft

David J. Kaczorowski, MD, and Y. Joseph Woo, MD, Philadelphia, Pa

724 Surgical cryoablation for ventricular tachyarrhythmia in patients undergoing surgical ventricular restoration: Lessons learned from radiofrequency ablation

Rao V. Parachuri, FRCSI(Cth), and Srilakshmi M. Adhyapak, DNB, Bangalore, India

726 Cardiopulmonary bypass strategy with low-dose heparin and nafamostat mesilate in cardiac surgery: A safe option for patients with acute stroke

Naoto Morimoto, MD, PhD, Soichiro Henmi, MD, Masato Yoshida, MD, and Nobuhiko Mukohara, MD, Himeji, Japan

728 Transcatheter aortic valve implantation combined with conventional heart surgery: Hybrid approach for complex cardiac pathologic features

Miralem Pasic, MD, PhD, Semih Bac, MD, Axel Unbehaun, MD, and Roland Hetzer, MD, PhD, Berlin, Germany

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Zain Khalpey, MD, PhD, MRCS, Rene J. Dekkers, CCP, Foeke J. H. Nauta, MD, and Prem Shekar, MD, Boston, Mass

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Dawn C. Scantlebury, MBBS, Oluseun O. Alli, MBBS, Lyle D. Joyce, MD, and Charanjit S. Rihal, MD, Rochester, Minn

Combined surgical and ablative cure for localized sternal compression–induced cardiomyopathy and ventricular tachyarrhythmia
Christopher V. DeSimone, MD, PhD, Sandeep Sagar, MD, Chris Moir, MD, and Samuel J. Asirvatham, MD, Rochester, Minn

Left main coronary artery atresia with tetralogy of Fallot: A novel association
Nikhil Prakash Pathil, MS, MRCS, Smita Mishra, MD, DNB, Saket Agarwal, MCh, and Deepak Kumar Satsangi, MCh, New Delhi, India

Simultaneous transapical transcatheter aortic and mitral valve replacement in a high-risk patient with a previous mitral bioprosthesis
Adil H. Al Kindi, MD, Khaled F. Salhab, MD, Samir Kapadia, MD, Eric E. Roselli, MD, Amar Krishnaswamy, MD, Andrew Grant, MD, Emin Murat Tuzcu, MD, and Lars G. Svensson, MD, PhD, Cleveland, Ohio

Massive spontaneous hemorrhage in giant type 1 neurofibromatosis in soft tissue of chest wall
Kewei Zhang, MD, PhD, Jena Song, MS, Wenji Xiong, MD, PhD, Zhi Li, PhD, Dianbo Cao, MD, PhD, Tianbo Jiang, HS, and Wei Liu, MD, PhD, Changchun, China, and New York, NY

True aneurysm of anterior mitral leaflet—A rare entity
Trushar P. Gajjar, DNB, and Neelam B. Desai, MCh, DNB, Andhra Pradesh, India

Nonintubated thoracoscopic surgery for pulmonary lesions in both lungs
Tung-Ming Tsai, MD, and Jin-Shing Chen, MD, PhD, Taipei, Taiwan

Acute ascending aortic dissection during transaortic balloon-expandable aortic valve implantation
Augusto D’Onofrio, MD, Chiara Tessari, MD, Roberto Bianco, MD, Giambattista Isabella, MD, Guido Di Gregorio, MD, and Gino Gerosa, MD, Padova, Italy

Patients with cancer and central pulmonary emboli treated surgically
Anna L. McGuire, MD, and Fraser Rubens, MD, MSc, Ottawa, Ontario, Canada

Reply to the Editor
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736  The parachute technique for anterior leaflet prolapse
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744  Invasive adenocarcinoma with bronchoalveolar features: A population-based evaluation of the extent of resection in bronchoalveolar cell carcinoma
Sadeesh K. Srinathan, MD, MSc, Winnipeg, Manitoba, Canada

744  Reply to the Editor
Shawn S. Groth, MD, MS, Bryan A. Whitson, MD, PhD, and Jonathan D’Cunha, MD, PhD, Minneapolis, Minn

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S3  Lung cancer screening trials: The United States and beyond
   Francine L. Jacobson, MD, MPH, and Michael T. Jaklitsch, MD, Boston, Mass

S7  Lung cancer screening trials: Denmark and beyond
   Jesper H. Pedersen, MD, DMsci, Rene H. Petersen, MD, and Henrik J. Hansen, MD, Copenhagen, Denmark

S9  Endobronchial ultrasonography (EBUS)—Its role in staging of non–small cell lung cancer and who should do it?
   Rafael S. Andrade, MD, David D. Odell, MD, MMSc, Jonathan D’Cunha, MD, PhD, and Michael A. Maddaus, MD, Minneapolis, Minn

   EBUS is an accepted diagnostic modality to stage the mediastinum in patients with non–small cell lung cancer. The reliability of EBUS is dictated by the probability of mediastinal involvement, the clinical and technical expertise of the EBUS operator, and the experience of the cytopathologist.

S14 Is VAMLA/TEMLA the new standard of preresection staging of non–small cell lung cancer?
   Sai Yendamuri, MBBS, and Todd L. Demmy, MD, FACS, Buffalo, NY

   Accurate mediastinal staging of lung cancer is important for prognostication, treatment optimization, and consistency of research data. The present report summarizes the existing data of procedures used for transcervical mediastinal lymphadenectomy.

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In the pursuit of personalized medicine, thoracic surgeons will increasingly be called on to actively participate in new diagnostic pathways aimed at clarifying biomolecular processes linked to lung cancer development. Accordingly, keeping abreast of the research on biomolecular models is rapidly becoming a professional imperative rather than an educational opportunity.

Resection of the upper division and complete left upper lobectomy were compared. The hospital course, morbidity, mortality, and survival were the same so the lingula does not need to be resected for stage 1A and IB tumors if resection of the upper division provides good margins.

Uniportal wedge VATS resections of peripheral nodules can help in solving diagnostic dilemmas, be of therapeutic benefit, and provide tissue for biomolecular studies.

An overview of a multicenter randomized study comparing sublobar resection and stereotactic body radiotherapy for lung cancer is provided.

The use of simulation will be necessary for most residents to develop adequate advanced technical skills in our current training environment. The development and validation of simulation models is necessary to meet the increasing need of a technical skills curriculum for thoracic surgery education.
S48 Use of energy-based coagulative fusion technology and lung sealants during anatomic lung resection
Matthew J. Schuchert, MD, Ghulam Abbas, MD, Joshua P. Landreneau, BS, James D. Luketich, MD, and Rodney J. Landreneau, MD, Pittsburgh, Pa

Energy-based tissue fusion technology can be applied safely in the division of the pulmonary vasculature during anatomic lung resection. The use of surgical sealants and buttressing adjuncts might reduce the incidence of perioperative air leaks.

S52 Thoracoscopic maneuvers for chest wall resection and reconstruction
Todd L. Demmy, MD, Sai Yendamuri, MBBS, Mark W. Hennon, MD, Elisabeth U. Dexter, MD, Anthony L. Picone, MD, PhD, and Chukwumere Nwogu, MD, Buffalo, NY

Thoracoscopic chest wall resection is an advanced technique for which the indications are limited. This report aims to consolidate and categorize the technical maneuvers used by one center and reported by others to ease its adoption by experienced surgeons who wish to apply it in selected circumstances.

S58 Tracheobronchoplasty for the treatment of tracheobronchomalacia
Kiran H. Lagisetty, MD, and Sidhu P. Gangadharan, MD, Boston, Mass

Session VI: Malignant Esophagus

S60 Minimally invasive Ivor Lewis esophagectomy
Jon O. Wee, MD, and Christopher R. Morse, MD, Boston, Mass

S63 Three-field minimally invasive esophagectomy: Current results and technique
Yaron Perry, MD, and Hiran C. Fernando, MD, Savannah, Ga, and Boston, Mass

Surgical removal of the esophagus continues to play a major role in the treatment of esophageal cancer. However, esophagectomy is a complex procedure, associated with significant morbidity and mortality. Several series have shown low perioperative mortality with minimally invasive esophagectomy. A major advantage compared with esophagectomy with thoracotomy is a lower incidence of respiratory complications, a significant predictor of mortality in many studies. We review the technique and results of 3-hole minimally invasive esophagectomy. We favor thoracoscopic esophageal mobilization with the patient in a lateral decubitus position; however, we continue to use the 3-hole approach for those patients with midesophageal cancers, patients with long-segment Barrett’s esophagus extending to the midthoracic esophagus, and for patients with long-segment benign disorders such as end-stage achalasia or complex benign strictures.

Session VII: Esophagus—Benign

S67 Giant paraesophageal hernia repair: Technical pearls
Mara B. Antonoff, MD, Jonathan D’Cunha, MD, PhD, Rafael S. Andrade, MD, and Michael A. Maddaus, MD, Minneapolis, Minn

The optimal operative management for giant paraesophageal hiatal hernias continues to evolve, with recent series reporting promising results with minimally invasive approaches. Our technical approach to this procedure involves a consistent emphasis on several key operative points: Circumferential sac dissection with maintenance of crural integrity, extensive mediastinal esophageal dissection, crural closure with pledgeted sutures, wedge Collis gastroplasty for shortened esophagus, 3-stitch fundoplication incorporating esophageal tissue with each bite, additional sutures securing the top of the fundoplication to the crura, and biologic mesh buttressing. We believe that, with diligence paid toward these key steps, laparoscopic giant paraesophageal hiatal hernia repair can be performed with similar outcomes as the open approach while avoiding the morbidity of a thoracotomy or laparotomy.

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S71  Redo laparoscopic repair of benign esophageal disease
Jon O. Wee, MD, Boston, Mass

Laparoscopic reoperative surgery for benign esophageal disease can be done safely with good functional results.

S74  Endoscopic management of gastroesophageal reflux disease: A review
Chaitan K. Narsule, MD, Jon O. Wee, MD, and Hiran C. Fernando, MD, FRCS, Boston, Mass

Endoscopic approaches for the treatment of GERD have been the focus of intense efforts during the past decade. The present report describes the history of endoscopic therapies for GERD and reviews the current data for endoscopic fundoplication.

Session VIII: Innovation and the Future

S80  Developing intrathoracic sentinel lymph node mapping with near-infrared fluorescent imaging in non–small cell lung cancer
Denis M. Gilmore, MD, Onkar V. Khullar, MD, and Yolonda L. Colson, MD, PhD, Boston, Mass

With poor survival and high recurrence rates, early-stage lung cancer currently appears to be understaged or undertreated, or both. Although sentinel lymph node biopsy is standard for patients with breast cancer and melanoma, its success has been unreliable in NSCLC. Sentinel lymph node biopsy might aid in the identification of lymph nodes at the greatest risk of metastasis and allow for more detailed analysis to select for patients who might benefit from adjuvant therapy. The early results in our recent clinical trial of patients with early-stage lung cancer have suggested that near-infrared imaging might offer a platform for reliable sentinel lymph node identification in these patients.