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Expert Commentary

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Thomas W. Rice, MD, Eugene H. Blackstone, MD, and Valerie W. Rusch, MD, Cleveland, Ohio, and New York, NY

Congenital Heart Disease (CHD)

- 530 Optimal flow rate for antegrade cerebral perfusion**
Takashi Sasaki, MD, Shoichi Tsuda, MD, R. Kirk Riemer, PhD, Chandra Ramamoorthy, MD, V. Mohan Reddy, MD, and Frank L. Hanley, MD, Stanford, Calif
- Cerebral blood flow was measured in neonatal piglets to determine its relation to pump flow during ACP at 18°C. We found that an ACP rate of 30 mL/kg/min provided a cerebral blood flow of 36 mL/100 g/min and oxygen delivery equal to standard cardiopulmonary bypass.
- 536 The Ross–Yacoub procedure for aneurysmal autograft roots: A strategy to preserve autologous pulmonary valves**
Giovanni Battista Luciani, MD, Francesca Viscardi, MD, Mara Pilati, MD, Antonia Maria Prioli, MD, Giuseppe Faggian, MD, and Alessandro Mazzucco, MD, Verona, Italy
- A strategy to salvage the autologous pulmonary valve is proposed in patients with autograft root aneurysm, which entails remodeling with the Yacoub technique (Ross–Yacoub procedure). Referral of patients before the onset of severe valve dysfunction is associated with successful outcome and preservation of excellent quality of life.
- 543 Brain immaturity is associated with brain injury before and after neonatal cardiac surgery with high-flow bypass and cerebral oxygenation monitoring**
Dean B. Andropoulos, MD, MHCM, Jill V. Hunter, MD, David P. Nelson, MD, Stephen A. Stayer, MD, Ann R. Stark, MD, E. Dean McKenzie, MD, Jeffrey S. Heinle, MD, Daniel E. Graves, PhD, and Charles D. Fraser, Jr, MD, Houston, Tex
- Using high-flow bypass technique including antegrade cerebral perfusion and near-infrared cerebral oximetry, a 36% incidence of new brain injury was found on day 7 postoperative MRI in neonates having cardiac surgery. Brain immaturity was associated with pre- and postoperative brain injury.
- 557 Larger aortic reconstruction corresponds to diminished left pulmonary artery size in patients with single-ventricle physiology**
Lakshmi P. Dasi, PhD, Kartik S. Sundareswaran, PhD, Colleen Sherwin, BS, Diane de Zelicourt, MS, Kirk Kanter, MD, Mark A. Fogel, MD, and Ajit P. Yoganathan, PhD, Atlanta, Ga, and Philadelphia, Pa
- We studied the anatomic relationship between the aortic arch and left pulmonary artery (LPA) in 32 patients with single-ventricle physiology and showed that the LPA is physically limited in space when the aorta is large from aortic reconstruction. This might be the underlying cause of the frequent LPA stenosis seen in patients undergoing the Fontan operation.

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562 Outcomes of the bidirectional Glenn procedure in patients less than 3 months of age

Orlando Petrucci, MD, PhD, Philip R. Khoury, MS, Peter B. Manning, MD, and Pirooz Eghtesady, MD, PhD, Campinas, Brazil, and Cincinnati, Ohio

The ideal age to perform the bidirectional Glenn (BDG) procedure remains uncertain. We compared patients younger than 3 months with patients older than 3 months undergoing the BDG procedure. The operative mortality and late results were similar in both groups. The BDG procedure is feasible and safe in patients younger than 3 months.

569 Lesion-specific outcomes in neonates undergoing congenital heart surgery are related predominantly to patient and management factors rather than institution or surgeon experience: A Congenital Heart Surgeons Society Study



Tara Karamlou, MD, Brian W. McCrindle, MD, MPH, Eugene H. Blackstone, MD, Sally Cai, MSc, Richard A. Jonas, MD, Scott M. Bradley, MD, David A. Ashburn, MD, MSc, Christopher A. Caldarone, MD, and William G. Williams, MD, Toronto, Ontario, Canada, Cleveland, Ohio, Washington, DC, Charleston, SC, and Ann Arbor, Mich

The role of institution and surgeon factors, including case volume, on the survival of 2421 neonates with complex congenital heart disease was studied. Patient and management factors influenced survival more than institution or surgeon experience. Institutional excellence in managing some diagnostic groups does not indicate similar performance for all diagnostic groups.

General Thoracic Surgery (GTS)

578 Evaluation of mediastinal lymph nodes with endobronchial ultrasound: The thoracic surgeon's perspective

Rafael S. Andrade, MD, Shawn S. Groth, MD, Natasha M. Rueth, MD, Jonathan D' Cunha, MD, PhD, Stefan E. Pambuccian, MD, and Michael A. Maddaus, MD, FACS, Minneapolis, Minn

In the hands of experienced thoracic surgeons, excellent diagnostic results can be achieved with EBUS-FNA of mediastinal lymph nodes. Thoracic surgeons are uniquely equipped to perform necessary additional diagnostic and therapeutic procedures in the same setting as ultrasound-guided fine-needle aspiration, thereby maximizing diagnostic yield and streamlining patient care.

584 Nonoperative thoracic duct embolization for traumatic thoracic duct leak: Experience in 109 patients

Maxim Itkin, MD, John C. Kucharczuk, MD, Andrew Kwak, MD, Scott O. Trerotola, MD, and Larry R. Kaiser, MD, Philadelphia, Pa, and Houston, Tex

Thoracic duct embolization is a minimally invasive alternative for thoracic duct ligation as a treatment for chylous effusion.

591 Modulation of growth in human esophageal adenocarcinoma cells by group IIa secretory phospholipase A₂

David Mauchley, MD, Xianzhong Meng, MD, PhD, Thomas Johnson, PhD, David A. Fullerton, MD, and Michael J. Weyant, MD, Aurora, Colo

Inhibition of secretory phospholipase A₂ attenuates growth of human esophageal adenocarcinoma cells. Secretory phospholipase A₂ is a potential molecular target for the treatment of esophageal adenocarcinoma.

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600 Sutureless pneumostasis using bioabsorbable mesh and glue during major lung resection for cancer: Who are the best candidates?

Kazuhiro Ueda, MD, Toshiki Tanaka, MD, Tao-Sheng Li, MD, Nobuyuki Tanaka, MD, and Kimikazu Hamano, MD, Yamaguchi, Japan

We showed that the combination of bioabsorbable mesh and sealant was better than sealant alone for reducing the duration of chest tube drainage, postoperative stay, and the incidence of postoperative complications. It also identified which patients would benefit most from the combination of mesh and sealant to achieve pneumostasis.

606 Bilobectomy for non–small cell lung cancer: A search for clinical factors that may affect perioperative morbidity and long-term survival

Anthony W. Kim, MD, L. Penfield Faber, MD, William H. Warren, MD, Neha D. Shah, MD, Sanjib Basu, PhD, and Michael J. Liptay, MD, Chicago, Ill

Bilobectomy can be performed with acceptable morbidity and mortality. As would be expected, long-term survival relates to disease stage. Optimal survival benefit occurs when the indication for bilobectomy is squamous cell carcinoma extending across the fissure. Age and type of bilobectomy can also influence survival.

612 Determination of the minimum number of lymph nodes to examine to maximize survival in patients with esophageal carcinoma: Data from the Surveillance Epidemiology and End Results database



Shawn S. Groth, MD, Beth A. Virnig, PhD, Bryan A. Whitson, MD, Todd E. DeFor, MS, Zhong-ze Li, MS, Todd M. Tuttle, MD, and Michael A. Maddaus, MD, Minneapolis, Minn

We used a US population–based cancer registry to determine the minimum number of lymph nodes that should be evaluated pathologically in patients undergoing esophagectomy for esophageal carcinoma. At least 30 lymph nodes should be evaluated to maximize overall and cancer-specific survival.

Acquired Cardiovascular Disease (ACD)

621 Preoperative very short-term, high-dose erythropoietin administration diminishes blood transfusion rate in off-pump coronary artery bypass: A randomized blind controlled study



Luca Weltert, MD, Stefano D'Alessandro, MD, Saverio Nardella, MD, Fabiana Girola, MD, Alessandro Bellisario, MD, Daniele Maselli, MD, and Ruggero De Paulis, MD, Rome, Italy

We randomized 320 consecutive patients presenting for off-pump isolated revascularization to very short-term (2 days before surgery and 3 days after surgery), high-dose erythropoietin (~600 UI/kg/wk) or a control group. Patients in the erythropoietin group showed significantly higher hemoglobin values and a significantly lower need for allogenic blood transfusion.

628 Is robotic mitral valve repair a reproducible approach?

Wen Cheng, MD, Gregory P. Fontana, MD, Michele A. De Robertis, RN, James Mirocha, MS, Lawrence S. C. Czer, MD, FACC, Robert M. Kass, MD, and Alfredo Trento, MD, FACS, Los Angeles, Calif

We reviewed 120 consecutive robotic mitral valve repair procedures. There were 6 repair failures between 0 and 41 days postoperatively, 5 requiring valve replacement and 1 requiring reoperation. All patients were asymptomatic with none to mild mitral regurgitation in 89% at follow-up. Robotic mitral valve repair is effective and reproducible.

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634 Apical myectomy: A new surgical technique for management of severely symptomatic patients with apical hypertrophic cardiomyopathy

Hartzell V. Schaff, MD, Morgan L. Brown, MD, Joseph A. Dearani, MD, Martin D. Abel, MD, Steve R. Ommen, MD, Paul Sorajja, MD, A. Jamil Tajik, MD, and Rick A. Nishimura, MD, Rochester, Minn, and Scottsdale, Ariz

Forty-four patients with limiting symptoms and apical hypertrophic cardiomyopathy underwent transventricular apical myectomy. The majority had improvement in symptoms, with postoperative studies showing increased left ventricular end-diastolic volume. Apical myectomy appears useful for those symptomatic patients with apical hypertrophic cardiomyopathy who would otherwise be referred for transplantation.

641 Is conventional aortic arch surgery justifiable in octogenarians?

Kenji Minatoya, MD, Hitoshi Ogino, MD, Hitoshi Matsuda, MD, Hiroaki Sasaki, MD, Hiroshi Tanaka, MD, Junjiro Kobayashi, MD, Toshikatsu Yagihara, MD, and Soichiro Kitamura, MD, Osaka, Japan

Results of aortic arch operations in 114 octogenarians are presented. The total hospital mortality was 7.9%. The operations were performed with an acceptable risk even under emergency situations, including acute aortic dissection. The surgical option for aortic arch diseases should not be abandoned only because of the high chronologic age of the patient.

646 Selective endothelin-1 receptor type A inhibition in subjects undergoing cardiac surgery with preexisting left ventricular dysfunction: Influence on early postoperative hemodynamics

John M. Toole, MD, John S. Ikonomidis, MD, PhD, Wilson Y. Szeto, MD, James L. Zellner, MD, John Mulcahy, BA, Rachael L. Deardorff, BS, and Francis G. Spinale, MD, PhD, Charleston, SC, Philadelphia, Pa, and Chattanooga, Tenn

Increased ET-AR activation occurs in patients with preexisting LV dysfunction and after cardiac surgery requiring CPB. This initial clinical study demonstrated that infusion of a selective ET-ARA in high-risk patients undergoing cardiac surgery was not associated with hemodynamic compromise. ET-ARA favorably affected pulmonary vascular resistance properties in the early period after CPB. Thus, ET-AR serves as a potential pharmacologic target for improving outcomes after cardiac surgery in patients with compromised LV function.

655 A novel approach to prevent spinal cord ischemia: Inoue stent graft with a side branch of small caliber for the reconstruction of the artery of Adamkiewicz

Takeshi Shimamoto, MD, Akira Marui, MD, PhD, Yoshimasa Nagata, ME, Mitsuru Sato, ME, Naritatsu Saito, MD, PhD, Takahide Takeda, MD, Makiko Ueda, MD, PhD, Tadashi Ikeda, MD, PhD, Ryuzo Sakata, MD, PhD, and Kanji Inoue, MD, Kyoto and Osaka, Japan

The Inoue stent graft with a side branch of 3 mm in diameter was successfully implanted onto the thoracic aorta and 11th intercostal artery of 5 mongrel dogs. The side branch remained patent for 12 weeks. This novel technique may enable endovascular reconstruction of the Adamkiewicz artery.

660 Aortic valve reconstruction in myxomatous degeneration of aortic valves: Are fenestrations a risk factor for repair failure?

Hans-Joachim Schäfers, MD, Frank Langer, MD, Petra Glombitza, MD, Takashi Kuniyama, MD, Roland Fries, MD, and Diana Aicher, MD, Homburg/Saar and Bad Schönborn, Germany

Myxomatous degeneration of cusps is a cause of aortic regurgitation in tricuspid aortic valves and might be associated with cusp fenestrations. Plication of the free margin or closure of fenestrations leads to good functional repair in this setting.

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665 Homograft aortic root replacement in native or prosthetic active infective endocarditis: Twenty-year single-center experience

Michele Musci, MD, Yuguo Weng, MD, PhD, Michael Hübler, MD, Aref Amiri, MD, Miralem Pasic, MD, PhD, Susanne Kosky, Julia Stein, MSc, Henryk Siniawski, MD, PhD, and Roland Hetzer, MD, PhD, Berlin, Germany

We compare the early and long-term results of cryopreserved homograft aortic root replacement (ARR) in native valve endocarditis (NVE) and prosthetic valve endocarditis (PVE) with periannular abscess formation over a period of 20 years. Homograft ARR shows satisfactory early and long-term results, with significantly better survival in NVE than in PVE. It is associated with a low endocarditis recurrence rate, although the risk of structural valve deterioration increases over time, especially in young patients. In our institution, the homograft remains the valve substitute of choice in this condition.

674 Skeletonized internal thoracic artery harvesting reduces chest wall dysesthesia after coronary bypass surgery

Phuong L. Markman, MBBS, BMedSci (Hons), Michael A. Rowland, FRACS, Jee-Yoong Leong, MBBS, Juliana Van Der Merwe, BCur, MPhil, Elsdon Storey, DPhil, FRACP, Silvana Marasco, MS, FRACS, Justin Negri, FRACS, Michael Bailey, PhD, MSc (Stats), and Franklin L. Rosenfeldt, MD, FRACS, Melbourne, Australia

Harvesting of the ITA for CABG surgery is associated with postoperative dysesthesia and neuropathic pain on the anterior chest wall, thought to be due to intercostal nerve injury. It may be possible to reduce this complication by using skeletonized rather than pedicled harvesting of the ITA.

Perioperative Management (PM)

680 Reduction in incidence of deep sternal wound infections: Random or real?

Evan Matros, MD, Sary F. Aranki, MD, Lauren R. Bayer, PA-C, Siobhan McGurk, BS, Jennifer Neuwalder, MD, and Dennis P. Orgill, MD, PhD, Boston, Mass

Rates of comorbidities predisposing cardiac surgical patients toward deep sternal wound infection are increasing both nationally and locally. Despite this fact, the number of deep sternal wound infections at our institution has significantly declined during the past 15 years. Reasons for these findings are discussed.

686 The use of spirometry testing prior to cardiac surgery may impact the Society of Thoracic Surgeons risk prediction score: A prospective study in a cohort of patients at high risk for chronic lung disease

Niv Ad, MD, Linda Henry, PhD, RN, Linda Halpin, RN, MSN, Sharon Hunt, MBA, Scott Barnett, PhD, Pamela Crippen, RN, ANP, Susan de Bullet, FNP, BC, and James Lamberti, MD, Falls Church, Va

The underuse of spirometry suggests misclassification of chronic lung disease (CLD) in patients undergoing cardiac surgery. In a prospective study we found that a discordant rate of 39.1% was noted when clinical and spirometry-based evaluations were compared, with the majority (94%) having an underestimation in severity. The use of spirometry to better classify CLD should be considered in patients undergoing cardiac surgery.

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692 Urinary proteomics before and after extracorporeal circulation in patients with and without acute kidney injury

Fabienne Aregger, MD, Christiane Pilop, PhD, Dominik E. Uehlinger, MD, René Brunisholz, PhD, Thierry P. Carrel, MD, Felix J. Frey, MD, and Brigitte M. Frey, PhD, Bern and Zurich, Switzerland

CPB leads to increased urinary excretion of inflammation-associated proteins or candidates of megalin-mediated endocytosis. Zinc-alpha-1-glycoprotein is a potentially useful predictive marker for AKI after CPB.

701 A multicenter randomized controlled trial to assess the feasibility of testing modified ultrafiltration as a blood conservation technology in cardiac surgery

Munir Boodhwani, MD, MMSc, FRCSC, Andrew Hamilton, MD, FRCSC, Benoit de Varennes, MD, FRCSC, Thierry Mesana, MD, PhD, FRCSC, K. Williams, George A. Wells, PhD, H. Nathan, MD, FRCPC, Jean Yves Dupuis, MD, FRCPC, A. Babaev, MD, P. Wells, MD, MSc, FRCPC, and Fraser D. Rubens, MD, MSc, FRCSC, Kingston and Ottawa, Ontario, and Montreal, Quebec, Canada

This study reports the results of a multicenter trial in which patients of small body size undergoing cardiac surgery were randomized to undergo MUF to mechanically remove fluid or a control/sham intervention. MUF successfully resulted in hemoconcentration, and anesthesiologists and intensivists could be successfully blinded to the intervention.

**Evolving Technology/
Basic Science (ET/BS)**

707 The successful application of simulation-based training in thoracic surgery residency

Harold M. Burkhart, MD, Jeffrey. B. Riley, CCP, Sarah E. Hendrickson, MA, George F. Glenn, CCP, James J. Lynch, MD, Jackie J. Arnold, RN, Joseph A. Dearani, MD, Hartzell V. Schaff, MD, and Thoralf M. Sundt III, MD, Rochester, Minn

We developed and tested a clinical simulation program in the principles and conduct of cardiopulmonary bypass. All participants demonstrated improved confidence and proficiency in this critical aspect of cardiac surgical care. Simulation-based cardiopulmonary bypass training appears to be an effective technique to build the confidence of thoracic surgery residents regarding knowledge and applications.

713 Radiofrequency ablation for Barrett’s esophagus and low-grade dysplasia in combination with an antireflux procedure: A new paradigm

Ricardo S. dos Santos, MD, Costas Bizakis, MD, Michael Ebright, MD, Michael DeSimone, Benedict D. Daly, MD, and Hiran C. Fernando, MD, São Paulo, Brazil, and New York, NY

We report our initial experience with radiofrequency ablation (RFA) associated with an antireflux procedure (ARP) for Barrett’s metaplasia (BM) and low-grade dysplasia. RFA and ARP are effective for reducing or eliminating metaplasia and dysplasia. Long-term studies will determine whether this approach can provide durable control of both reflux and BM.

717 Use of carotid–subclavian arterial bypass and thoracic endovascular aortic repair to minimize cerebral ischemia in total aortic arch reconstruction

Steve Xydas, MD, Benjamin Wei, MD, Hiroo Takayama, MD, Mark Russo, MD, Matthew Bacchetta, MD, Craig R. Smith, MD, and Allan Stewart, MD, Morristown, NJ, and New York, NY

We introduced carotid–subclavian bypass as part of aortic arch replacement with thoracic stent grafting under short periods of selective antegrade cerebral perfusion. This approach decreased selective antegrade cerebral perfusion time and eliminated hypothermic circulatory arrest. It may minimize neurologic complications and provide a viable hybrid approach to arch aneurysms.

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- 723 In vivo monitoring of function of autologous engineered pulmonary valve**
Danielle Gottlieb, MS, MD, MPH, Tandon Kunal, BS, Sitaram Emani, MD, Elena Aikawa, MD, PhD, David W. Brown, MD, Andrew J. Powell, MD, Arthur Nedder, DVM, George C. Engelmayr, Jr, PhD, Juan M. Melero-Martin, PhD, Michael S. Sacks, PhD, and John E. Mayer, Jr, MD, Boston, Mass, and Pittsburgh, Pa

Tissue-engineered valved conduits were successfully constructed and implanted in the pulmonary position in sheep. They functioned well initially, but pulmonary valve insufficiency developed in follow-up.

- 732 The novel synthetic serine protease inhibitor CU-2010 dose-dependently reduces postoperative blood loss and improves postischemic recovery after cardiac surgery in a canine model**
Gábor Szabó, MD, PhD, Gábor Veres, MD, Tamás Radovits, MD, Humaira Haider, Nelli Krieger, Susanne Bährle, MD, Silke Niklisch, Christiane Miesel-Gröschel, Andreas van de Locht, PhD, and Matthias Karck, MD, Heidelberg and München, Germany; and Budapest, Hungary

The present study describes the effects of CU-2010, a novel synthetic small molecule serine protease inhibitor, on blood loss and myocardial and coronary vascular function in a canine model of CPB with cardioplegic arrest. CU-2010 dose-dependently reduced blood loss and in higher doses improved postischemic recovery of myocardial and coronary endothelial function.

- 741 A multicenter prospective randomized trial of a second-generation anastomotic device in coronary artery bypass surgery**
Lars Wiklund, MD, Marek Setina, MD, Katherine Tsang, MS, Robert Cusimano, MD, MSc, and Terrence Yau, MD, MSc, Göteborg, Sweden, Ceske Budejovice, Czech Republic, and Toronto, Ontario, Canada

To evaluate a second generation anastomotic connector for vein grafts, we randomized 327 grafts within 151 patients to the connector versus sutured proximal anastomoses. One-year patency of the connector grafts was 92.2% and that of the sutured grafts was 91.7%.

- 748 Percutaneous pulmonary polyurethane valved stent implantation**
Anja Metzner, PhD, Kenji Iino, MD, Ulrich Steinseifer, PhD, Anselm Uebing, MD, Wiebke de Buhr, VMD, Jochen Cremer, MD, PhD, and Georg Lutter, MD, PhD, Kiel and Aachen, Germany

In this study, we confirmed successful percutaneous valved stent implantation with polyurethane.

Cardiothoracic Transplantation (TX)

- 753 A 20-year experience with urgent percutaneous cardiopulmonary bypass for salvage of potential survivors of refractory cardiovascular collapse** 
Brian E. Jaski, MD, Bryan Ortiz, Koteswara R. Alla, Sidney C. Smith, Jr, MD, Dale Glaser, PhD, Cynthia Walsh, MSN, Suzanne Chillcott, BSN, RN, Marcia Stahovich, RN, CCRN, Robert Adamson, MD, and Walter Dembitsky, MD, San Diego, Calif, and Chapel Hill, NC

In-hospital cardiac arrest or refractory shock carries a high mortality despite the use of advanced resuscitative measures. We implemented and assessed in a 150-patient prospective registry the use of an in-hospital, nurse-based, continuously available, percutaneous, venoarterial cardiopulmonary bypass system as an adjunct to resuscitation when initial measures were ineffective.

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- 758 Prevention of lung ischemia–reperfusion injury by short hairpin RNA–mediated caspase-3 gene silencing**
Yong-Xing Zhang, MD, Hong Fan, PhD, Yu Shi, MD, Song-Tao Xu, PhD, Yun-Feng Yuan, MM, Ru-Heng Zheng, MD, and Qun Wang, PhD, Shanghai, China

In this study, we knocked down the expression of caspase-3 by intratracheal administration of short hairpin RNA 48 hours before ischemia and prevented lung apoptotic injury in a rat model of lung ischemia-reperfusion injury. We have shown the therapeutic potential of caspase-3 short hairpin RNA for treating lung ischemia-reperfusion injury after transplantation.

- 765 Should lung transplantation be performed for patients on mechanical respiratory support? The US experience** 
David P. Mason, MD, Lucy Thuita, MS, Edward R. Nowicki, MD, MS, Sudish C. Murthy, MD, PhD, Gösta B. Pettersson, MD, PhD, and Eugene H. Blackstone, MD, Cleveland, Ohio

Survival after lung transplantation is worse for patients requiring preoperative intubation or extracorporeal membrane oxygenation compared with patients not requiring mechanical support. Reduced survival for this high-risk population raises an important issue: balancing maximal individual patient survival against benefit to the maximum number of patients.

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Ian Hunt, FRCS, Donna Eaton, FRCS, Omar Maiwand, FRCS, and Vladimir Anikin, FRCS, Harefield, Middlesex, United Kingdom

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- 777 Intraoperative recognition of an intracavitary left anterior descending coronary artery**
Lucas H. A. Sanders, MD, FCS(SA), FRACS, Mohamed A. Soliman Hamad, MD, Mark A. J. Newman, FRACS, MD, and Bart H. van Straten, MD, Eindhoven, The Netherlands, and Perth, Australia

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Congenital heart disease (13213009); CHD - Congenital heart disease (13213009). Definition. A heart disease that is present at birth. Representative examples include atrial septal defect, ventricular septal defect, tetralogy of Fallot, and patent foramen ovale. [from NCI]. Additional description. From GHR Critical congenital heart disease (CCHD) is a term that refers to a group of serious heart defects that are present from birth. These abnormalities result from problems with the formation of one or more parts of the heart during the early stages of embryonic development. CCHD prevents the heart from pumping blood effectively. A congenital heart defect (CHD), also known as a congenital heart anomaly and congenital heart disease, is a defect in the structure of the heart or great vessels that is present at birth. Signs and symptoms depend on the specific type of defect. Symptoms can vary from none to life-threatening. When present, symptoms may include rapid breathing, bluish skin (cyanosis), poor weight gain, and feeling tired. CHD does not cause chest pain. Most congenital heart defects are not associated with other health problems. Congenital heart disease is a general term for a range of birth defects that affect the normal way the heart works. The term "congenital" means the condition is present from birth. Congenital heart disease is one of the most common types of birth defect, affecting up to 8 in every 1,000 babies born in the UK. Why it happens. In most cases, no obvious cause of congenital heart disease is identified. However, some things are known to increase the risk of the condition, including maternal diabetes, rubella infection, and certain medications. Congenital heart defects, problems with the structure of the heart, are the most common type of birth defect. Learn about diagnosis and treatment. Facts about Congenital Heart Defects (Centers for Disease Control and Prevention). Tricuspid Atresia (Nemours Foundation). What Are Congenital Heart Defects? Congenital heart disease, also known as congenital heart defect, is a heart abnormality present at birth. Learn about its symptoms, causes, and treatment. Congenital Heart Disease. Medically reviewed by Debra Sullivan, Ph.D., MSN, R.N., CNE, COI. Written by Colleen M. Story. Updated on December 19, 2017. Types. Symptoms. Causes. Treatments. In Adults. Prevention.