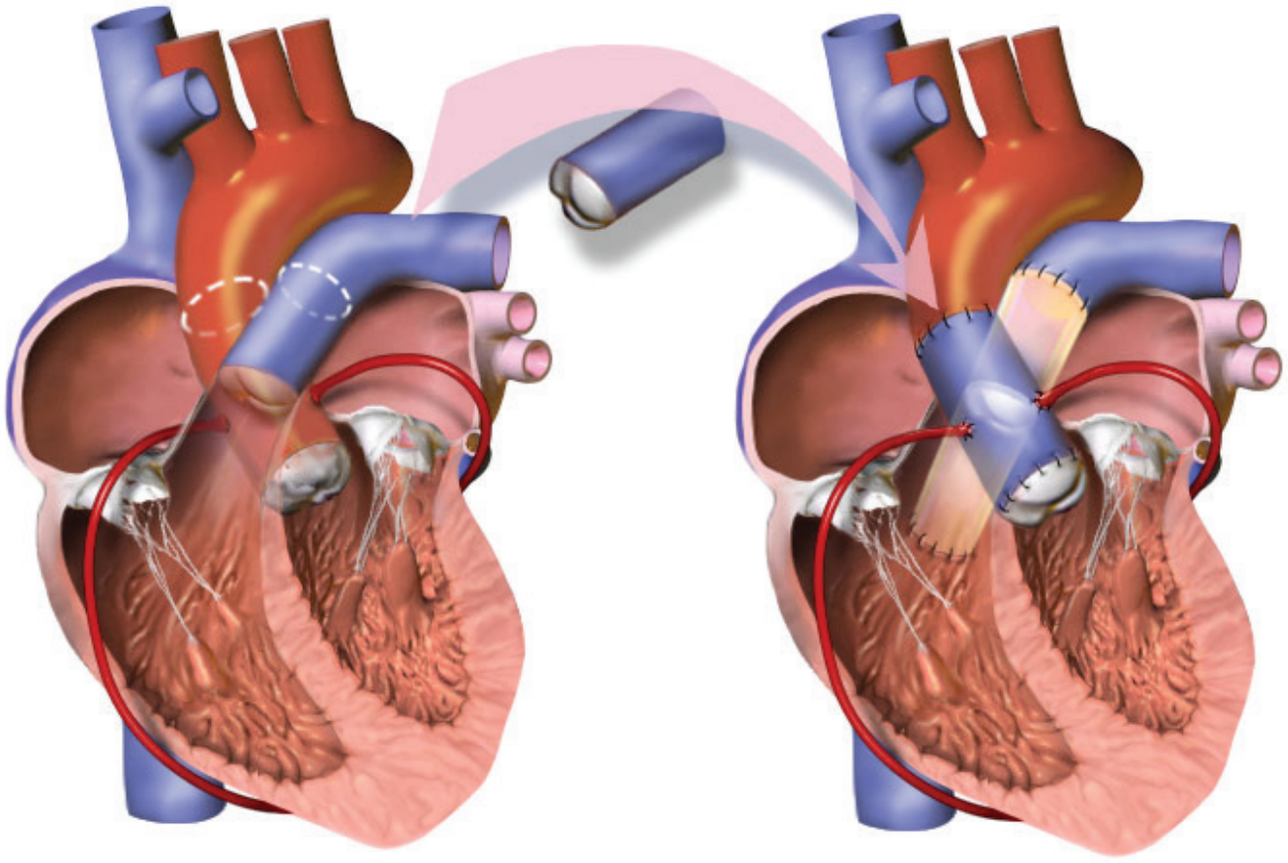
AUGUST 2025 THE VOLUME 57 NO 8

THE SURGICAL TECHNOLOGIST

OFFICIAL JOURNAL OF THE ASSOCIATION OF SURGICAL TECHNOLOGISTS, INC.



The Ross Procedure: Cardiac Autograft and Allograft

Part 2 of 2

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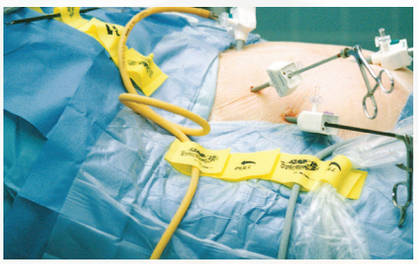

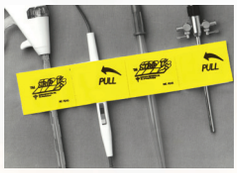

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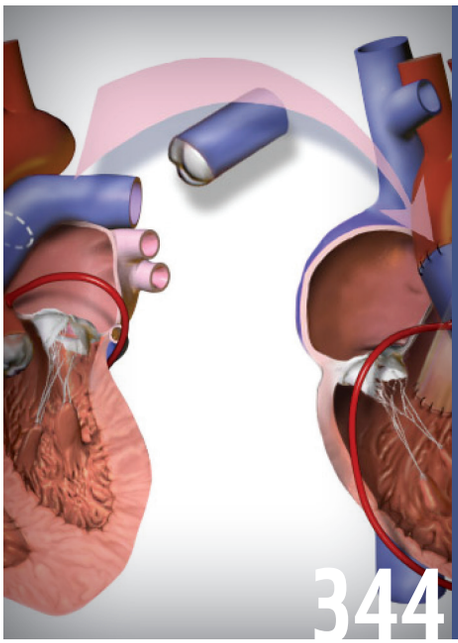

The Ross Procedure: Cardiac Autograft and Allograft

Part 2 of 2

Kevin B. Frey, CST, FAST

The Ross procedure has a history of fluctuating popularity over the years, but due to recent studies providing data on long-term survival rates that attest to the durability of the pulmonary valve (PV), the number of procedures is climbing again. Part 2 dives into the details of the procedural steps, a discussion of factors that support a successful procedure, and a review of the recent studies showing that the procedure provides excellent long-term results for the patient.

In This Issue

In Every Issue

Connect with AST on LinkedIn, Facebook, Instagram, and Pinterest to grow your professional network!

AST Conference Allows You to Recharge Your Passion

JAIME LOPEZ, CST, CSFA, RN, FAST, AST DIRECTOR

BOARD MESSAGE

The building excitement as conference approaches is always enjoyable. Boarding the plane, looking outside the window as it lowers into Orlando – it's hard to describe that feeling. Here we are now, and it seems like a blink of an eye as it's all over and time to prepare for next year. One of the most exciting parts of conference was the announcement of the next three cities where conference will be held. So, get ready as conference will be held in Seattle, Washington, for 2026; Milwaukee, Wisconsin, for 2027; and Phoenix, Arizona, for 2028!

One of the best parts of the event is networking with your peers as you mingle during preconference activities or in passing in between lectures. Whether you are sharing your passion, challenges, or goals, these types of conversations lead to lifelong friendships.

As my first year on the AST Board seeing this side of the conference – YOU – our members DO matter most! The experiences you get either as a first-time attendee or a seasoned conference attendee, you can make the difference within our profession.

Attending the business sessions and learning the bylaws and participating in our profession, you truly have a voice. Becoming a delegate gives you the power to make changes and let your voice be heard. You have a chance to listen to the candidate statements, meet the candidates and ask questions or address any concerns. I'd encourage you to get involved as you may have many ideas that can help keep our profession in the forefront in healthcare.

The fun festivities continued as the opening night party gives you a chance to let loose and continue making connections with certified surgical technologists from different states. This year our keynote speaker was Dr. Kevin McCoy and the Solitude Road Band, who featured a song that highlights CST Chamice! They rocked it! If you haven't seen their video, please search for the song, Chamice. Chamice, we missed you!

> YOU make a difference in our patients' lives and coming together leads to inspiring stories and a lifelong network of friends.

Attending conference is a different experience for everyone but the common goal is to recharge your enthusiasm, expand your mind, and to remind you why we do what we do. YOU make a difference in our patients' lives and coming together leads to inspiring stories and a lifelong network of friends.

Looking forward to seeing you in Seattle in 2026!

SAVE THE DATE

National Surgical Technologists Week

September 21-27, 2025

AST
Association of Surgical Technologists

AST News

AT A GLANCE

GET READY TO CELEBRATE YOUR ROLE

NATIONAL SURGICAL TECHNOLOGISTS WEEK IS SEPTEMBER 21-27, 2025

Get ready to celebrate National Surgical Technologists Week in style!

Watch for more communication in the weeks leading up to NSTW regarding AST's 2025 campaign.

WAYS TO EARN CE

DID YOU KNOW THE FOLLOWING ARE WAYS TO EARN CE:

CE credits can be earned through the following methods:

a) College courses
b) Surgical missions
c) AST approved live events
d) AST approved CE courses – hardcopy or electronic
e) Authoring CE articles for health-related publications
f) CE lecturer or instructor at AST approved live events
g) Participation on the following national boards, national standing committees, or panels, as well as completion of volunteer assignments may also be acceptable forms of CE if they are determined to involve substantial contributions to professional efforts related to certification, education, guidelines development, and research.

College Credit

a) College courses submitted for CE credits **must** be completed with a grade of "C" or better.
b) College courses **must** be relevant to healthcare, surgery, surgical technology, or surgical first assisting.
c) Surgical first assistant college courses **must** be completed at a CAAHEP accredited surgical first assistant program.
d) The courses **must** be completed at an institution that is accredited by an organization recognized by the U.S. Department of Education.

For complete requirements and documentation needed, visit www.ast.org – Members – AST CE Policies or reach out to us via chat connected through our website.

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Did you serve on a medical mission during the first couple months of this year, prior to the global pandemic? If so, you may be eligible to apply for a medical mission scholarship.

Eligibility

To be eligible for a mission scholarship you must:

- Be an active AST member with currency.
- Complete and submit the Mission Medical Application and the Medical Mission Verification Form by December 31 of the year of your mission.
- Provide a description of your membership history—join date and any AST involvement.
- Upload official documentation of the mission program you have described.
- Upload official receipts documenting the costs incurred by the individual and all costs must be shown in dollars. All assistance is determined after the medical mission trip has occurred and the appropriate documentation has been provided. Upload supporting documents below.
- Upload two letters of recommendation, along with an article describing your experience for *The Surgical Technologist* journal and related photos.
- Write an article describing your experience for The Surgical Technologist and provide related photos before you will be reimbursed.

MILESTONES

HAPPY ANNIVERSARY!

Congratulations to the following state assemblies as they celebrate an anniversary this month! AST appreciates your hard work, dedication and all your years of service for making our state assemblies the backbone of this organization.

- Georgia – 24 years
- Mississippi – 25 years
- Oklahoma – 25 years

FOUNDATION *for* SURGICAL TECHNOLOGY

2025 Scholarship Recipients

The Foundation for Surgical Technology funds various awards during the year, but it is best known for the academic scholarships that assist students entering the field. This year we awarded $49,000 in student scholarships. Over the next couple of months, this year's scholars will describe what this award means to them.

Makenzie Marra, Dalton Gay Memorial Scholarship, New England Institute of Technology, Berkley, MA – $3,000

Devondria Neuble, Fortis Institute (Nashville), Nashville, TN – $2,500

Jennifer Hovis, Moberly Area Community College, Columbia, MO – $2,500

Doris Lopez Allende, Malcolm X City College of Chicago, Chicago, IL – $2,500

Brenda Hernandez, Moore Norman Technology Center, Moore, OK – $2,500

Jenna Smith, CST, Mount Aloysius College, Duncansville, PA – $2,000

Kaylie Andrews, Great Bay Community College, Portsmouth, NH – $2,000

Caitlin Sturman, Concorde Career College, Portland, OR – $2,000

McKenna Geiger, Bismarck State College, Mandan, ND – $2,000

Allyson Guden, Mid State Technical College, Marshfield, WI – $2,000

Natalie De Leon Ciccone, Chattahoochee Technical College, Chattahoochee, TN – $2,000

Lindsey Jackson, Fortis Orange Park, Orange Park, FL – $1,500

Mariah Jossell, Malcolm X College, Chicago, IL– $1,500

Kimberly Sterling, Swedish Institute College of Health Sciences, New York, New York – $1,500

Grace Glass, Quincy College, Quincy, MA – $1,500

Stacy Iannarone, Triton College, River Grove, IL – $1,500

Kathleen Murray, Ivy Tech Community College, Valparaiso, IN – $1,500

Matov Paulina Rodriguez Chavez, The College of Health Care Professions, Austin, TX – $1,000 sponsored by the Texas State Assembly

Issac Eberle, Bismarck State Collage, Bismark, ND – $1,000

Zoe Calabrese, Cabarrus College of Health Science, Concord, NC – $1,000

Alisha Budhu, New York University, New York, NY – $1,000

Stella Light, Mt. Hood Community College, Portland, OR – $1,000

David Kimani, The College of Healthcare Professions, Dallas, TX – $1,000 sponsored by the Texas State Assembly

Victoria Harms, Lincoln Land Community College, Springfield, IL – $1,000

Zoe Messenger, The College of Health Care Professions, Dallas, TX – $1,000 sponsored by the Texas State Assembly

Nothando Ncube, Triton College, River Grove, IL – $1,000

Jasmine Molina, The College of Health Care Professions, Dallas, TX – $1,000 sponsored by the Texas State Assembly

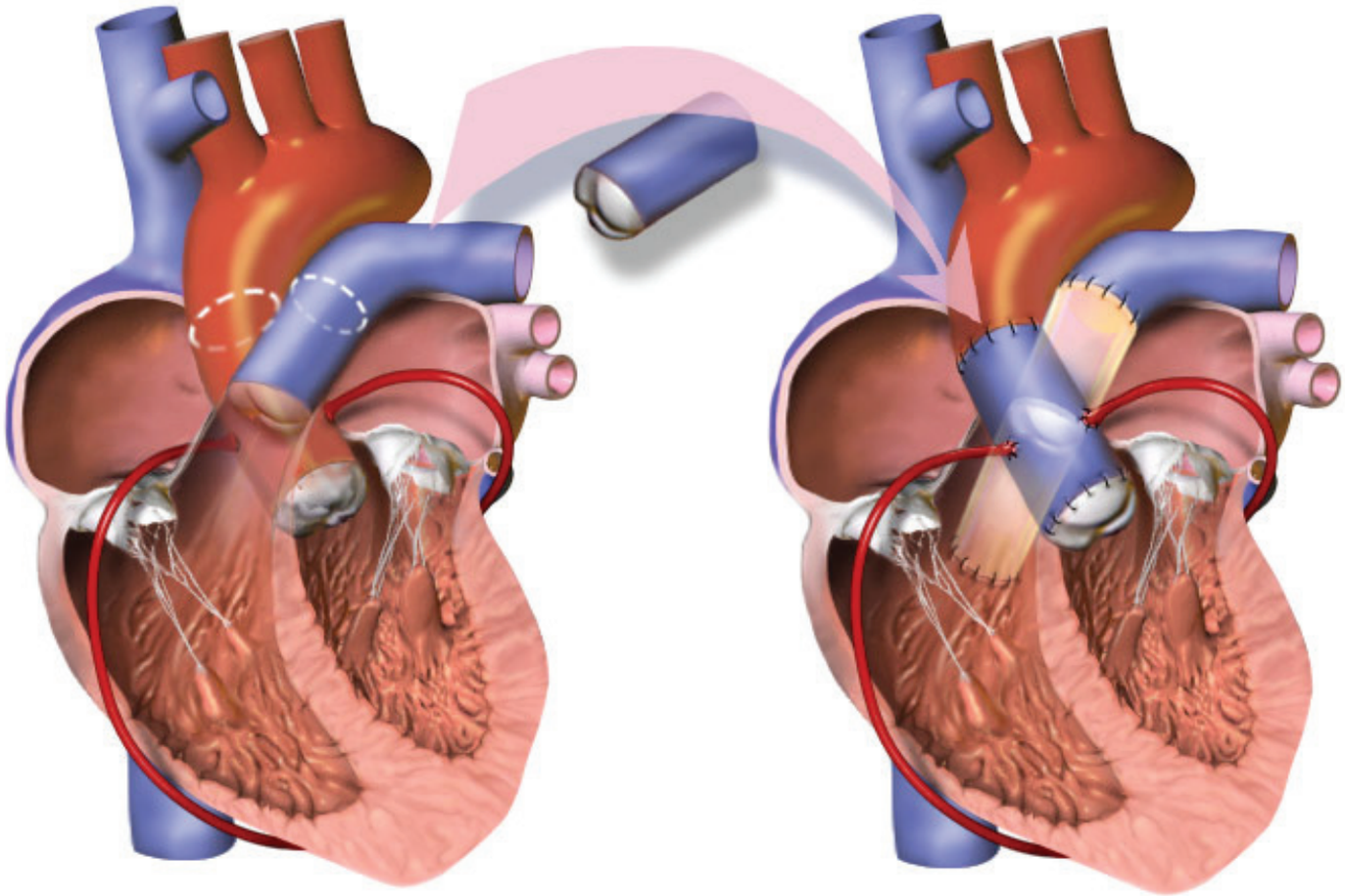
Deborah Zelleke-Yearwood, Laurel Ridge Community College/Lord Fairfax Community College, Warrenton, VA – $1,000

Brian Kriever, Southeast Community College, Lincoln, NE – $1,000

Jose Montano, Triton College, River Grove, IL – $1,000

Estefania Martinez, College Of DuPage, Glen Ellyn, IL – $1,000

Sarah Carlson, Rasmussen University, Odessa, FL – $1,000



The Ross Procedure: Cardiac Autograft and Allograft

Part Two

Kevin B. Frey, CST, FAST

The Ross Procedure

The procedure can be broken down into six broad steps.[1]

1. Aortic root preparation and mobilization of the coronary arteries.
2. Excising and preparing the PV autograft.
3. Implanting the PV autograft and completing proximal anastomosis.
4. Reimplanting the coronary artery.
5. Inserting the PV allograft.
6. Distal anastomosis of the PV autograft.

After the patient is placed in the supine position and sterile cardiovascular drape is positioned, the surgeon performs a median sternotomy followed by standard exposure of the heart and aorta, cardioplegia is established, and cardiopulmonary bypass (CPB) is begun (Procedural Factors 1).[1] The aorta is cannulated in the aortic arch just superior to the innominate artery by cross-clamping the innominate artery which also places the clamp distal to the pulmonary artery bifurcation to later facilitate PV excision and distal PV allograft anastomosis (Figure 1).[3] Bi-caval cannulation is next achieved without the use of snares. Prior to starting CPB, the

LEARNING OBJECTIVES

- Identify the relevant anatomy
- Recall the indications and contraindications for the procedure
- Describe the technical aspects of the procedural steps
- Evaluate the factors that contribute to good patient outcomes
- Discuss the results of studies that confirm long-term positive results

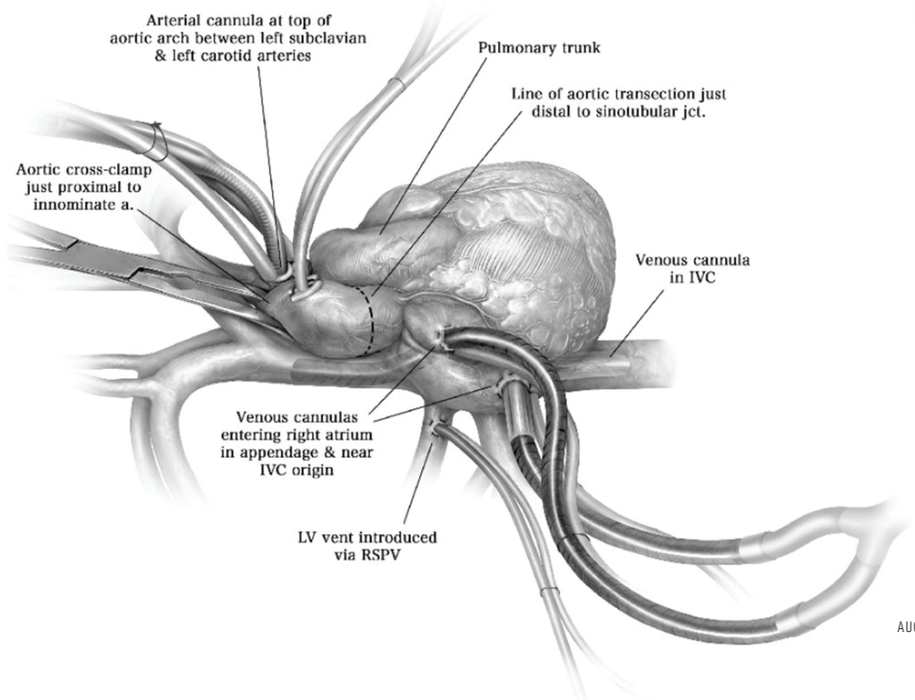


Figure 1: Cannulation for the Ross procedure. The aorta is cannulated in the arch, enabling distal placement of the cross-clamp. Bi-caval cannulation is used without sutures.

Illustrations reprinted with persmission from The Ross Procedure. Operative Techniques in Thoracic and Cardiovascular Surgery 26:189; 209 (2021).

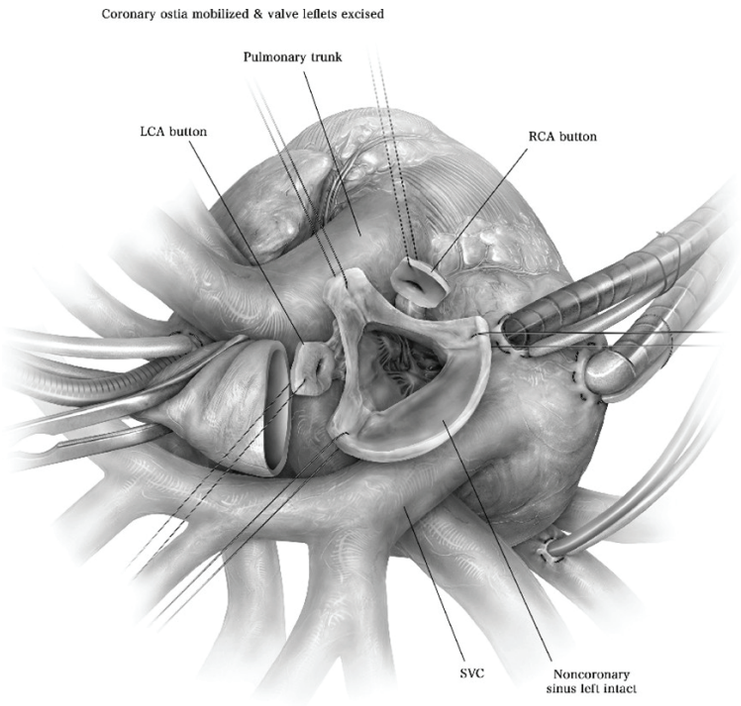


Figure 2: *Aortic root mobilization. Retraction sutures at the commissures and above the coronaries facilitate exposure. It is important to assess annulus diameter as well as commissural height and orientation. Any asymmetry in height or orientation should be corrected when implanting the pulmonary autograft to avoid distortion.*

adventitial tissues between the aorta and pulmonary artery are divided and the aorta is dissected free at the level of the cross clamp. Del Nido cardioplegia, a crystalloid-based solution, is administered in antegrade fashion through the root and in the coronary ostia. A transverse incision is made in the aorta approximately 5-mm above the STJ or slightly higher if the ascending aorta requires replacement.[3]

After the aorta is transected, the surgeon places three commissural retraction sutures (Figure 2).[4] The AV leaflets are excised and the annulus decalcified to restore systolic expansion of the native aortic annulus.[1] The AV root is visualized to confirm the annular diameter and height and symmetry of the commissures. A valve sizer with markers may be used to verify the symmetrical position of the three commissures.[1] If aortic annular dilatation is present the surgeon will place an extra-aortic annuloplasty ring to ensure the aortic annulus diameter matches the PV diameter (Procedural Factors 2).[4]

Next, the coronary buttons are mobilized, leaving approximately 2 mm of aortic tissue around the ostia.[4] Using electrosurgery set on low power, the surgeon dissects

> … the popularity of the Ross procedure has fluctuated over the years, but recent s tudies have shown the efficacy of the procedure, and the number of procedures performed has been steadily increasing.

down to the dome of the left atrium and interventricular septum to mobilize the left and right coronary buttons. Both buttons are suspended with a silk suture.[1] The five retraction sutures, two button sutures and three commissural sutures, provide the surgeon with sufficient aortic root exposure. To complete the aortic root mobilization, the ligament of the infundibulum between the aorta and pulmonary artery is transected.[1]

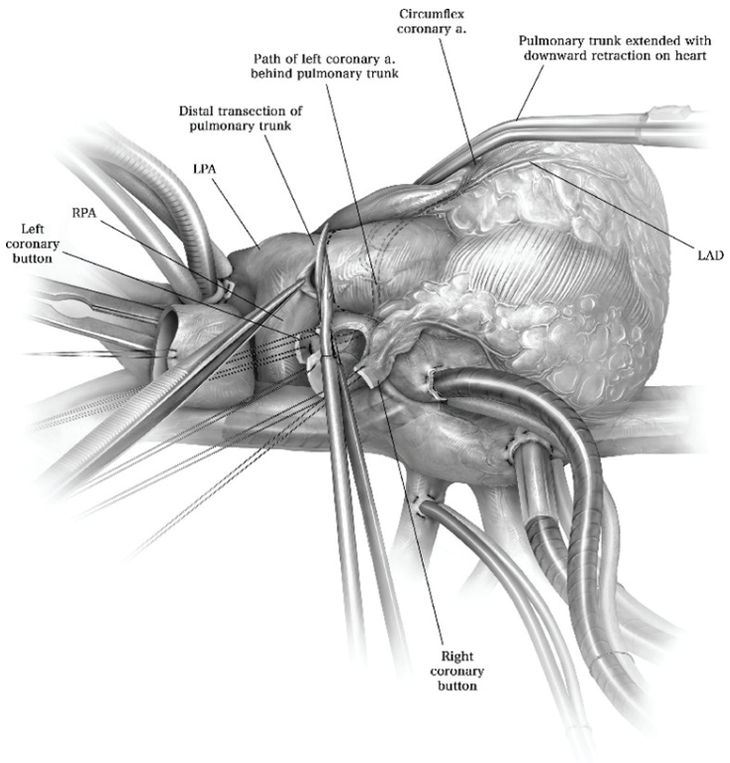


Figure 3: *Pulmonary autograft harvesting is started a few millimeters proximal to the origin of the right pulmonary artery. The main pulmonary trunk is transected under direct vision, staying above the commissures.*

The pulmonary artery is dissected free starting superiorly in a downward fashion (Figure 3). The cardiotomy suction is placed along the left ventricle to facilitate visualization and caudal traction is applied so the bifurcation can be visualized.[4] The incision in the primary pulmonary artery is made approximately three to five mm proximally to the origin of the right pulmonary artery. The incision is extended to expose the PV. It is visualized to confirm it is healthy with normal anatomy.

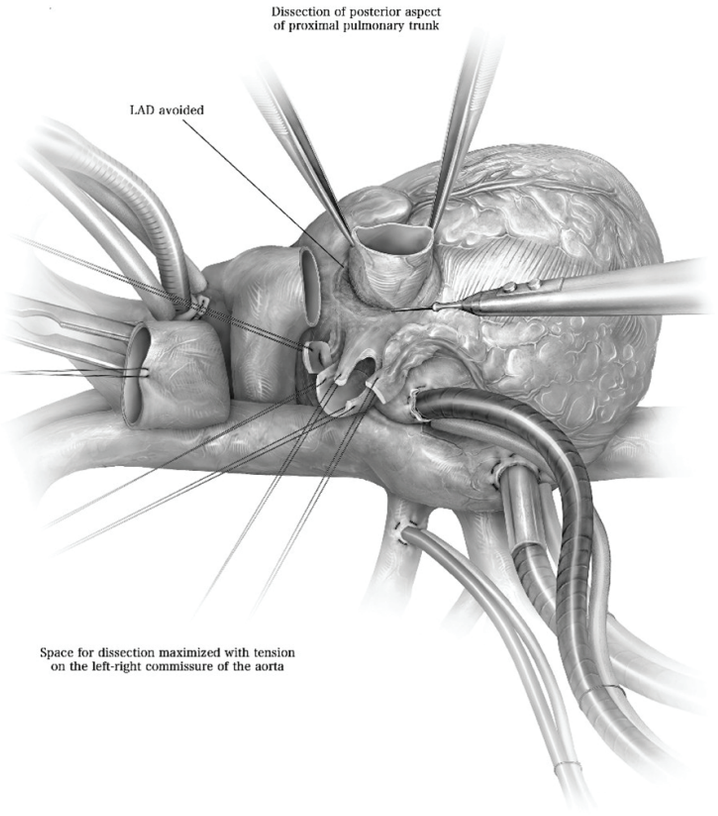


Figure 4: *The main pulmonary artery is lifted from the plant of the heart by freeing the loose connective tissue posteriorly, using low-grade electrocautery. This lifts it vertically and created distance from the coronary artery in the back. Dissection is continued until ventricular muscle is seen at the base of the pulmonary artery posteriorly.*

The pulmonary artery is transected under direct vision superior to the commissures and elevated anteriorly.[4] Using electrosurgery still set on low power the posterior dissection is completed to separate the loose connective tissue down to the interventricular septum until ventricular muscle is visualized at the base of the pulmonary artery posterioly.[4] This allows the pulmonary artery to be vertically elevated from the heart (Figure 4). The assisting surgeon will elevate

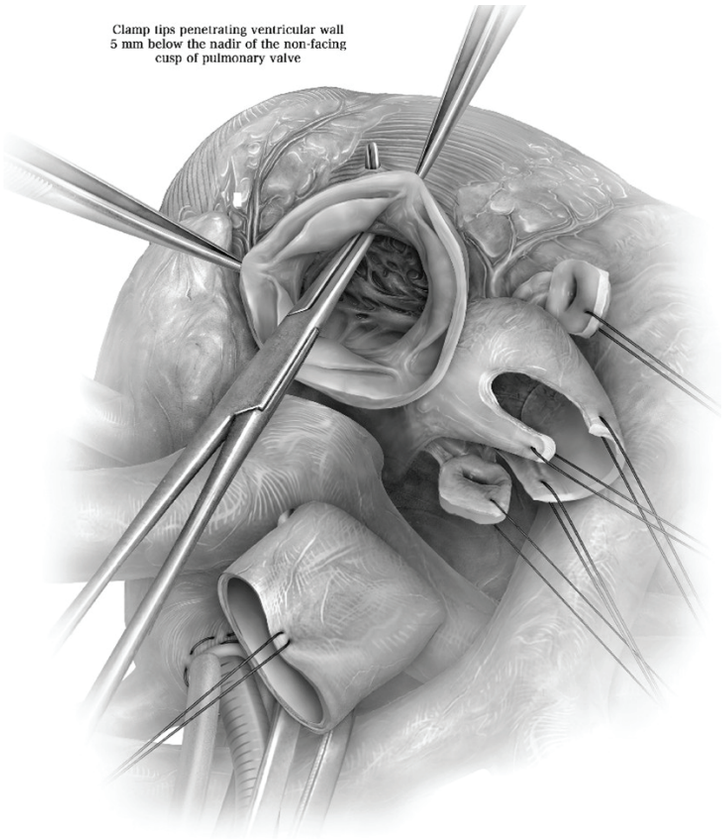


Figure5: *A right-angle clamp is passed through the right ventricular outflow tract anteriorly, 5 mm below the nadir of the non-facing cusp.*

the pulmonary artery with a clamp on the adventitia tissue, placing it under careful traction to facilitate the dissection and visualization of the anatomy.[4] The surgeon is careful to avoid injuring the left coronary button and the left anterior descending artery as they free the pulmonary artery posteriorly.

A right-angle clamp is placed through the PV and in an anterior direction out of the right ventricular outflow tract (RVOT) five mm below the anterior leaflet (Figure 5).[4] Using a #15 knife blade, the surgeon extends the posterior incision. The assistant surgeon now retracts the PV cranially and the surgeon continues the posterior incision using scissors (Procedural Factors 3).[4] The surgeon will remain at least 3-5 mm below the leaflet insertion point to avoid injuring the first septal perforator artery.[4] Additionally, the surgeon is careful to avoid injuring the left anterior descending artery when extending the incision laterally (Figures 6 & 7). Once the surgeon has completed the incision within

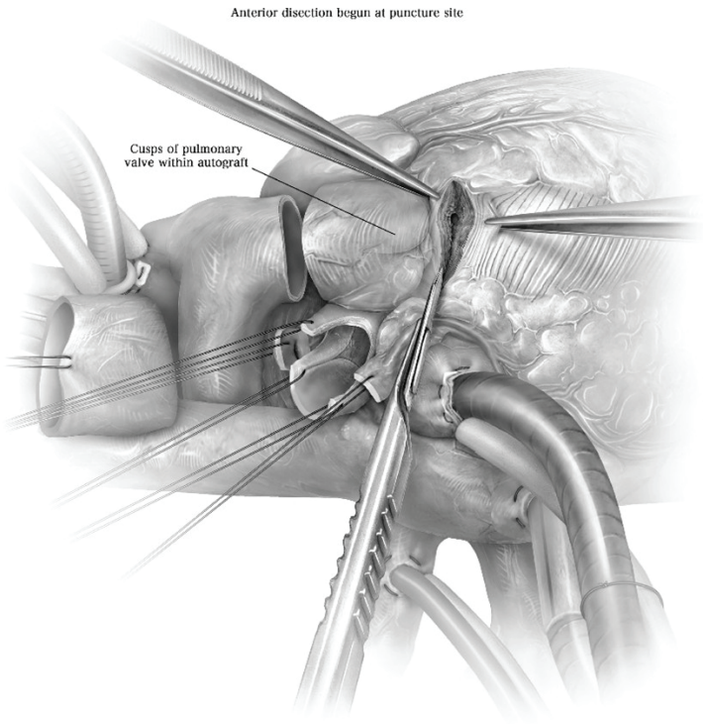


Figure 6: *The proximal incision is extended using the scalpel, followed by scissors under direct vision. The incision is made 3 – 5 mm below cusp insertion line. Care is taken when extending the incision laterally to avoid the left anterior descending artery.*

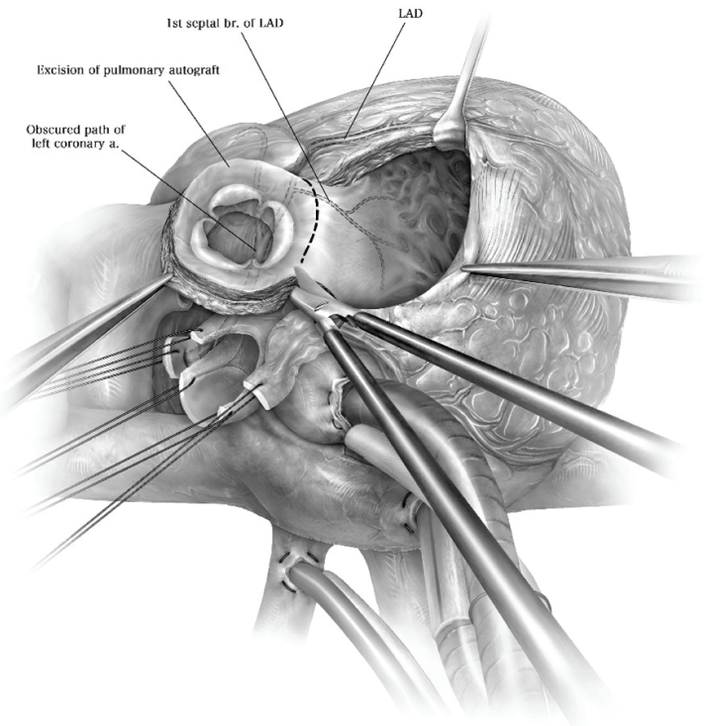


Figure 7: *The base of the autograft posteriorly consists of interventricular septum. The first septal artery courses behind the incision and surfaces 1 cm below the nadir of the left-facing cusp. It is important that the surgeon transects the muscle in a horizontal plant to avoid the septal perforator. This is done with scissors or electrocautery. Hemostasis of the raw surfaces is assisted by cardioplegia.*

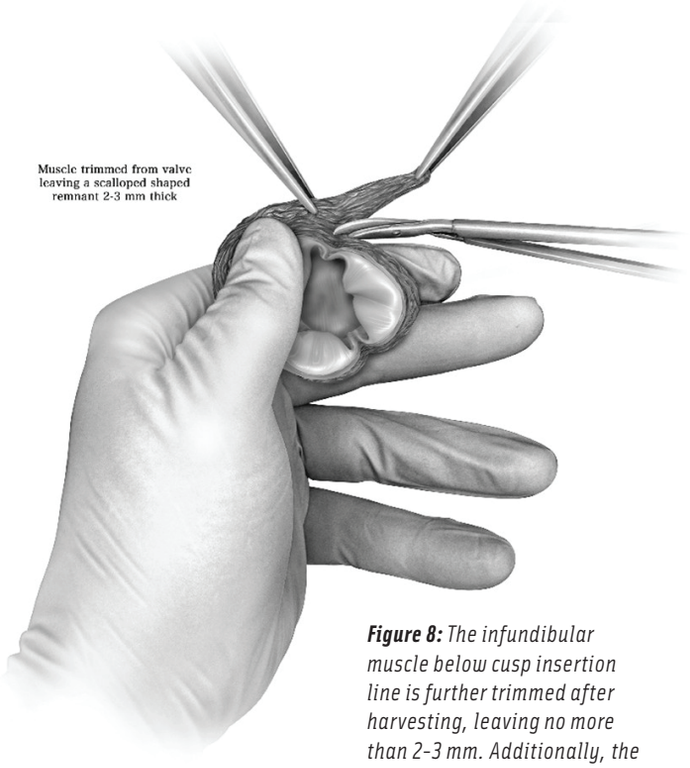


Figure 8: *The infundibular muscle below cusp insertion line is further trimmed after harvesting, leaving no more than 2-3 mm. Additionally, the autograft is scalloped under the commissures to respect the crown shape of the aortic annulus.*

the RVOT, the remaining interventricular septum muscle is divided with low power electrosurgery. After the pulmonary artery with PV is removed, hemostasis is achieved by careful cardioplegia down to the coronary ostia. Small bleeding vessels are either cauterized or sutured.

The surgeon prepares the PV autograft by trimming the excess infundibular muscle to within 2 to 3 mm from the cusp insertion, which is important to the long-term stability of the PV autograft (Figure 8).[1,10] The surgeon will make short vertical incisions at the commissures, called scalloping, to match the decalcified aortic annulus. The residual infundibular muscle will necrose. The muscular portion is excised so the PV can be properly implanted in the LVOT to allow the native aortic annulus to provide the needed support to the PV root.[1] The PV autograft is implanted within the LVOT and 4-0 polypropylene suture placed in interrupted fashion is used for proximal anastomosis. The surgeon places the first suture beginning 1 mm above the native aortic annulus and exiting 2-3 mm below the native aortic annulus to avoid injuring the conduction system (Figure 9).[4] Each suture is placed through the autograft at the hinge point of the pulmonary autograft cusps to avoid the

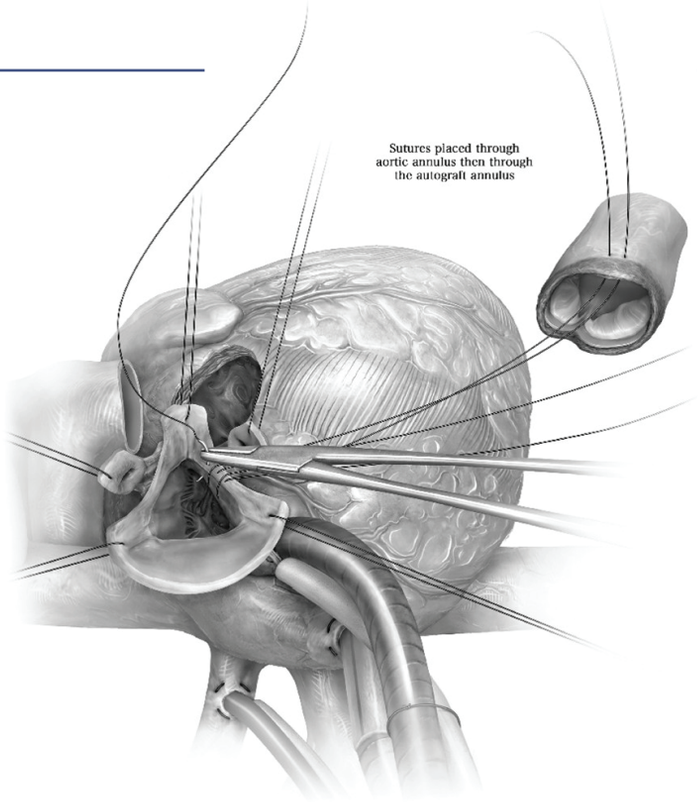


Figure 9: *Single interrupted 4-0 prolene sutures are used for the autograft proximal anastomosis. To ensure placement of the autograft inside the LVOT, the sutures come out 2-3 mm below the plane of the native aortic annulus. Each suture is then passed at the hinge point of the pulmonary autograft cusps.*

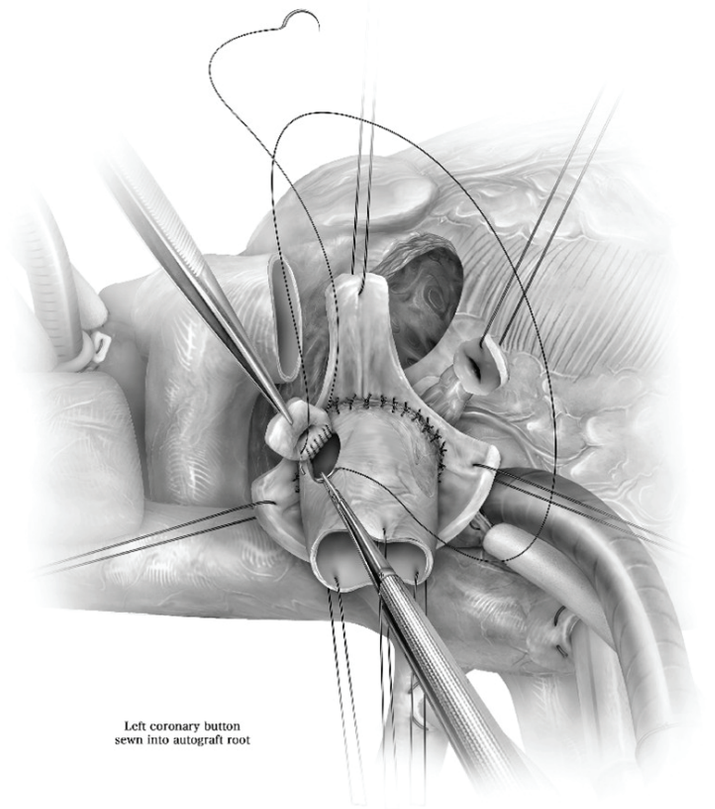


Figure 10: *The coronary buttons are reimplanted within their respective sinuses using 6-0 prolene suture.*

infundibular muscle that also ensures sub-annular placement of the autograft in the LVOT.[4] The needle is passed in an inside to outside fashion. Approximately 12 interrupted sutures are required (Procedural Factors 4).[4]

After the proximal PV autograft sutures are placed and tied, the right and left coronary buttons are reimplanted using 6-0 polypropylene suture (Figure 10). Both buttons are positioned directly in the opening of their sinuses slightly posterior to the STJ (Procedural Factors 5).[4]

The PV allograft is implanted prior to the distal autograft anastomosis being completed. The PV allograft distal anastomosis is completed first with 5-0 polypropylene suture placed in continuous fashion.[1] The assisting surgeon places caudal traction on the left ventricle with the use of the cardiotomy suction cannula to facilitate visualization (Figure 11). The proximal anastomosis is completed using 4-0 polypropylene suture on a half-circle needle also placed in continuous fashion at the level of the RVOT (Procedural Factors 6) (Figure 12).[1,4] Prior to completing the anastomosis, the right ventricle is deaired.

The surgeon now goes back to the autograft. Because the pulmonary artery wall is thinner than the aortic wall and therefore does not adjust to systemic pressures as well, supracoronary pulmonary artery tissue is resected to prevent autograft dilatation (Procedural Factors 7).[1,4] Three 5-0 or 6-0 polypropylene sutures are placed just above the commissures and the tissue superior to the sutures is resected circumferentially. The surgeon will leave 2 – 3mm of tissue superior to the commissures and coronary button anastomoses (Figure 13).[4]

The next step the surgeon accomplishes is anastomosing the autograft to the aorta. The autograft is anastomosed directly to the aorta using a 5-0 polypropylene placed in continuous fashion.[4] An option the surgeon may employ is using a 26-28 mm Dacron graft that is placed between the autograft and the native aorta distally.[4] Upon completion of the anastomosis, the cross-clamp is removed and the aortic root pressurized. Protamine is administered and bleeding is controlled. The surgeon sutures the remaining native noncoronary aortic sinus wall slightly distal to the autograft and aortic anastomosis using three 5-0 or 6-0 polypropylene suture placed in interrupted fashion.[3] Additionally, the remaining aortic tissue between the left and right sinuses is sutured into place.[4]

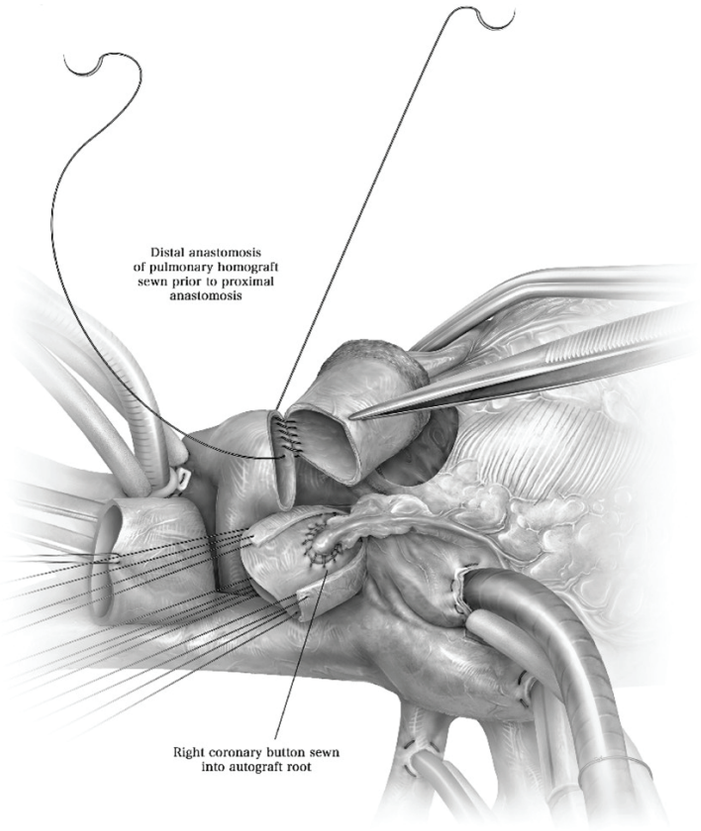


Figure 11: *A pulmonary homograft is used to replace the pulmonary autograft starting with the distal anastomosis. The heart is retracted caudally, and the anastomosis is performed using a running 5-0 prolene suture. The suture is locked several times to avoid purse-stringing effect.*

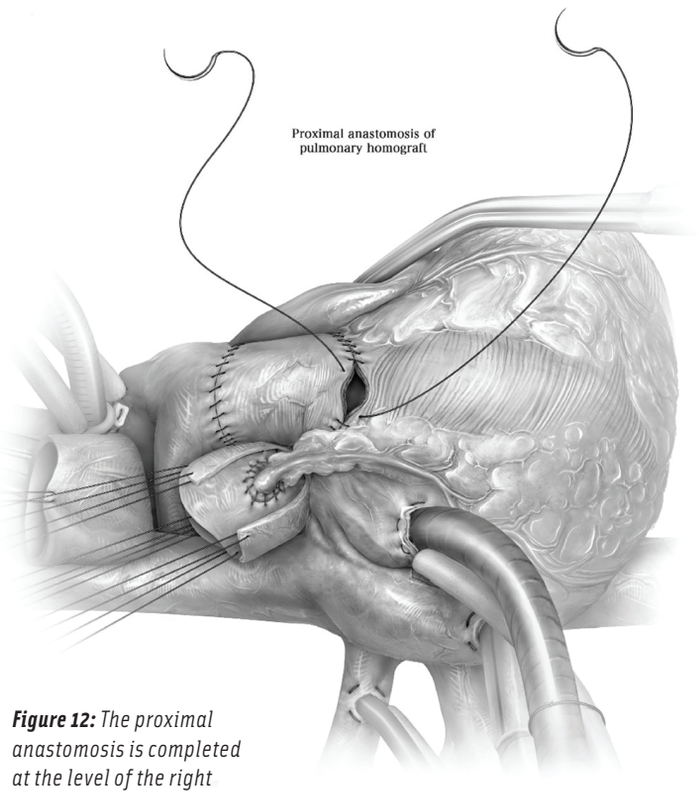


Figure 12: *The proximal anastomosis is completed at the level of the right ventricular outflow tract. Posteriorly, the sutures are placed superficially across the interventricular septum to avoid injuring the first septal artery.*

After the patient has been removed from cardiopulmonary bypass, a TEE is performed to assess the functions of the autograft and allograft. Prior to hospital discharge, the TEE is repeated to confirm both valves are functioning normally, and the TEE is repeated every 4-6 weeks postoperatively.[7]

POSTOPERATIVE COMPLICATIONS

Complications are low occurring in approximately 3-5% of patients, and mortality is low particularly in healthcare facilities that have experienced surgeons that perform at high-volume institutions with a record of success. Early autograft failure is rare, but can occur within six months postoperatively, usually due to leaflet injury or distortion of the valve caused during valve removal.[7] The PV allograft typically lasts 15-20 years and regurgitation or stenosis may develop.[7] However, the development and refinement of endoscopic AVR has contributed to avoiding the need to perform another open-heart surgery.

Complications include the following:

- Infection
- Hemorrhage
- Arrhythmias
- RVOT obstruction
- Aortic insufficiency
- Myocardial infarction
- Cerebrovascular issue
- Aortic autograft dilatation
- Pulmonary allograft stenosis (due to calcific degradation)[7]

DISCUSSION

As previously mentioned, the popularity of the Ross procedure has fluctuated over the years, but recent studies have shown the efficacy of the procedure, and the number of procedures performed has been steadily increasing. A 22-year single-center study of 252 patients who underwent the Ross procedure showed a 90.3% survival rate at 20 years Varun Shetty, MBBS, DNB (CVTS), FRCS (CTS), cardiac surgeon at the Narayana Institute of Cardiac Sciences in Bangalore,

India, reported at the 61st Annual Meeting of the Society of Thoracic Surgeons (STS) held in January 2025 in Los Angeles.[14] Additionally, 91% of patients at 10 years and 87% of patients at 20 years remained free from cardiac reintervention surgery during the same period.[14]

Dr. Shetty reported the following survival rates: 95.8% at 5 years, 94.3% at 10 years, 93.3% at 15 years, and 90.3% at 20 years.[14] He continued by reporting freedom from aortic regurgitation was 95.1%, 92.2%, 87.7%, and 84.5% at 5, 10, 15, and 20 years respectively. The percentages for freedom from pulmonary regurgitation were lower: 97.0%, 83.6%, 79.7%, and 75.1% at 5, 10, 15, and 20 years respectively.[14]

Of the 252 patients, 186 underwent a cylinder inclusion technique or "mini root" replacement, while 25 patients received a Dacron-reinforced autograft.[14] Three patients had to undergo a Ross-Konno procedure to enlarge the LVOT root to be able to fit the PV autograft. Twenty-five patients also underwent an ascending aorta replacement, two underwent hemiarch replacement, and four underwent septal myectomy to treat an abnormally thickened heart muscle.

Dr. Shetty's research team benchmarked their results with those recorded in the STS Congenital Heart Surgery Database (CHSD) which contains more than 600,000 congenital heart surgery records.[14] The CHSD is part of the STS National Database that contains approximately 10 million cardiothoracic procedure records performed by 4,300-plus surgeons.

During the 2000s the number of Ross procedures decreased to fewer than 100 per year in the US. However, according to the STS, in 2013 there were 66 Ross procedures performed and over a 10-year period increased to 531 procedures in 2023.[14]

The evidence stated above highlights the importance for patients to have surgery at a high-volume center that has an experienced cardiac surgical team who performs a variety of aortic procedures including the Ross procedure.[11,15] Studies have established the relationship between volume and patient outcomes of cardiac procedures performed at high-volume centers.[16-18] It is comparable to other professions – the more an individual performs a certain activity such as playing a type of musical instrument, participating in a specific sport, or repairing vehicles, the more knowledgeable and experienced they become. Bouhout led a research team reporting that they considered the learning curve for an early-career surgeon to become proficient at the Ross procedure to be 75 to 100 procedures.[19] The research team reported the CPB, and cross-clamp times decreased by 20 minutes and 24 minutes respectively with a decrease in complications from 11% to 4% after a surgeon had performed 100 procedures.[19] These results support the research results from other high-volume Ross procedure centers that reported improvements in surgeon's skills and patient outcomes including morbidity and mortality.[13,15,19] Aboelnazar and colleagues suggest that for a surgeon to maintain their expertise in the Ross procedure, they should perform at least 20 to 30 of the operations annually.[10]

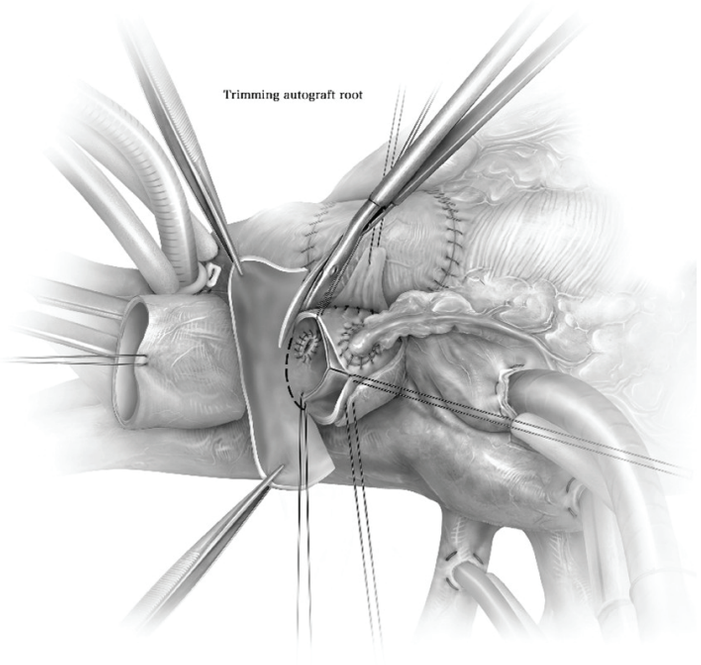


Figure 13: *Attention is shifted back to the pulmonary autograft. To minimize the risk of autograft dilation, the surgeon resects all the supra-commissural pulmonary artery tissue. Three sutures are placed superiorly above the commissures and all tissue above the sutures is resected circumferentially.*

This approach to surgeon experience applies to the other members of the surgical team. Lengthy operative times are correlated with an increased risk for postoperative complications including extended ICU and hospital stay, infection, low cardiac output syndrome, and extended time on mechanical ventilation.[10] As stated by Aboelnazar, et al, "To perform the Ross well, the surgical team must strive for efficiency and expedience while maintaining meticulous technique to keep the operation short and minimize postoperative complications."[10] The complex Ross procedure demands a knowledgeable and skilled CST who has built upon their experience by participating in a high volume number of the procedures performed in the first scrub role. A CST who has specific experience in first scrubbing a variety of cardiac procedures including the Ross procedure ensures the ability to anticipate the needs of the sterile surgical team, optimal equipment, instrument, and suture management, proper handling of tissue specimens, and proper handling of the PV allograft. This experience is first built upon gaining detailed knowledge of the surgical anatomy and pathophysiology of the cardiovascular system.

FINAL COMMENTS

Although the Ross procedure has seen wavering use over the years, evidence-based outcomes reported in long-term series studies have reinforced its use including improvements in surgical techniques. It is critical that the CST learns the details of the procedure regarding surgical anatomy and the surgical steps to ensure safe conduct of the operation and to contribute to excellent long-term outcomes for patients. The Ross procedure brings to the forefront the critical thinking and multitasking skills the CST must have to be able to be an efficiently performing member of the cardiac surgical team.

PROCEDURAL FACTORS 1: MYOCARDIAL PROTECTION

Myocardial protection is of utmost importance. Because of the length of the Ross procedure, it is critical to ensure that cardioplegic delivery occurs frequently and reaches the entire myocardial tissue. Aboelnazar, et al recommend redosing after the PV autograft is implanted. An important factor as related to myocardial protection is preoperative assessment of the coronary anatomy with cardiac magnetic resonance imaging, computed tomography, or coronary angiography. Stelzer, et al reports that 1.25% of patients had a coronary variance.[10,13] Even though the percentage is low, these anomalies can increase the risk for poor myocardial infusion as well as create a challenge in harvesting and reimplanting the coronary buttons.[10]

PROCEDURAL FACTORS 2: COMMISSURAL SYMMETRY

Commissural symmetry and height should be confirmed to avoid deformity of the PV autograft when it is inserted that can lead to aortic insufficiency or leaflet prolapse eventually resulting in autograft failure.[1]

Patients undergoing the Ross procedure for aortic regurgitation will often have a dilated aortic annulus of >25 mm placing them at rick for continued dilatation of the annulus.[1] To prevent this an extra-aortic annuloplasty ring is inserted to ensure that the aortic annulus diameter matches the PV diameter to prevent dilatation later in the patient's life. A 28 to 32 mm Dacron ring is used. After the aortic valve is decalcified, six pledgeted 2-0 Ethibond sutures are placed radially within the LVOT.[1,10] The PV autograft is inserted, the ring lowered into place, and the sutures tied.

PROCEDURAL FACTORS 3: POSITION OF SCISSORS

When continuing the posterior incision, the surgeon will hold the scissors in a flat, horizontal position to avoid injuring the septal perforator artery.

PROCEDURAL FACTORS 4: PV AUTOGRAFT

- Even though the surgeon has evaluated the PV autograft prior to excision, it is recommended that the autograft is thoroughly examined after excision to confirm the three leaflets are equally sized with symmetric commissures and no abnormalities.[10]
- It is important for the autograft to be trimmed to preserve the long-term sustainability of the PV because it is now devascularized and lacks the native fibrous structure that was present with the AV.
- Interrupted sutures are used because it allows the surgeon to accurately visualize the placement of each suture circumferentially. Additionally, it allows symmetrical expansion of the autograft during systole.[4]
- Keeping the LVOT sutures to 10 to 12 sutures per sinus contributes to time efficiency and controlling hemorrhage.[10]

PROCEDURAL FACTORS 5: CORONARY BUTTONS

Reimplanting the coronary buttons in the sinuses prevents vessel kinking and allows the surgeon to trim the PV autograft superior to the STJ.[4] The surgeon is careful to leave < 2 mm of aortic tissue on the inferior portion of the buttons because excess tissue can cause obstruction of the coronary during diastole.[4]

PROCEDURAL FACTORS 6: ALLOGRAFT ANASTOMOSIS

- A ≥ 28 mm cryopreserved decellularized pulmonary allograft is used to avoid allograft stenosis.[4] Since 2001, use of cryopreserved decellularized pulmonary allograft is the gold standard. However, this has led to a shortage of the availability of the allografts. It was determined that cryopreserved nondecellularized allograft initiated inflammatory and immune reactions and a lower durability life span of the allograft.[10] The use of cryopreserved decellularized allograft obviously improves endurance because of the reduced inflammatory reaction.
- During anastomosis, the surgeon re-confirms the course of the left anterior descending artery to avoid it while anastomosis of the allograft is laterally completed.
- The surgeon will lock the 5-0 polypropylene suture multiple times to avoid purse-stringing effect when completing the distal anastomosis.[4]

PROCEDURAL FACTORS 7: DISTAL PORTION OF PV AUTOGRAFT

The surgeon carefully sutures the distal portion of the PV autograft to the ascending aorta because this suture line is the most fragile and is susceptible to bleeding.

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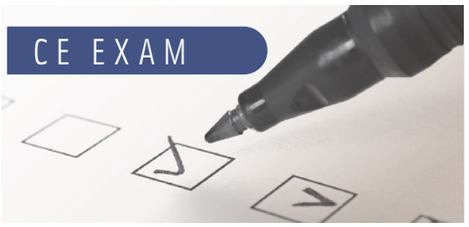

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The Ross Procedure: Cardiac Autograft and Allograft, Part 2

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1. **What size mm Dacron extra-aortic annuloplasty ring should the CST have available?**
   a. 17 – 21
   b. 22 – 26
   c. 23 – 27
   d. 28 – 32

2. **What type of clamp is used to place through the PV when the pulmonary artery is being transected?**
   a. Crile
   b. Kocher
   c. Right-angle
   d. Satinsky

3. **What size and type of suture is used to implant the PV autograft in the LVOT?**
   a. 6-0 silk
   b. 4-0 polypropylene
   c. 5-0 Vicryl
   d. 7-0 polytetrafluoroethylene

4. **Before the PV allograft anastomosis is completed the _____ is deaired.**
   a. right ventricle
   b. left ventricle
   c. ascending aorta
   d. descending aorta

5. **What size mm Dacron graft may be used when the PV autograft is anastomosed to the aorta?**
   a. 23 – 25
   b. 26 – 28
   c. 29 – 31
   d. 32- 34

6. **What is the average life span of the PV allograft?**
   a. 8 – 11 years
   b. 12 – 15 years
   c. 15 – 20 years
   d. 21 – 30 years

7. **What is the name given for the vertical incisions made at the commissures to match the aortic annulus?**
   a. Scalloping
   b. Chevron
   c. Kocher
   d. Lanz

8. **What must be performed prior to completing the PV allograft anastomosis?**
   a. Extra tissue excised
   b. Dacron graft inserted
   c. Allograft function tested
   d. Right ventricle deaired

9. **Which statement is true?**
   a. Pulmonary artery wall is thicker than aortic wall
   b. Aortic wall is thinner than pulmonary artery wall
   c. Pulmonary artery wall is thinner than aortic wall
   d. Pulmonary artery wall is same thickness as aortic wall

10. **Bouhout, et al, reported cross-clamp times decreased by _____ minutes when surgeons have performed 100 or more Ross procedures.**
    a. 12
    b. 16
    c. 20
    d. 24

THE ROSS PROCEDURE: CARDIAC AUTOGRAFT AND ALLOGRAFT, PART 2
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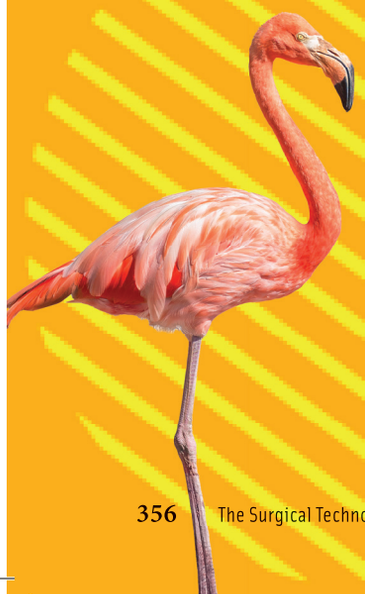

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- States with over 1,000 Active Members: South Carolina – 8.87%

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OUTREACH

The Association of Surgical Technologists leadership alongside leaders from the Accreditation Review Council on Education in Surgical Technology and Surgical Assisting (ARC/STSA), the Florida State Assembly and the National Board of Surgical Technology and Surgical Assisting (NBSTSA) joined forces for this year's outreach event ahead of AST's Surgical Technology Conference.

Each year, AST partners with a local entity to provide volunteer services in an area they need the most. This year, we teamed up with Orlando Health Arnold Palmer Hospital for Children and assembled hygiene and activity kits that are distributed to children and families during their stays.

The group was also given a tour of the facility and heard from past patients, who are now advocates for the hospital and the work the care team does for its patients and families.

With the assistance of our partner organizations and attendees who were invited to donate gift cards or other needed items at the conference, more than $3,000 was raised for visiting children and families. Thank you to everyone who donated!

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Couldn't make it to conference but would still like to donate? Visit https://www.arnoldpalmerhospital.com/ to learn more about the services they provide and how you can get involved.

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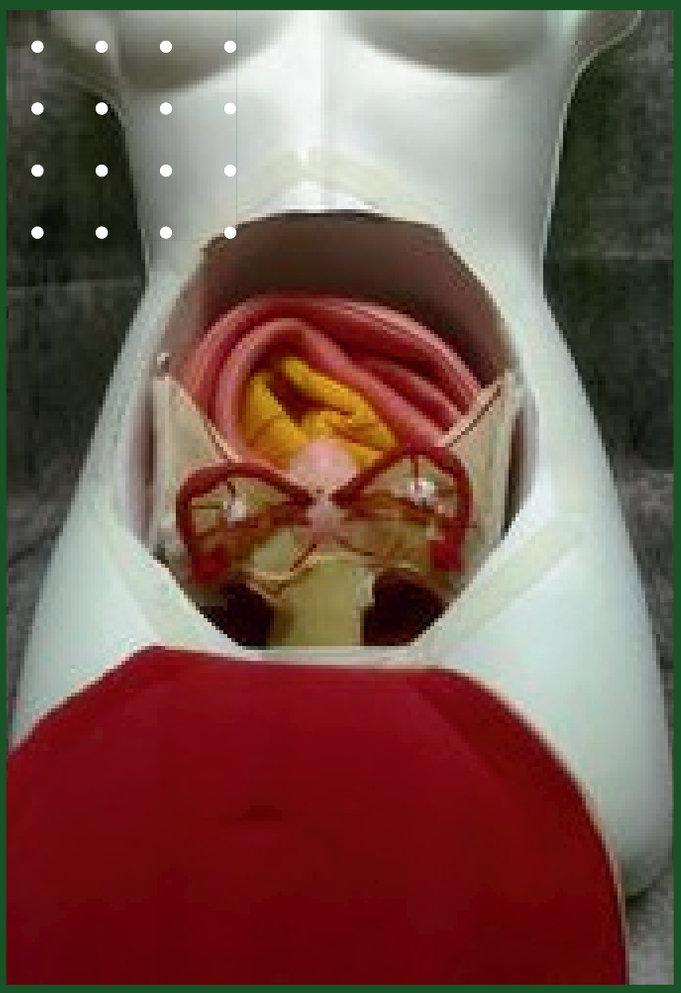

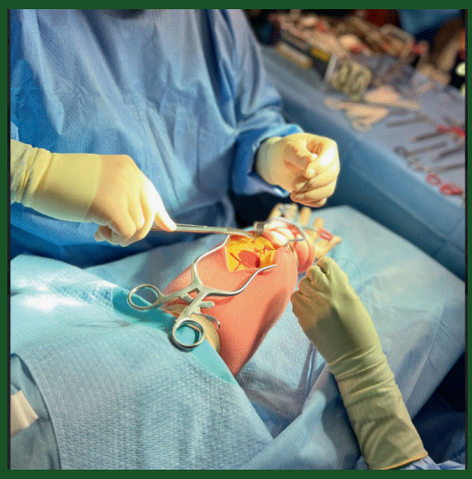

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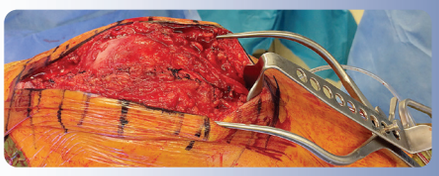

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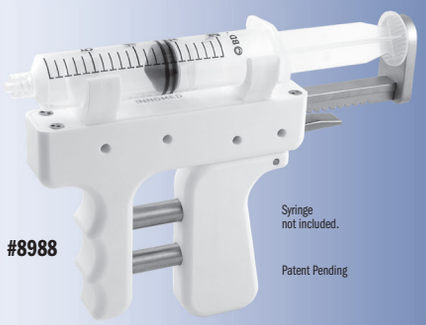

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Designed by Robert Gray, MD

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- Especially useful for injecting preoperative local anaesthesia for WALANT surgery
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White Aspiration Handle

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#1131

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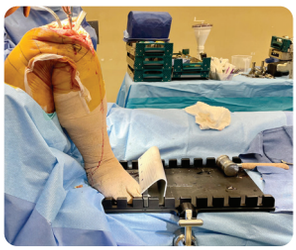

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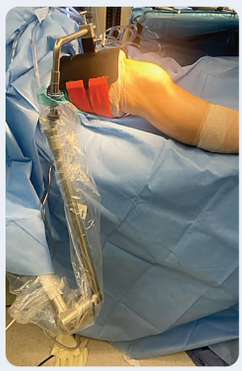

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Odilon Marc Lannelongue, MD: Giving Children the Opportunity for a Normal Life

AST Staff

MEDICAL MARVELS

The change of state of the apophyses, their slow or rapid transformation, calls for the co-operation of an active physiological irritation to occur, pursuing its goal of substitution until its last term: complete ossification after completed growth. Odilon Lannelongue, MD, describing *les osteitis apophysaries pendant la croissance* (apophyseal osteitis during growth), 1878.

Dr. Odilon Marc Lannelongue (December 1840 – December 1911) is remembered for his work involving the study and treatment of bone diseases with an emphasis on osteomyelitis and bone tuberculosis (TB) having performed the first craniectomy for craniosynostosis. Born in Castéra-Verduzan, France, he studied medicine in Paris, becoming an intern in 1863.[1] One of the surgeons he studied under was Dr. Charles-Pierre Denonvilliers, who was a pioneer in facial reconstruction surgery.[2] He completed his medical degree in 1867 and in 1869 was appointed as an associate professor. His first hospital appointment, occurring in 1872, was that of Surgeon to the Bicetre Hospital, a public hospital in Paris dating back to 1642, where he studied the surgical diseases of elderly men.[1] In that year, he was also on the staff of the Trousseau Hospital for Children, and remained there for twenty-five years.[1,2] It was during this time at the Trousseau Hospital that his primary interest in the neurological disorders of children began becoming the first surgeon to work on congenital malformations of children to include craniosynostosis.[3] In 1883, he was appointed as a professor at the Faculté de Médecine de Paris (University of Paris Faculty of Medicine) and in 1895 became a member of the French Academy of Sciences.[1] He served as president of the International Congress of Medicine in 1900 and president of the International Congress of Tuberculosis in 1905.[3] He even dabbled in politics as a member of the French Senate in 1906.

In 1890, he was the first surgeon to perform a strip craniectomy to surgically treat sagittal suture synostosis in children to relieve intracranial pressue.[1-3] The procedure involved performing two parallel strip craniectomies lateral to the midline, with a strip of bone remaining over the sagittal sinus.[3] The strip craniectomy included the adjacent normal sutures, including the coronal suture anteriorly and the lambdoid suture posteriorly.[3] The goal of the surgery was to correct the abnormal head shape and improve the microcephaly (abnormally small head) due to excision of the fused sutures. In the 51 craniectomies that he per-

formed there was only one death.[2] Today, modified versions of the operation are performed, including endoscopic assisted strip craniectomy.

In addition to his contributions to cranial surgery, during his time at the Trousseau Hospital, he was one of the first adherents to Pasteur's germ theory of diseases and understood the role microbes played in tissue necrosis.[1] He classified the different forms of necrosis into three groups – osteomyelitic, syphilitic, and tuberculous.[1] His classifications were driven by his work with bone diseases including bony tubercular disease, osteomyelitis, and Osgood-Schlatter disease. He is also credited with introducing the use of zinc of chloride to treat synovial tuberculosis.[3]

In 1911, he founded the *Médaille Internationale de Chirurgie* (International Medal of Surgery) in memory of his wife, Marie Lannelongue, who served as a nurse during the 1870 Franco-Prussian War.[3] The award is given every five years by the *Académie Nationale de Chirurgie* (National Academy of Surgery) to recognize surgeons whose work has advanced the science of surgical discovery.

Dr. Lannelongue was known as a kind and generous person who supported several charities. As a senator he worked to resolve challenging issues of the day including repopulation. But he will always foremost be known as the surgeon who helped children suffering from craniosynostosis and who provided them with the opportunity to lead a normal life.

References

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2. Cadogan M. Odilon Lannelongue. *Life in the Fastlane*. 2022. Accessed April 21, 2025. https://litfl.com/odilon-marc-lannelongue/
3. Bir CS, Ambekar S, Notarianni C, Nanda A. Odilon Marc Lannelongue (1840-1911) and strip craniectomy for craniosynostosis. *Neurosurg focus*. 2014; 36(4): E16. doi: 10.3171/2014.2.FOCUS13559

U.S. Food and Drug Administration Approves Clinical Trials for Pig Kidney Transplants

Massachusetts General Hospital and United Therapeutics Corporation

OF INTEREST IN THE MEDICAL ARENA

Massachusetts General Hospital (MGH) announced on February 7, 2025, that a second patient received a genetically-edited* pig (porcine) kidney and is doing well. This has led to further steps forward in gaining new approval from the U.S. Food and Drug Administration for clinical trials. The surgery occurred nearly a year after the first pig kidney transplant that was performed at MGH on March 16, 2024.

"This second xenotransplant provides us with another excellent opportunity to learn how we can make genetically-edited pig organs a viable, long-term solution for patients. Although we have a long way to go to make that a reality, the transplant is an important next step that has given us optimism to achieve that goal," said Tatsuo Kawai, MD, PhD lead surgeon and Director of the Legorreta Center for Clinical Transplant Tolerance, in the MGH press release.[1]

The 2.5 hour procedure was performed on January 25, 2025, by surgeons at the MGH Transplant Center in a 66-year old man, identified as Tim Andrews of Concord, New Hampshire, with end-stage renal disease (ESRD) who has been on dialysis for more than two years.[1] In addition to the daily challenges presented by dialysis, he experienced several complications including a heart attack in 2023. His path to a kidney transplant was further complicated by his O-group blood type, which extends the amount of waiting time from 5 – 10 years for a kidney as compared to the 3 – 5 years for most patients.[1]

The pig kidney was provided by the biotechnology company eGenesis, Cambridge, Massachusetts, that was genetically-edited by scientists with 69 genomic edits to remove harmful pig genes and add human genes to improve its compatibility.[1] Additionally, the scientific team inactivated porcine endogenous retroviruses** in the pig kidney to eliminate the risk of infection in humans.[1]

Mr. Andrews walked out of MGH on February 1, 2025, free of dialysis, and MGH reported his new kidney is functioning normally. He is the fourth person in the world to receive a genetically-edited pig kidney and is one of two people currently living with one. The other patient is a 53-year old woman who received a pig kidney modified with ten gene edits, who underwent the procedure at NYU Langone Transplant Institute in New York City, New York, She is currently the longest living recipient of a pig organ transplant at 84 days.[1]

Mr. Andrews' procedure was performed under the FDA Expanded Access Protocol, referred to as the compassionate use program, that allows patients with a life-threatening illness or condition to access experimental treatments when another option is not available.

eGenesis and United Therapeutics Corporation, which provided the pig donor kidney for the procedure at NYU Langone Transplant Institute, both recently received FDA approval to begin the first clinical trials involving donated kidney transplants that will begin in mid-2025.[1,2] eGenesis plans to start its study with three patients monitoring the first patient for six months before proceeding with second patient, and then three months before the third transplant.

United Therapeutics Corporation's trial will begin with a cohort of six patients who will receive a "UKidney" that has undergone ten gene edits, adding six human genes, and removing four porcine genes linked to rejection.[2] United Therapeutics plans on assessing the efficacy of the procedure in two groups of participants – ESRD patients who are ineligible for an allogeneic kidney transplant and "ESRD patients who have been on the kidney transplant waitlist but are more likely to die or go untransplanted than receive a deceased donor kidney transplant within five years."[2] Other criteria include 55 to 70 years old, minimum of six months on hemodialysis, and no other serious co-morbidities.

Physicians will postoperatively monitor each transplant patient for 24 weeks.[2] After the postoperative period,

patients who received the UKidney will be monitored for the rest of their lives to track kidney function, monitor for zoonotic infections, and survival rates.[2] After the initial six patient trial, United Therapeutics plans to expand the clinical trial to 50 patients.

As Michael Curtis, Ph.D., CEO of eGenesis said, "This procedure is more than a scientific milestone – it represents a new frontier in medicine. We stand at the beginning of a future where organ shortages may no longer dictate patient outcomes."[1]

***Genetically-edited:** DNA has been intentionally modified using specific techniques to alter the genetic makeup including inserting, deleting, or changing specific DNA sequences.

****Inactivated porcine endogenous retroviruses:** Fragments of retroviral infections that are inherited through generations and are present in all pig cells. The retroviruses can infect human cells and pose a risk for xenotransplantation when using pig organs or tissues for human transplants.

References

1. Chase, B. Massachusetts General Hospital performs second groundbreaking. Massachusetts General Hospital Press Release. February 7, 2025. Accessed April 14, 2025. https://www.massgeneral.org/news/press-release/mgh-performs-second-xenotransplant-of-genetically-edited-pig-kidney-into-living-recipient
2. United Therapeutics Corporation announces FDA clearance of its Investigational New Drug application for the UKidney xenotransplantation clinical trial. United Therapeutics Corporation Press Release. February 3, 2025. Accessed May 12, 2025. https://ir.unither.com/press-releases/2025/02-03-2025-120011819

Long-Term Outcomes of Endovascular Repair for Aortic Injury

European Journal of Vascular and Endovascular Surgery

Media Advisory: To contact corresponding author Victor Mill, MD, email to victor.mill@regionstockholm.se, Karolinska Institutet and Södersjukhuser.

Topline: Thoracic endovascular aortic repair (TEVAR) is an effective treatment for blunt traumatic aortic injury (BTAI) that has low rates of complications, reintervention, and death, and acceptable long term outcomes.

Why the Study is Important: BTAI is a potentially fatal injury with a significant mortality rate. It affects < 1% of patients in a motor vehicle collision, but is responsible for 16% of deaths, placing it second to head injuries as a cause of death in motor vehicle accidents. BTAI occurs in patients who suffer thoracic trauma because of rapid deceleration. The most common cause is from a high-speed motor vehicle collision followed by falls from high heights. The aortic isthmus, slightly distal to the left subclavian artery, is the most affected site. The standard of treatment for hemodynamically stable patients who survive the initial trauma is TEVAR. However, there has been a lack of long term outcomes data regarding patients who have undergone TEVAR for treating BTAI.

Objectives and Design of the Study: The authors conducted a retrospective, observational study that analyzed patients who underwent the TEVAR procedure for BTAI at four tertiary trauma centers over 20 years. The objective of the study was to determine early and long term patient survival, to analyze aortic and device related complications, and to assess the re-intervention rate after the procedure.

Patient Population: This 20-year study analyzed 95 patients (median age 42, 84% men) who underwent TEVAR for BTAI. The patients were identified using local hospital registries and two Swedish vascular and trauma registries.

Study Outcome Measures: The outcome measures were focused on 30-day and long-term survival rates after TEVAR for BTAI, aortic-related mortality rates, and procedural complications that occurred during varying time intervals.

Results of the Study: The 5-year, 10-year, and 15-year survival rates were 68%, 64%, and 57% respectively. The 30-day mortality rate was 16%, with traumatic brain injury (TBI) and aortic-related complications the two leading causes respectively. 16% of patients required reinterventions including coiling, graft explantation (removing a graft previously implanted), and restenting within 18 months after TEVAR, suggesting that late events requiring reintervention are uncommon. 10% of patients experienced procedural complications including hemorrhaging, pseudoaneurysms, and thrombosis requiring either open surgery or administration of a hemostatic adjunct.

Study Limitations: The study did not have a control group. As only BTAI patients who underwent TEVAR were identified for the study, the outcome of patients treated non-operatively was not studied. The low number of patients did not allow analysis of clinically important long-term effects including cardiac remodeling and development of hypertension. Variations in new treatment protocols between the four tertiary hospitals and continuous improvement of stent graft design during this study may have introduced bias into the study results.

Study Conclusion: The researchers commented, "In conclusion, TEVAR is an effective treatment for BTAI, with

low rates of procedure related complications and overall aortic related mortality. The short term survival is closely associated with concomitant injuries, especially TBI, whereas, the long term outcome is acceptable with most complications requiring reintervention being identified during the first two years after index treatment."

Disclosures: The research was supported by grants from Mats Klebergs Stifteise and private donation from Kjell Sten. The authors reported no conflicts of interest.

Reference

Mill V, Wahlgren CM, Dias N, et al. Long term outcomes of endovascular repair for blunt traumatic aortic injury: a twenty year multicentre follow up study. *Eur J Vasc Endovasc Surg*. Published online November 13, 2024. doi: 10.1016/j.ejvs.2024.10.048

Use of Domestic Laundering Machines (DLMs) to Clean Uniforms and Scrubs Raises Concerns Regarding Effectiveness in Microbial Decontamination

PLoS One

Topline: Domestic laundering may be insufficient for decontamination and removal of pathogenic microbes, presenting risks for healthcare-associated infections (HAI) and promoting antimicrobial resistance (AMR).

Why the Study is Important: HAIs are a significant risk to patients exposing them to the dangers of a lengthy illness and possibly death. On any given day in the U.S. 1 in 31 hospital patients will have at least one HAI. HAIs can lead to sepsis that causes an estimated 1.7 million illnesses and 270,000 deaths annually in the U.S. HAIs place a heavy burden on healthcare costing an estimated $28 to $45 billion annually with $12.4 billion related to indirect costs including costs related to early death, increased length of stay in the healthcare facility, and decreased work productivity. Healthcare facilities have placed an emphasis on infection control measures such as handwashing and disinfection of hard surfaces. However, there has been less emphasis on healthcare textiles including the scrub suit (referred to as scrubs) and uniforms.

There has been a lack of detailed studies regarding the use of DLMs to determine their effectiveness in decontaminating uniforms to prevent cross-contamination with pathogenic microbes. Studies have demonstrated that *Escherichia coli*, *Pseudomonas aeruginosa*, and *Staphylococcus aureus* can survive at least 20 days on cotton. *Enterococcus faecium* and *S. aureus* remained viable after 7 days on polyester. Several cases of HAIs associated with healthcare textiles have been reported, for instance, in 2012, the scrubs of a Certified Registered Nurse Anesthetist (CRNA) were the cause of spreading *Gordonia bronchialis* to 3 patients. The CRNA's DLM could not be tested for presence of the bacteria, but the bacteria were identified on the CRNA's body and scrubs. After disposal of the DLM the outbreak stopped.

Objective and Design of the Study: The authors conducted an observational study that analyzed the efficiency of six separate household DLMs using *E. faecium* bioindicators on contaminated fabric swatches. Two bioindicators were placed in a polycotton bag and laundered at 60˚C. Each DLM was tested on both full-length and rapid wash cycles (24 bioindicator bag samples total). Both wash cycles were tested with either biological or non-biological detergent. The temperature and duration were monitored throughout the wash cycle. The laundered swatches were placed in tryptone soya broth (general purpose broth to cultivate both aerobes and anaerobes) and incubated for 48 hours and cultured. The objective of the study was to determine the effectiveness of the use of DLMs in removing pathogenic microbes from textiles to prevent cross contamination.

Study Outcome Measures: The researchers used shotgun metagenomics* to analyze the microbiome** and resistome.*** The study found that only 3 of the 6 DLMs were able to achieve 60˚C during a full-length and rapid wash cycles.

Results of the Study: Three of the six DLMs did not reach 60˚C and failed to decontaminate *E. faecium* during the full-length and rapid wash cycles. Additionally, the study found through microbiome analysis the presence of antibiotic resistance genes in all 6 DLMs tested. Lastly, the researchers found increased bacterial resistance to detergents.

Study Limitations: The authors stated that only DLMs from standard households were tested and did not include health care workers (HCWs) DLMs in the study. HCPs may present different microbiome and resistome results, with the possibility HCW's uniforms and scrubs introducing a greater level of AMR microbes into the DLM's from the workplace. They continued by saying that further research is needed to investigate microbial exchange between garments and DLMs, including genetic transfer, to better assess the risks of DLM failure in decontaminating HCW's uniforms and scrubs.

Study Conclusions: "The inability of DLMs and household detergents to effectively disinfect healthcare workers'

uniforms poses significant infection control challenges and raises concerns about the potential emergence of antimicrobial resistance." The authors called upon the "urgent need for stricter" guidelines and "prioritizing onsite or industrial laundering of healthcare uniforms."

Disclosures: The research was funded by De Monfort University and the Textile Services Association. The authors reported no conflicts of interest.

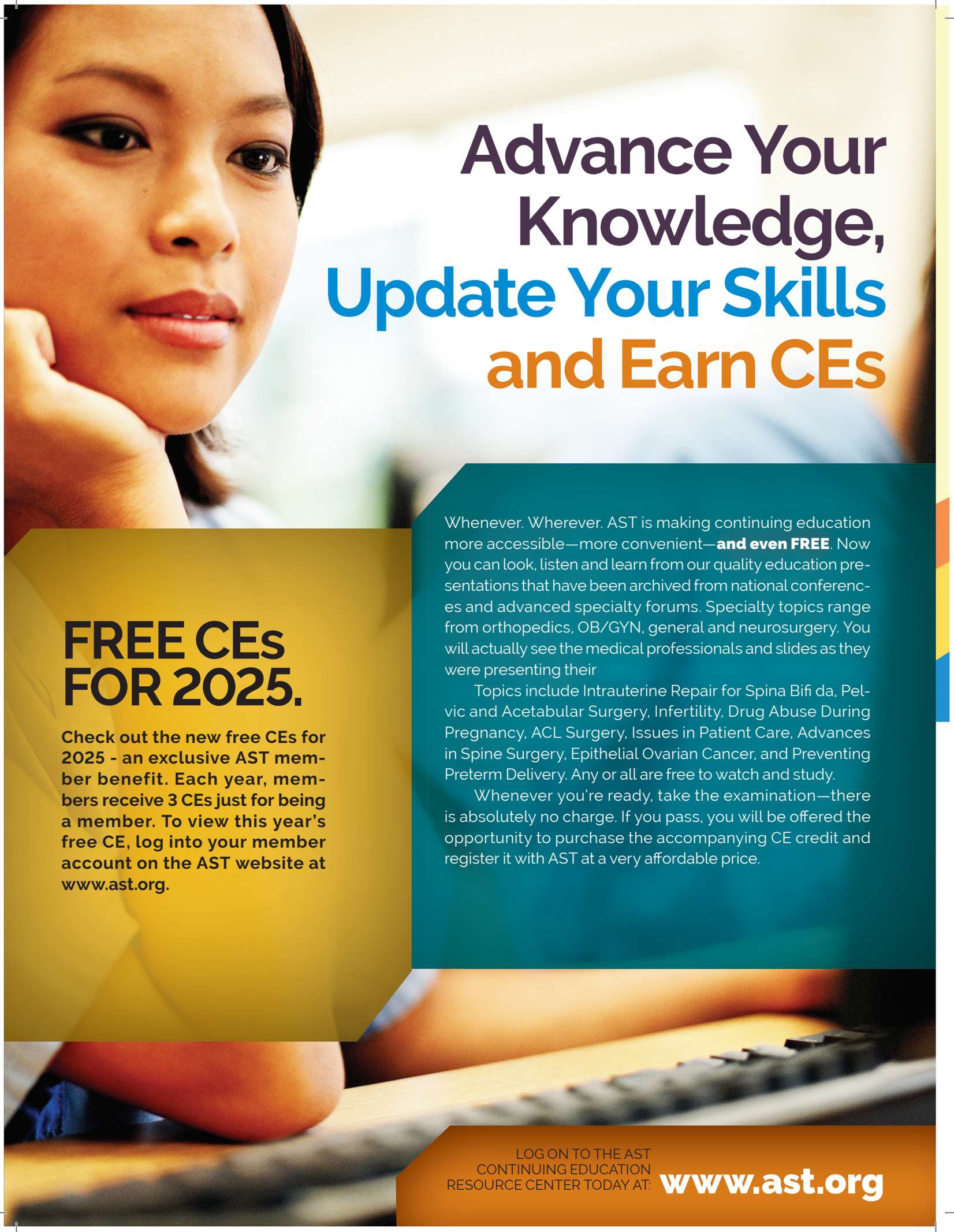
Reference

Cayrou C, Silver K, Owen L, Dunlop J, Laird K. Domestic laundering of healthcare textiles: disinfection efficacy and risks of antibiotic resistance transmission. *PloS One*. 2025; 20(4): e0321467. doi: 10.1371/journal.pone.0321467

*__Shotgun metagenomics:__ Laboratory technique that analyzes the DNA content of a sample.

**__Microbiome:__ The microorganisms found in a particular environment.

***__Resistome:__ Total number of antibiotic resistance genes present in a microbial colony.



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ARKANSAS STATE ASSEMBLY

Program Type: Annual Meeting/Elections
Date: October 4, 2025
Title: Harvesting Credits: Reap Knowledge and Refine Skills
Registration: ar.ast.org
Location: Center for Economic Development-University of Arkansas Fort Smith (Bakery District), 70 S 7th St, Suite D, Fort Smith, AR 72901
Contact: Tamara Morgan, 479-414-6720, tamara.morgan@uafs.edu
CE Credits: 6 Live Planned

ALABAMA STATE ASSEMBLY

Program Type: Workshop
Date: September 13, 2025
Title: Sailing into Knowledge
Location: Coastal Community College, 1900 US-31, Bay Minette, AL 36507
Contact: Abigail Jones, 334-389-1250, abigailcarter8614@gmail.com
CE Credits: 6 Live Planned

ARIZONA STATE ASSEMBLY

Program Type: Workshop
Date: September 20, 2025
Title: Advancing Technology in the OR
Registration: azsaofast.org
Location: HonorHealth Network Support Services Center (NSSC), 2500 W Utopia Road, Phoenix, AZ 85027
Contact: Teresa Sochacki, azsa.assembly@gmail.com
CE Credits: 4 Live Planned

Program Type: Workshop
Date: November 15, 2025
Title: Tucson Time!
Registration: azsaofast.org
Location: Pima Medical Institute – Tucson, 2121 N Craycroft Road, Building 1, Tucson, AZ 85712
Contact: Teresa Sochacki, azsa.assembly@gmail.com
CE Credits: 4 Live Planned

COLORADO/WYOMING STATE ASSEMBLY

Program Type: Annual Meeting/Elections
Date: October 11, 2025
Title: Annual Business Meeting, Elections and Workshop
Location: Intermountain Health Platte Valley Hospital, 1600 Prairie Center Pkwy, Brighton, CO 80601
Contact: Julie Beard, 720-256-5863, jbeard2650@gmail.com
CE Credits: 5 Live Planned

CONNECTICUT STATE ASSEMBLY

Program Type: Workshop
Date: November 1, 2025
Title: My Neck My Back
Location: Norwalk Hospital, 34 Maple St, Norwalk, CT 06856
Contact: Sharkia Bookert, PO Box 581, Monroe, CT 06468, 203-503-7900, bookertsharkia@yahoo.com
CE Credits: 6 Live Planned

FLORIDA STATE ASSEMBLY

Program Type: Annual Meeting/Elections
Date: September 27, 2025
Title: Fall Fest 2025!
Location: Sheraton Orlando North Hotel, 600 N Lake Destiny Road, Maitland, FL 32751
Contact: Stephanie Hurst, 772-538-1230, flsastateassembly@gmail.com
CE Credits: 6 Live Planned

GEORGIA STATE ASSEMBLY

Program Type: Workshop
Date: September 13, 2025
Title: September in the South
Registration: ast-gasa.com/fall-2025-meeting
Location: Southern Regional Technical College, 52 Tech Dr, Tifton, GA 31794
Contact: Susan Feltmann, PO Box 109, Auburn, GA 30011, 678-226-6676, gas-awebmaster@gmail.com
CE Credits: 9 Live Planned

Program Type: Annual Meeting/Elections
Date: March 14, 2026
Title: Spring Forward: Advancing Surgical Technology Education
Registration: ast-gasa.com/spring-2026-meeting
Location: Chattahoochee Technical College - North Metro Campus, 5198 Ross Road SE, Acworth, GA 30102
Contact: Erin Baggett, PO Box 109, Auburn, GA 30011, 678-226-6943, gas-awebmaster@gmail.com
CE Credits: 7 Live Planned

IDAHO STATE ASSEMBLY

Program Type: Annual Meeting/Elections
Date: September 13, 2025
Title: Idaho AST 2025 Annual Business Meeting
Location: St. Luke's Central Plaza, 800 E Park Blvd, Boise, ID 83712
Contact: Dani Hammer, 208-283-3693, daniroesler5@gmail.com
CE Credits: 7 Live Planned

INDIANA STATE ASSEMBLY

Program Type: Annual Meeting/Elections
Date: September 20, 2025
Title: ISA Fall Conference 2025
Location: Franciscan Education Center, 421 N Emerson Ave, Greenwood, IN, 46143
Contact: Lora Hofmann, PO Box 421673, Indianapolis, IN, 46242, 812-201-9563, lhofmann1@ivytech.edu
CE Credits: 6 Live Planned

IOWA STATE ASSEMBLY

Program Type: Annual Meeting/Elections
Date: October 18, 2025
Title: IASA Fall Business Meeting and Workshop
Registration: ia.ast.org
Location: Mary Greeley Medical Center, 1111 Duff Ave, Ames, IA 50010
Contact: Tim Danico, 319-540-6008, timothy-danico@uiowa.edu
CE Credits: 7 Live Planned

KANSAS STATE ASSEMBLY

Program Type: Workshop & Webinar (webinar approved only for Kansas State Assembly members)
Date: October 4, 2025
Title: Annual Fall Workshop
Location: WSU Tech, 3821 E Harry St, Wichita, KS 67218
Contact: Melanie Meyer, 785-550-4101, ks.st.assembly@gmail.com
CE Credits: 4 Live Planned

MICHIGAN STATE ASSEMBLY

Program Type: Annual Meeting/Elections
Date: September 13, 2025
Title: Cutting Edge in the City: MSA-AST Fall Surgical Tech Conference 2025
Location: Trinity Health Richard J. Lacks Sr. Cancer Center - Conference Center, 250 Cherry SE, Grand Rapids, MI 49503
Contact: Renona Gauthier, PO Box 375, Flat Rock, MI 48134, 248-891-3989, michiganassemblyofast@gmail.com
CE Credits: 5 Live Planned

MINNESOTA STATE ASSEMBLY

Program Type: Annual Meeting/Elections
Date: September 20, 2025
Title: MNSA 2025 Fall Workshop & Annual Business Meeting
Location: LifeSource, 2225 W River Road, Minneapolis, MN 55033
Contact: Lori Molus, PO Box 163, Becker, MN 55308, mnast2016@outlook.com
CE Credits: 6 Live Planned

MISSOURI STATE ASSEMBLY

Program Type: Webinar (approved only for Missouri State Assembly members)
Date: August 2, 2025
Title: Summer School for Surgical Super Stars
Registration: buy.stripe.com/8wM03y8G16Nve089AP
Contact: Victoria Thompson, PO Box 214, Ashland, MO 65010, 573-836-0637, missouristateassembly@gmail.com
CE Credits: 3 Live approved by AST

Program Type: Workshop
Date: September 27, 2025
Title: Fall Workshop - Celebrating National Surgical Technologists Week
Registration: subscribepage.io/gaWgUf
Location: Ozarks Healthcare-Willard Hunter Conference Room, 1211 Porter Wagoner Blvd, West Plains, MO 65775
Contact: Victoria Thompson, PO Box 214, Ashland, MO 65010, 573-836-0637, missouristateassembly@gmail.com
CE Credits: 8 Live approved by AST

MONTANA STATE ASSEMBLY

Program Type: Annual Meeting/Elections
Date: October 4, 2025
Title: Montana State Assembly of AST Fall Conference and Workshop
Registration: mt.ast.org
Location: Intermountain Health St. Vincent Regional Hospital, 1233 N 30th St, Billings, MT 59101
Contact: Megan Ellman, PO Box 1513, Columbia Falls, MT 59912, 406-471-1363, meganrellman@gmail.com
CE Credits: 6 Live Planned

NEVADA STATE ASSEMBLY

Program Type: Annual Meeting/Elections
Date: September 20, 2025
Title: NVSA Annual Meeting 2025
Location: Summerlin Hospital Medical Center, 657 N Town Center Dr, Las Vegas, NV 89144
Contact: Tracy Ellis, 702-769-1520, tracy.s.ellis@gmail.com
CE Credits: 4 Live Planned

NEW HAMPSHIRE/VERMONT STATE ASSEMBLY

Program Type: Annual Meeting/Elections
Date: October 4, 2025
Title: NH/VT AST Fall Conference
Location: Elliot Hospital, 1 Elliot Way, Manchester, NH 03103
Contact: Lynn Jones, 603-370-1489, lmwhitney76@gmail.com
CE Credits: 6 Live Planned

NEW JERSEY STATE ASSEMBLY

Program Type: Annual Meeting/Elections
Date: September 20, 2025
Title: 2025 Fall Workshop & Business Meeting
Location: Morristown Memorial Hospital, 100 Madison Ave, Morristown, NJ 07960
Contact: Janee Flynn, PO Box 218, Ridgefield Park, NJ 07660, 201-658-9922, njast3@icloud.com
CE Credits: 6 Live Planned

NEW MEXICO STATE ASSEMBLY

Program Type: Workshop
Date: September 20, 2025
Title: Fall into Surgery Workshop
Registration: nm.ast.org
Location: UNM Domenici Center for Health Sciences Education, MSC09 5100, 1 University of New Mexico, Albuquerque, NM 87131
Contact: Tyler Briggs, PO Box 66496, Albuquerque, NM 87193, 505-366-1847, briggs3.tb@gmail.com
CE Credits: 5 Live Planned

NEW YORK STATE ASSEMBLY

Program Type: Annual Meeting/Elections
Date: October 3-5, 2025
Title: 2025 NYAST Conference, Business Meeting, and Elections
Location: Renaissance Albany Hotel, 144 State St, Albany, NY 12207
Contact: Alisia Pooley, 315-575-0403, boardnyast@gmail.com
CE Credits: 12 Live Planned

PENNSYLVANIA STATE ASSEMBLY

Program Type: Annual Meeting/Elections
Date: September 13, 2025
Title: PAAST Fall Conference with Business Meeting and Elections
Location: UPMC West Shore, 1995 Technology Pkwy, Mechanicsburg, PA 17050
Contact: Chris Kapp, 717-856-1278, kappcj@upmc.edu
CE Credits: 5 Live approved by AST

RHODE ISLAND STATE ASSEMBLY

Program Type: Reformation Meeting/Elections
Date: October 4, 2025
Title: Advancing Technology in Surgery
Location: New England Institute of Technology, 1 New England Tech Blvd, East Greenwich, RI 02818
Contact: Christine Madeira, 401-474-7892, rhodeislandast@gmail.com
CE Credits: 4 Live approved by AST

SOUTH CAROLINA STATE ASSEMBLY

Program Type: Annual Meeting/Elections
Date: November 1-2, 2025
Title: SCSA Fall Business Meeting and Workshop
Registration: scsaast.org
Location: Southeastern Institute of Manufacturing Technology (SIMT Building), 1951 Pisgah Road, Florence, SC 29501
Contact: Katrina Williams, 843-615-7454, katrinawilliams89@yahoo.com
CE Credits: 12 Live Planned

TENNESSEE STATE ASSEMBLY

Program Type: Workshop
Date: October 4, 2025
Title: Wild Wild West Regional
Location: West Tennessee Healthcare Jackson-Madison, 620 Skyline Dr, Jackson, TN 38301
Contact: Ellen Wood, 1344 Copperstone Lane, Knoxville, TN 37922, 865-283-5901, ellenwoodtnast@gmail.com
CE Credits: 6 Live Planned

Program Type: Workshop Cruise
Date: October 2-5, 2026
Title: CE's at SEA
Location: Carnival Glory, 1492 Charles M. Rowland Dr, Cape Canaveral, FL 32920
Contact: Ellen Wood, 1344 Copperstone Lane, Knoxville, TN 37922, 865-283-5901, ellenwoodtnast@gmail.com
CE Credits: 6 Live Planned

TEXAS STATE ASSEMBLY

Program Type: Workshop
Date: September 27, 2025
Title: Houston Workshop
Location: Memorial Hermann Texas Medical Center, 6411 Fannin St, Houston, TX 77030
Contact: Joy Taylor, 409-882-4761, joyadalee@gmail.com
CE Credits: 8 Live Planned

VIRGINIA STATE ASSEMBLY

Program Type: Workshop
Date: August 9, 2025
Title: VCSA Summer Mini CE Workshop
Location: Winchester Medical Center, 1840 Amherst St, Winchester, VA 22601
Contact: Sarah Mercer, 540-325-9396, virginiastateassemblyofast@gmail.com
CE Credits: 4 Live Planned

Program Type: Workshop
Date: October 25, 2025
Title: VCSA Fall CE Workshop - All About Pediatrics
Location: Children's Hospital of the King Daughters- Children's Pavilion, 401 Gresham Dr, Norfolk, VA 23507
Contact: Rebecca Schultheis, 757-202-9962, virginiastateassemblyofast@gmail.com
CE Credits: 7 Live Planned

WEST VIRGINIA STATE ASSEMBLY

Program Type: Annual Meeting/Elections
Date: October 18, 2025
Title: 2025 West Virginia AST Fall Workshop and Business Meeting
Location: WVU Reynolds Memorial Hospital, 800 Wheeling Ave, Glen Dale, WV 26038
Contact: Erin Carr, 304-214-8930, ecarr@wvncc.edu
CE Credits: 6 Live Planned

WISCONSIN STATE ASSEMBLY

Program Type: Annual Meeting/Elections
Date: September 6, 2025
Title: Rooted in Excellence, Growing the Future
Location: UWSP, 1015 Reserve St, Stevens Point, WI 54418
Contact: Amy Hinz, 920-284-8505, hinz_amy@yahoo.com
CE Credits: 6 Live Planned

STATE ASSEMBLY ANNUAL BUSINESS MEETINGS

Members interested in the election of officers & the business issues of their state assembly should ensure their attendance at the following meetings.

ARKANSAS
Fort Smith
October 4, 2025
Annual Meeting
2025 BOD Elections
& 2026 Delegate
Elections

COLORADO/WYOMING
Brighton
October 11, 2025
Annual Meeting
2025 BOD Elections
& 2026 Delegate
Elections

FLORIDA
Maitland
September 27, 2025
Annual Meeting
2025 BOD Elections
& 2026 Delegate
Elections

GEORGIA
Acworth
March 14, 2026
Annual Meeting
2026 BOD Elections
& 2026 Delegate
Elections

IDAHO
Boise
September 13, 2025
Annual Meeting
2025 BOD Elections
& 2026 Delegate
Elections

INDIANA
Greenwood
September 20, 2025
Annual Meeting
2025 BOD Elections
& 2026 Delegate
Elections

IOWA
Ames
October 18, 2025
Annual Meeting
2025 BOD Elections
& 2026 Delegate
Elections

MICHIGAN
Grand Rapids
September 13, 2025
Annual Meeting
2025 BOD Elections
& 2026 Delegate
Elections

MINNESOTA
Minneapolis
September 20, 2025
Annual Meeting
2025 BOD Elections
& 2026 Delegate
Elections

MONTANA
Billings
October 4, 2025
Annual Meeting
2025 BOD Elections
& 2026 Delegate
Elections

NEVADA
Las Vegas
September 20, 2025
Annual Meeting
2025 BOD Elections
& 2026 Delegate
Elections

**NEW HAMPSHIRE/
VERMONT**
Manchester
October 4, 2025
Annual Meeting
2025 BOD Elections
& 2026 Delegate
Elections

NEW JERSEY
Morristown
September 20, 2025
Annual Meeting
2025 BOD Elections
& 2026 Delegate
Elections

NEW YORK
Albany
October 3-5, 2025
Annual Meeting
2025 BOD Elections
& 2026 Delegate
Elections

PENNSYLVANIA
Mechanicsburg
September 13, 2025
Annual Meeting
2025 BOD Elections
& 2026 Delegate
Elections

RHODE ISLAND
East Greenwich
October 4, 2025
Reformation Meeting
& Elections
2025 BOD Elections
& 2026 Delegate
Elections

SOUTH CAROLINA
Florence
November 1-2, 2025
Annual Meeting
2025 BOD Elections
& 2026 Delegate
Elections

WEST VIRGINIA
Glen Dale
October 18, 2025
Annual Meeting
2025 BOD Elections
& 2026 Delegate
Elections

WISCONSIN
Stevens Point
September 6, 2025
Annual Meeting
2025 BOD Elections
& 2026 Delegate
Elections

Program Approvals: Submit the *State Assembly Program Date Request Form A1* no less than 120 days prior to the date(s) of the program for AST approval. The form must be received prior to first (1st) of the current month for program publication in the next month of the AST monthly journal *The Surgical Technologist*. The *Application for State Assembly CE Program Approval A2* must be received at least thirty (30) days prior to the date(s) of the program for continuing education credit approval. An application submitted post-program will not be accepted; no program is granted approval retroactively.

Contact stateassembly@ast.org or 800.637.7433, ext. 2547.

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