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INSIDE THIS ISSUE:

The Physician's Link to Penn State Milton S. Hershey Medical Center Specialists

Endoscopic Vein Harvesting

Endoscopic Vein Harvesting (EVH) is redefining coronary artery bypass surgery. EVH is part of a new era in cardiac surgical care using new technology to establish a less invasive procedure with fewer complications. The result is better care for patients who depend on it.

Continued on next page

Ted Stephenson, M.D. and Jennifer Tulli, P.A. are part of the team providing endoscopic vein harvesting at PSHMC.

Continued from cover

What is Endoscopic Vein Harvesting?

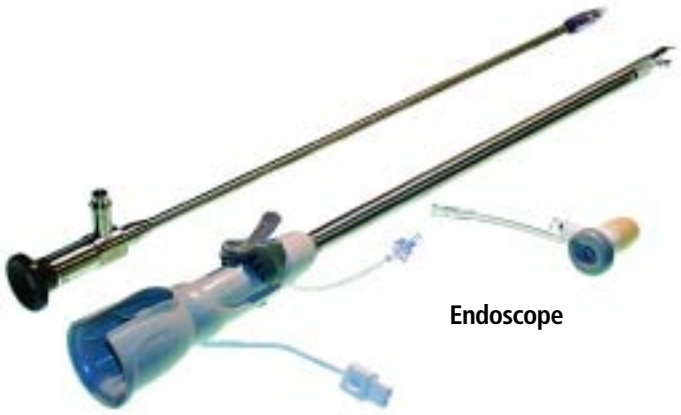
Although all Coronary Artery Bypass Surgeries involve arterial grafts, greater saphenous vein segments are required for some of the bypasses. This vein may now be retrieved through EVH, which is a procedure being used by Penn State Cardiovascular Center surgeons to reduce leg discomfort, reduce infections, and improve cosmetic outcomes.

Depending on the patient, the old method of vein removal had a 20 to 40 percent chance of complications. Many patients had more pain with the leg incision than the chest. Instead of making a long incision corresponding to the length of vein needed for bypass, cardiac surgeons now make two or three one-inch long incisions in the patient's leg. Because this new procedure results in less tissue damage when harvesting the vein graft, many of the problems connected with the former technique are eliminated.

In most cases small incisions can be used. However, every patient is different, and surgeons will recommend the best procedure for individual patients.

How is it performed?

A sixteen-inch endoscope is connected to a video camera and inserted through the small leg incisions. Viewing a monitor, the vein dissection is performed inside the leg with micro instruments and the vein is removed. The surgical team can prepare two to three vein segments in thirty to forty-five minutes, which is similar to the old technique of open harvesting.



Endoscope

Penn State Milton S. Hershey Medical Center
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Penn State MD Network, our toll-free physician consultation service, is the referring physician's link to Penn State Milton S. Hershey Medical Center specialists. Seven days a week, our MD Network staff can assist with patient referrals and admissions, transfers, and provide you with information about our physicians and services. The MD Network section highlights innovative diagnostic and therapeutic procedures available at the Medical Center.

For more information contact **1-800-233-4082**. Visit our website at **www.pennstatehershey.com**.

Patient Benefits

Besides the cosmetic benefit, EVH significantly decreases wound problems and allows faster healing, helping patients start cardiac rehabilitation sooner. Most patients are walking one or two days after surgery. Patients experience less leg pain, and in some cases, no pain at all. EVH results in fewer readmissions and office visits, less need for antibiotics, almost no wound care, and fewer secondary surgical procedures.

How to Refer

Please call MD Network at 800-233-4082 for more information about Endoscopic Vein Harvesting or to make a referral to a Penn State Cardiovascular specialist.

Penn State Cardiovascular Center surgeons David B. Campbell, M.D., Sanjay Mehta, M.D., Walter E. Pae, Jr., M.D., and Edward R. Stephenson, M.D. are a dedicated team of experts, skilled in EVH, and committed to providing comprehensive cardiac care.

Two to three inch incision **long incision**

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Breast Reconstruction After Mastectomy

Most women who have had a mastectomy can have reconstruction. Women who have had lumpectomy usually do not need reconstruction. Penn State Hershey Medical Center offers a full range of reconstructive options to women who have had a mastectomy.

Goals of Reconstruction

- To provide symmetry of breasts
- To permanently restore breast contour
- To eliminate the need for an external prosthesis

The reconstructed breast will not appear identical to the original breast. The objective of reconstruction is to achieve symmetry of the breasts and to create a body silhouette that appears normal in clothing. Patient body image and self-esteem often improve after reconstructive surgery. Each individual case is different, and patients should be realistic about their expectations for reconstruction.

Choices in Breast Reconstruction

Several different techniques can be used to reconstruct the breast. Breast reconstruction can be accomplished with the use of a breast implant, a patient's own tissues (autogenous), or a combination of the two. Autogenous reconstruction involves the use of tissue flaps, which are composed of skin, fat, and muscle that is "borrowed" from other parts of the body and moved to the chest to reconstruct a breast. Common sites from which tissue flaps are created include the abdomen and back.

Implant Procedures

The most common breast implant is a saline implant. Another option is a silicone implant. Silicone implants are filled with silicone gel instead of liquid saline. Some patients find that silicone implants have a softer, more natural contour compared to saline implants. Silicone implants are currently available to breast reconstruction patients at Penn State Hershey Medical Center through participation in an FDA-approved clinical trial.

Implant reconstruction involves a two-stage process. At the time of a mastectomy in immediate reconstruction or in an initial setting for women having delayed reconstruction after a mastectomy in the past, a tissue expander is placed beneath the chest muscle and skin. This expander is used to stretch the muscle and skin in preparation for a permanent breast implant. The expander is gradually filled with fluid over time in the office at regular intervals. In a second procedure after the expansion has been completed, the expander is removed and the permanent implant is placed.

Tissue Flap Procedures

Tissue flap procedures use tissue from the abdomen, back, or buttocks to reconstruct the breast. These procedures leave permanent scars at the donor sites from which tissue is transferred. Not all patients are candidates for autogenous reconstruction. In patients who smoke or have other medical problems, such procedures may be contraindicated.

TRAM (Transverse Rectus Abdominis Muscle) Flap: The TRAM flap procedure uses muscle, skin, and fat from the abdomen to reconstruct the breast. Women who are candidates for this procedure have extra abdominal tissue and laxity. The procedure results in a tightening of the lower abdomen, similar to a "tummy tuck." There are two types of TRAM flaps:

In a *pedicled* flap, the flap remains attached to its original blood supply. The tissue is rotated and moved into position to reconstruct the breast.

In a *free* flap, the flap is completely separated from its blood supply. The tissue is transferred to the breast area. The blood supply to the tissue is then re-connected to blood vessels in the breast area. This procedure involves microsurgery. The blood vessels are connected under a high power microscope. A free flap is a more complex procedure than a pedicled flap.

Latissimus Dorsi Flap: The latissimus dorsi flap procedure uses muscle, fat, and skin from the

back to reconstruct the breast. This tissue is rotated to the chest as a pedicled flap. This flap is most commonly used in conjunction with implant reconstruction to reconstruct the breast.

DIEP (Deep Inferior Epigastric Artery Perforator) Flap: A newer type of flap procedure, the DIEP flap, uses fat and skin only from the same area as the TRAM flap. The abdominal muscle is preserved. This procedure also results in a tightening of the lower abdomen similar to a "tummy tuck." By preserving the muscle, some abdominal weakness may be avoided after the procedure. As the DIEP flap is a free flap, microsurgery must be used to re-connect blood vessels. This procedure is more complex than a pedicled flap or a free TRAM flap.

Risks of Surgery

The risks of breast reconstruction surgery are specific to the type of reconstruction chosen. In general, the risks may include bleeding, excessive scar tissue, infection, changes in nipple and breast sensation, donor site morbidity, and the need for additional revision procedures. Specific risks are discussed with the patient during individual consultation.

How to Refer

To make a referral or obtain more information about Breast Reconstruction Surgery, please call MD Network at 800-233-4082.

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Endovascular Neurosurgery/ Interventional Neuroradiology

What is endovascular neurosurgery/ interventional neuroradiology?

With the addition of two new specialists, Penn State Hershey Medical Center remains at the forefront of neurological care. Kevin Cockroft, M.D. and Paul Kalapos, M.D. have joined the Departments of Neurosurgery and Radiology, offering advanced endovascular procedures for treatment of cerebral vascular diseases.

Endovascular neurosurgery (ENS)/Interventional neuroradiology (INR) is dedicated to the treatment of disorders of the blood vessels of the brain, spine, head, and neck from inside those blood vessels (an endovascular approach). Using catheters and microcatheter techniques, an endovascular neurosurgeon can reduce or eliminate blood flow to abnormal structures such as aneurysms or vascular formations, or use endovascular techniques to increase blood flow to normal blood vessels that are obstructed by clot or atherosclerotic disease.

Who benefits from endovascular neurosurgery?

A growing number of patients with diseases or disorders of the blood vessels of the neck, head, and spine can be treated safely and effectively using endovascular devices.

Patients with known or suspected disorders of the cerebral vasculature are evaluated by members of the Departments of Neurology, Neurosurgery, and Radiology at Penn State Hershey Medical Center.

Common problems our experts treat include: *Aneurysms:* A variety of options are available for endovascular treatment including filling the aneurysm with soft platinum coils (GDC, Guglielmi Detachable Coils) and blocking the artery from which the aneurysm arises with a variety of different devices.

Arteriovenous Malformations (AVMs): AVMs are abnormalities, often congenital, of the arteries and veins in which a direct connection exists between the arteries and veins. These abnormal vessels can be blocked with different materials injected through catheters placed through the blood vessels into the lesion.

Carotid Cavernous Fistulas (CCFs): CCFs are an uncommon but unique subgroup of AVM, which are primarily acquired later in life than AVMs.

Cerebrovascular Stenosis: Atherosclerotic disease can cause severe stenosis of the arteries of the neck and brain. Stents may be placed within the vessel to help keep it open.

Strokes: Most strokes are caused by blood clots lodging within the brain. In some patients, the blockage can be dissolved using clot-dissolving drugs applied directly to the clot using an endovascular approach.

Vascular Tumors: Patients with certain vascular tumors of the brain, head, neck, or spine undergo embolization before surgery.

Vasospasm: When an aneurysm ruptures, the bleeding over the surface of the brain often results in severe narrowing of the arteries of the brain several days after the rupture. These narrowed arteries may be opened by directly administering different drugs and/or using balloons to dilate the vessels.

Spinal Malformations: Arteriovenous malformations (AVMs) and vascular tumors often involve the spine or spinal cord.

Endovascular techniques may be used prior to surgical treatment or as the sole treatment of these lesions.

What is cerebral or spinal angiography?

Neuro-angiography is an examination to evaluate blood vessels in the head, neck, brain, or spine that provides an accuracy and quality of resolution better than any other imaging technique at this time. A catheter is placed in an artery in the groin and then directed to the vessels to be examined. Once the catheter is in position, a contrast agent is injected which makes the selected blood vessels visible on X-ray. The procedure typically lasts about an hour and provides the highly detailed images required for these endovascular techniques.

How to Refer:

For more information about endovascular neurosurgery/interventional neuroradiology at Penn State Hershey Medical Center, or to refer a patient for consultation, please call MD Network at 800-233-4082 or the Department of Neurosurgery at (717) 531-8807.

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Interventional Bronchoscopy

Interventional bronchoscopy focuses on the use of advanced techniques for the treatment of a spectrum of diseases, including both benign and malignant disorders of the trachea and lung that result in stenosis or obstruction of the airway.

These disorders may include:

- Benign and malignant cancers of the trachea or lung
- Infections
- Bacterial-tuberculosis
- Fungal-histoplasmosis
- Viral-papillomatosis
- Inflammatory diseases-Wegener's granulomatosis, sarcoidosis
- Tracheobronchial stenosis
- Inhalation of noxious or toxic agents
- Post lung transplantation
- Post endotracheal intubation
- Foreign body aspiration

Techniques used in the treatment and diagnosis of these disorders include:

- Laser bronchoscopy
- Argon plasma coagulation
- Tracheobronchial stent placement
- Transbronchial needle aspiration
- Balloon dilatation
- Cryotherapy
- Electrocautery
- Brachytherapy
- Foreign body removal

These techniques provide a definitive alternative to surgery for conditions such as inoperable early-stage cancer, palliative care, and benign tracheobronchial tumors.

Stent Implants

Placing a stent in the bronchial tubes to hold open the airway is a relatively new procedure that is usually only performed in academic hospitals. The procedure, which can be done on an outpatient or twenty-three hour admission basis, is performed under general anesthesia.

The decision for stent insertion is usually made during a diagnostic flexible bronchoscopic exam.

The process for bronchoscopy with stent insertion begins with an office screening and physical exam. The physician reviews chest X-rays and chest CT scans and completes a comprehensive evaluation. The procedure itself is done on an outpatient basis or twenty-three hour admission, and usually takes forty-five to sixty minutes. Stenting is usually done under general anesthesia with an anesthesiologist present. An outpatient follow-up visit is necessary.

Stenting is indicated when patency of the central airways cannot be maintained using other bronchoscopic or therapeutic techniques such as bronchoscopic laser, and the patient has respiratory symptoms, impaired functional status, or diminished quality of life. Patients with malignant or benign conditions sometimes develop airway strictures that are successfully treated with stents. Patients may present with cough, stridor, hemoptysis, or dyspnea.

Indications include:

- postobstructive pneumonia
- malignancy (lung, esophageal, metastatic)
- tracheal stenosis
- stricture
- tracheomalacia
- post-transplant stricture/stenosis
- tracheoesophageal fistula
- papillomatosis
- extrinsic compression of an airway

How to Refer

For more information about Interventional Bronchoscopy, or to schedule a patient consultation, please call MD Network at 1-800-233-4082.

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Video Assisted Thoracic Surgery (VATS)

What is VATS?

Surgical treatment for idiopathic scoliosis has changed dramatically in the last twenty years. Innovative techniques continue to advance the care of spinal disorders. A recent advance is the use of minimally invasive methods to approach the spine. In the thoracic spine, access to the anterior spinal column has been accomplished with endoscopy. This is known as Video Assisted Thoracic Surgery (VATS) or thoracoscopy. The thoracoscopic approach was introduced more than seventy-five years ago, but has undergone a transformation with the advent of improved video capabilities.

Who to Refer

In the last decade, indications have increased for endoscopic approaches to the thoracic spine. The most common indication in children is spinal deformity. Endoscopy can be used in combination with posterior spinal fusion to treat severe scoliosis and kyphosis, or when the child is skeletally immature. Release of the anterior structures and removal of the discs increases spinal mobility and improves deformity correction. More recently, the endoscopic approach has been used to perform anterior instrumentation, correction of deformity, and fusion.

About the Procedure

Traditionally, open thoracotomy has been used to approach the thoracic spine for anterior spinal surgery. Several advantages have been reported when the thoracoscopic method is compared with the open thoracotomy approach. It is clearly less invasive and limits the skin and muscle division required with thoracotomy. The external incisions are limited with typically three or four portal incisions placed along the chest wall. The anterior spine is easily accessible with little internal dissection required. Chest wall compromise is limited, which improves postoperative pain and pulmonary function, and enhances cosmesis. Compared with posterior instrumentation, anterior instrumentation by either open or endoscopic approach allows fusion of fewer motion segments. The primary contraindication for this procedure is poor pulmonary function. Patient size may also be a factor; children younger than 5 years of age have a small chest cavity making the use of endoscopic instruments difficult.

The thoracoscopic approach to the anterior spine compares favorably with the standard open thoracotomy in pediatric patients with spinal deformity. It is a safe and effective alternative to more traditional approaches.

How to Refer

To make a referral or obtain more information about Video Assisted Thoracic Surgery, please call MD Network at 800-233-4082.

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