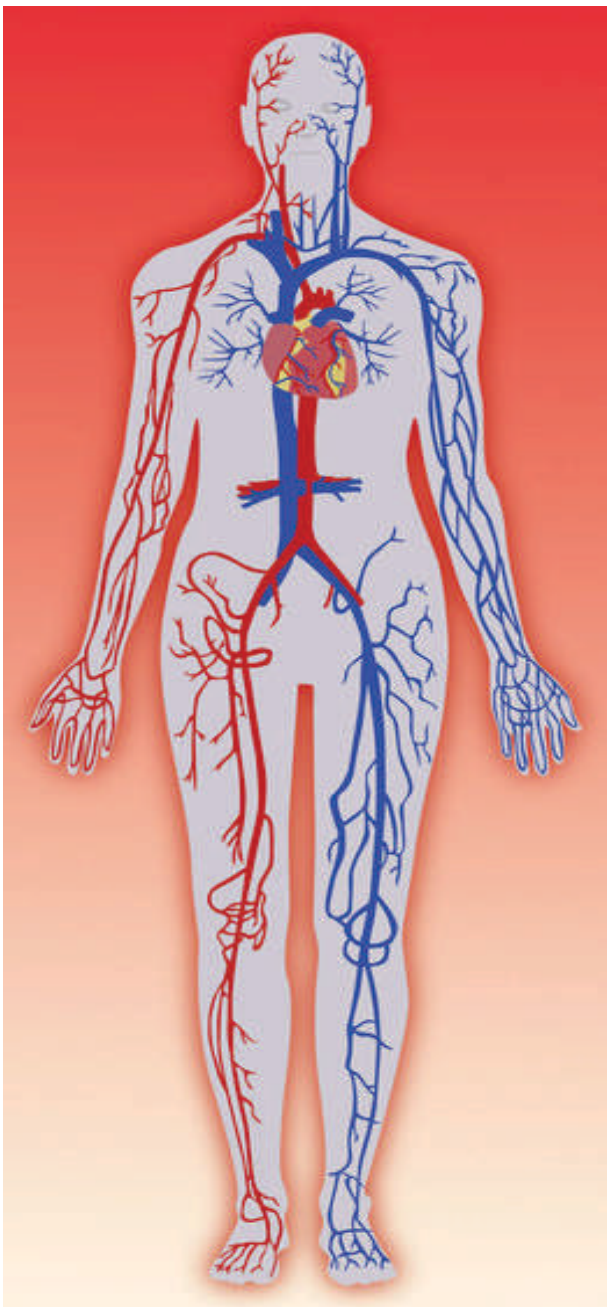
Healthy Heart

Volume-4 | Issue-43 | June 5, 2013

Price : ₹ 5/-

From the desk of Honorary Editor:

We, at Care Institute of Medical Sciences (CIMS), are passionate to improve Human health by imparting a healing touch through quality care and latest technologies in world of health care. We have a vision of creating a virtually Amputation free world, and our mission is to provide the finest quality of life to the patients by salvaging their limbs and extending their lives. We are proud to launch a Comprehensive Endovascular Department at CIMS Hospital with a team of endovascular specialists, surgeons, and interventional specialists, physio therapist , dietary department, diabetic foot care, first of it's kind in our part of the world in a single group of doctors.



Working together as a unified, patient centered team, our health care professionals specialize in minimally invasive endovascular surgery to repair peripheral vascular disease (PVD) a condition wherein the arteries that carry blood to the arm, legs, brain, kidneys, carotids or in fact any part of the body become narrowed or dilated, or even disturbances in veins including varicose veins, obstruction , fistulas etc., In this era, we are witnessing the upsurge of Heart Diseases, Diabetes and other concomitant clinical conditions by which the quality of life and abilities to function get compromised. Through CIMS Healthy Heart , we aim to make people aware of Peripheral Vascular Disease (PVD).

Due to various risk factors, PVD is highly prevalent the world over including India. As PVD affects various parts of human body it can cause stroke, pulmonary embolism, amputation, heart attack and death. This issue emphasizes various available treatment options for endovascular diseases.

CIMS Interventional Vascular Team have the expertise and experience in diagnosing and treating common, complex and rare vascular diseases to diagnose and treat any vascular condition. Feel free to call any of us listed below for your vascular patients.

- Dr. Keyur Parikh

Cardiologists

Dr. Ajay Naik (M) +91-98250 82666
Dr. Satya Gupta (M) +91-99250 45780
Dr. Vineet Sankhla (M) +91-99250 15056
Dr. Gunvant Patel (M) +91-98240 61266
Dr. Keyur Parikh (M) +91-98250 26999
Dr. Milan Chag (M) +91-98240 22107
Dr. Urmil Shah (M) +91-98250 66939
Dr. Hemang Baxi (M) +91-98250 30111
Dr. Anish Chandarana (M) +91-98250 96922

Pediatric Cardiologists

Dr. Kashyap Sheth (M) +91-99246 12288
Dr. Milan Chag (M) +91-98240 22107

Cardiothoracic & Vascular Surgeons

Dr. Dhiren Shah (M) +91-98255 75933
Dr. Dhaval Naik (M) +91-90991 11133
Dr. Dipesh Shah (M) +91-90990 27945

Pediatric & Structural Heart Surgeons

Dr. Shaunak Shah (M) +91-98250 44502

Vascular & Endovascular Surgeon

Dr. Srujal Shah (M) +91-91377 88088

Cardiac Anaesthetists

Dr. Niren Bhavsar (M) +91-98795 71917
Dr. Hiren Dholakia (M) +91-95863 75818
Dr. Chintan Sheth (M) +91-91732 04454

Neonatologist and Pediatric Intensivist

Dr. Amit Chitaliya (M) +91-90999 87400

Cardiac Electrophysiologist

Dr. Ajay Naik (M) +91-98250 82666

CIMS Care for the Circulatory System

Blood vessels need to be clear for the vascular system to work properly.

Endovascular disease occurs when the blood flow is restricted or blocked, or when blood vessels become abnormally dilated (aneurysms). Blockage is usually caused by atherosclerosis. Aneurysms can develop over time and are prone to rupture when they reach critical size. Diseases can also affect veins , the most common of which are varicose veins.

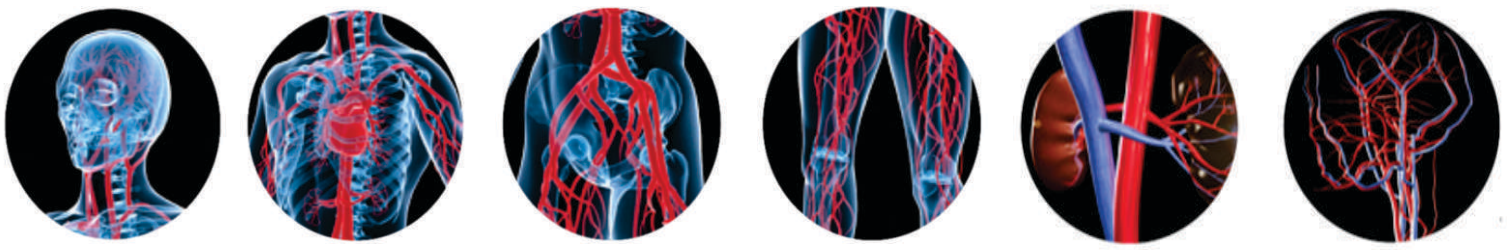
The blood vessels most commonly affected by endovascular disease include: Carotid arteries, Aorta, Iliac and femoro-popliteal arteries, Renal and mesenteric arteries, Leg veins.

Progression of endovascular disease is a slow process and is very similar to the problem that occurs in the coronary arteries which can cause heart attacks. That is why the heart and vascular physicians (vascular surgeons, cardiologists, cardiothoracic surgeons and interventional radiologists) work together at CIMS to treat the person and prevent further disease through good follow up, proper medications /interventions and appropriate lifestyle changes.

Endovascular intervention is the fastest growing area of vascular medicine. Peripheral vascular interventions have been developed with these aims: to avoid the risk of general or epidural anesthesia and the risk of conventional surgical procedures, to reduce the patient's discomfort and recovery time, and to lower the cost of treatment.

CIMS endovascular specialists treat all the veins and arteries that make up the vascular system (blood vessels) - arteries, veins and lymphatics—including the head and heart. At CIMS, certified vascular surgeons care use sophisticated treatments—from noninvasive diagnostic tests to minimally invasive procedures to complex surgeries.

Cardiovascular interventional techniques require specialized skills and training in diagnostic angiography and interventional techniques. To gain expertise in peripheral interventions, knowledge must also be acquired with regard to the natural history of peripheral vascular disease and the anatomic changes that occur in patients who have this disease. The challenge is intensified by the continual introduction of new products and methods.



TYPES of VASCULAR DISEASE

- Abdominal Aortic Aneurysm (AAA)
- Aortic Dissection
- Buerger's Disease
- Carotid Artery Disease
- Critical Limb Ischemia (CLI)
- Chronic Venous Insufficiency (CVI)
- Congenital Vascular Malformation (CVM)
- Deep Vein Thrombosis
- Fibromuscular Dysplasia
- Lymphedema
- Mesenteric Artery Disease
- Peripheral Artery Disease (PAD)
- Pulmonary Embolism
- Portal Hypertension
- Post-Thrombotic Syndrome (PTS)
- Raynaud's Disease
- Renovascular Hypertension (RAS)
- Stroke
- Thoracic Aortic Aneurysm
- Thrombophilia
- Varicose Veins
- Vasculitis

Endovascular therapy for peripheral arterial disease is rapidly evolving. Balloon technology (percutaneous balloon angioplasty, percutaneous transluminal angioplasty [PTA]) has improved along with guidewires, sheaths, and guide catheters to enable application in the carotid, innominate, subclavian, aortic, mesenteric, renal, iliac, femoral, and tibial arteries. Research activities are exploring the ancillary use of stents, stent: grafts, excimer-laser light, and new thrombectomy/ thrombolysis/ denervation systems. Endovascular therapy is complementary to traditional surgery and can be useful to many patients. This issue of ***Healthy Heart*** article outlines current endovascular care organized according to anatomic problem and focusing on the most common endovascular approach.

Table-1 : Endovascular Treatment Methods for Peripheral Vascular Disease

- Percutaneous Transluminal Balloon Angioplasty
- Thrombolysis
- Thrombectomy devices
- Atherectomy devices
- Stents
- Stent grafts
- Ultrasound angioplasty devices
- Embolisation devices
- Hemostasis closure devices
- Doppler Flow catheters
- Rotoblator System
- Cutting Balloons
- Drug Eluting Balloons
- Filter devices
- Renal denervation : Pending DCGI approval
- Gene transfer therapy : Investigational

Available at CIMS

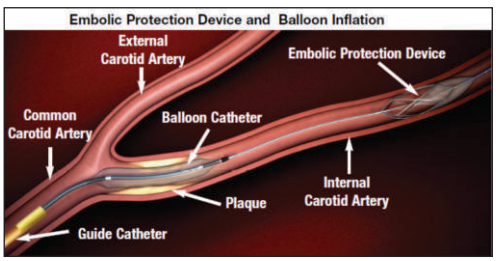
For any patients with vascular problems as described, please contact any of us listed on the front page

Percutaneous Transluminal Balloon Angioplasty

Percutaneous transluminal balloon angioplasty (PTA) has been used successfully for treating coronary, renal, iliac, femoral, tibio-peroneal, subclavian, carotid, and other arterial stenoses. The best results of PTA are achieved in stenotic lesions that are short, concentric, and noncalcific.

Stent-Supported Carotid Angioplasty

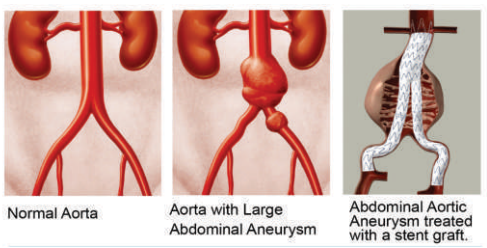
Technological advances in the endovascular treatment of peripheral vascular disease, along with the introduction of stents, have been the impetus for treating extracranial carotid artery occlusive disease. The technique of



stent-supported carotid angioplasty (SSCA) has expanded the indications and reduced the risk of neurologic complications that frequently occur with PTA for extracranial carotid artery stenosis.

Endoluminal Treatment of Abdominal Aortic Aneurysms

Abdominal aortic aneurysm (AAA) is characterized by permanent dilatation of the abdominal aorta with a diameter at least 50% larger than normal. This serious vascular disorder predominantly affects men who are 60 years of age or older. Men are affected 5 times more than women are. More than 90% of AAAs are secondary to atherosclerosis and the majority (89%) are located in the infrarenal aorta. Previous studies have



shown that 25% of patients with AAA who did not undergo corrective surgery died of ruptured aneurysm. There is a 90% mortality rate associated with an out-of-hospital AAA rupture, but the mortality rate decreases to 50% for those who undergo emergency surgery. The

generally accepted AAA diameter at which repair is indicated is 5 cm. The standard treatment is replacement of the diseased aorta with a prosthetic graft. The 1st-generation endovascular endoluminal grafts were tubular grafts, and later, aorto-uni-iliac grafts were developed. The early prostheses were relatively inflexible and required an introducing femoral sheath with a 24-F internal diameter. The devices are now available as tube grafts or bifurcated grafts, are more flexible, and are available in smaller diameters. Their structures are either completely stent-supported or stented only at the level of attachment. Some of these devices consist of fabric grafts that are supported throughout their length by self-expanding metal stents to minimize kinking and migration. Stainless steel and nitinol (the latter of which has thermal memory characteristics) are the most common materials used for stents.

Thrombolytic Therapy for Arterial Occlusions

A principal goal of treatment for acute limb ischemia is rapid restoration of blood flow to the ischemic region before the occurrence of irreversible changes. Intravenous infusion of exogenous plasminogen activators—specifically, streptokinase—was attempted nearly 40 years ago for the treatment of peripheral arterial occlusion.

Reasons for using thrombolytic therapy for arterial thrombotic disease are as follows :-

- To remove the thrombus and establish blood flow to the ischemic limb
- To identify hemodynamic causes of arterial or graft occlusion
- To convert emergent surgery to elective surgery
- To remove thrombus from the collateral circulation
- To avoid the mechanical trauma of surgery in the tibio-peroneal vessels

Thrombolytic agents include streptokinase, acylated plasminogen streptokinase complex, urokinase (no longer available), pro-urokinase, and recombinant tissue plasminogen activator (rt-PA-alteplase and r-PA-reteplase). All of these agents induce a systemic fibrinolytic state.

Mechanical Devices for Thrombus Removal

A number of mechanical devices have been developed to disrupt and remove freshly formed thrombus from the circulation.

Sclerotherapy

Sclerotherapy is the most common treatment for both spider and varicose veins. This procedure involves a saline or chemical solution that is injected into the varicose veins that causes them to harden so that they no longer fill with blood. Blood that would normally return to the

Table 2 : Commercially Available Thrombectomy Devices

Hydrodynamic Devices

A high-velocity saline stream breaks of thrombus

- Oasis Thrombectomy System
- AngioJet Rheolytic Thrombectomy System
- Hydrolyser Thrombectomy Catheter

Impeller Devices

- Thrombus is cleared by a rotating internal impeller

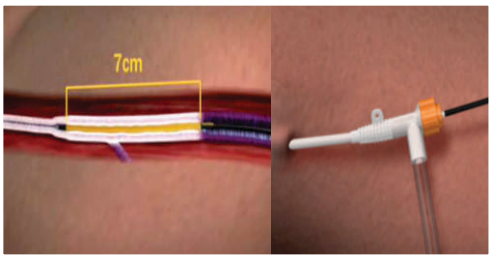
Ultrasonic Devices

- Thrombus is dissolved with therapeutic ultrasound

heart through these veins returns to the heart by way of other veins. The veins that received the injection will eventually shrivel and disappear. The scar tissue is absorbed by the body.

Radio Frequency (RF) Ablation (VNUS Closure)

RF Ablation involves the insertion of a thin, flexible tube called a catheter into a varicose vein. The tip of the catheter heats the walls of the varicose vein using radiofrequency energy (also known as Closure procedure) and destroys the vein tissue.



Once destroyed, the vein is no longer able to carry blood and is absorbed by the body. This is a very safe outpatient procedure performed on a conscious patient through a very small puncture in the veins.

Percutaneous Hemostatic Puncture Closure Devices

Recently introduced vascular hemostatic devices, deployable without compression and anticoagulation reversal, offer an alternative approach. The role of catheter techniques for arterial entry closure is evolving. Multiple devices are available, including collagen plugs, bioabsorbable pledgets, and vessel suturing devices, all of which can be introduced through specially designed catheters.

Covered Stents

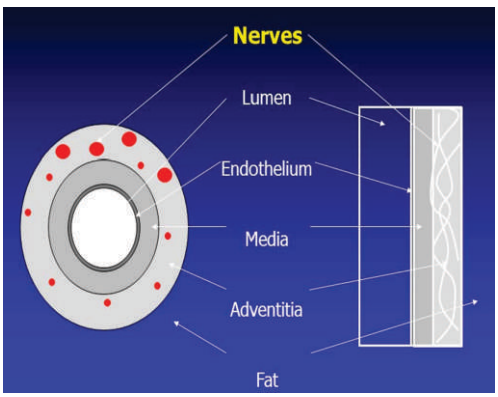
Studies have shown that covered stents may be very useful in providing an airtight seal for the treatment of such vascular lesions as arterial ruptures, dissections, aneurysms, pseudoaneurysms, and arteriovenous fistulae.

Old Devices, New Uses

A number of devices that have been around for a while and used primarily in coronary artery interventions are being tried in peripheral interventions. Techniques such as intravascular therapeutic ultra-sound are researched on peripheral interventions.

Renal Denervation for Renal Hypertension

People with hypertension typically have overactive renal (kidney) nerves, a condition that raises blood pressure and contributes to heart, kidney and blood vessel damage. The Renal Denervation



System uses a technique called renal denervation (RDN) to selectively 'calm' hyperactive renal nerves.

This causes a reduction in the kidney's production of hormones that raise blood pressure and may also protect the heart, kidneys and blood vessels from further damage. The Renal Denervation System provides doctors an innovative treatment option for uncontrolled hypertension that offers several benefits including:

- Significant reduction in blood pressure
- Safe, short treatment that does not require general anaesthesia
- Fast recovery time with minimal complications

The Renal Denervation System consists of a small steerable treatment catheter and an automatically-controlled treatment delivery generator. The energy is delivered into both the renal arteries circumferentially.

Gene Therapy

The prospect of growing new arteries, both in the coronary and in the peripheral circulation, generates much excitement. Preliminary results with the use of vascular endothelial growth factor (VEGF) to induce new blood-vessel formation in animals and human beings have been encouraging. This treatment is still in the experimental phase.

And the research continues.....

To be continued...

Courtesy

Dr. Keyur Parikh
MD (USA) FCSI (India) FACC, FESC, FSCAI
Interventional Angiologist
Interventional Cardiologist
(M) +91-98250 26999

Dr. Hemang Baxi
MD, DM (Cardiology)
Interventional Cardiologist
(M) +91-98250 30111

Dr. Srujal Shah
MS, MCh
Consultant Vascular & Endovascular Surgeon
(M) +91-91377 88088

Healthy Heart

Volume-4 | Issue-43 | June 5, 2013

A Case of Complicated Acute Type B Aortic Dissection Treated Successfully using Staged Hybrid Repair

Background: Acute type B aortic dissection is a medical emergency with very high mortality rate. If undiagnosed or left untreated viscera-renal male perfusion syndrome leads to back pain uncontrolled hypertension and expanding false lumen complicates acute dissection.

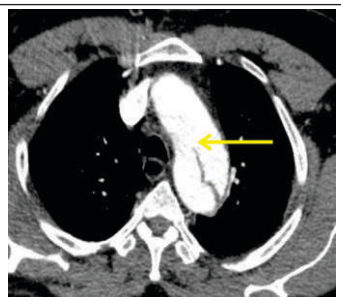


Fig. 1 Type B Aortic Dissection Entry Tear

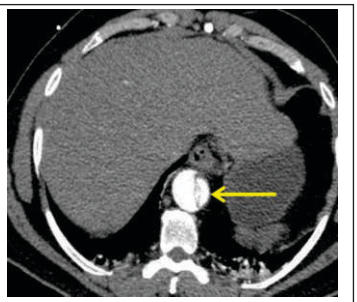


Fig.2Re-entry/Exit Tear in Thoracic Aorta

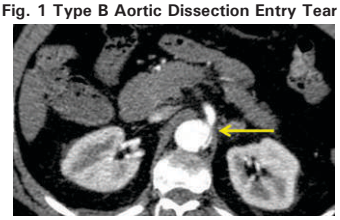


Fig.3 Celiac Artery Compromise 70 %

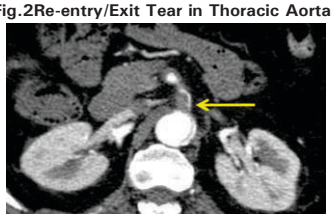


Fig.4 SMA Compromise 95 %

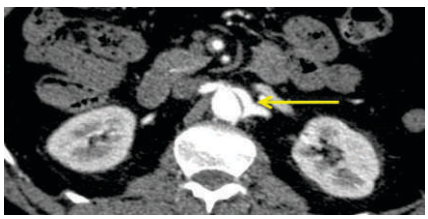


Fig.5 Renal Arteries

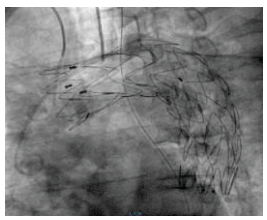


Fig.6 Thoracic Stent Graft in situ in Arch and Upper DTA

Case Presentation: A case of acute type B dissection in a 62 year old smoker; complicated by severe Superior mesenteric artery (SMA) and a celiac artery mal perfusion with Michigan Static (S) type compromise. After initial stabilization CT angiogram and DSA were performed which confirmed clinical diagnosis.

Management: Patient was kept on "Whit and Pulmar" regimen (IV B blocker plus SNP) for initial three days and then taken up for final definitive staged hybrid repair. First right to left cross over Carotid-to-Carotid bypass was performed under general anesthesia using 6 × 40mm coated Dacron graft in subcutaneous plane using Brenner carotid shunts for neuro protection.

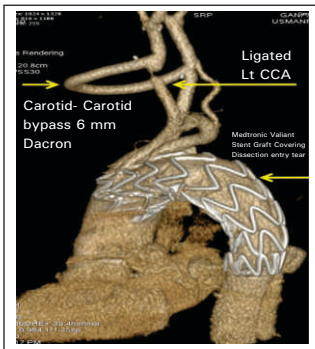


Fig.8 Medtronic Valiant Stent Graft Covering Dissection Tear

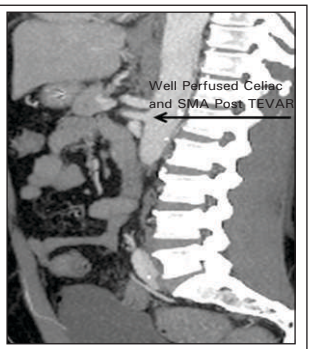
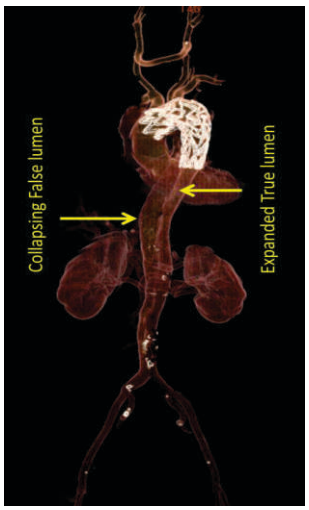


Fig.9 Sagital View CT Angio Showing Repurfused SMA



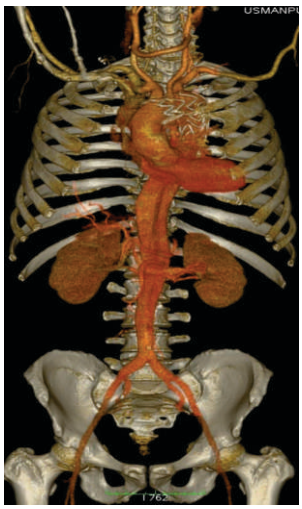


Fig7A **Fig.7B**

(PostOperative CT Angiogram Showing Carotid-Carotid Bypass and Thoracic Stentgraft with Collapsing False Lumen)

Patient was then shifted to cathlab where right common femoral artery was exposed. Right radial access of pigtail catheter was obtained. Using right CFA access site Medtronic Valiant Stentgraft [38mm×38mm×150mm] was inserted through true lumen and deployed in the aortic arch while covered portion of stent graft occluded Common Carotid Artery (CCA) and left subclavian artery and device covering the entry tear in post subclavian aortic arch. Having deployed the stent graft check angiogram confirmed sealing of dissection tear and patient's innominate artery, totally expanded true lumen of aorta upto bifurcation and opened up celiac and superior mesenteric artey. CSF (Cerebrospinal fluid) drainage, steroids and neuro protective agents were used for brain and spinal cord protection. Right ventricular pacing through it femoral vein was used for accurate deployment of the stent graft. Right CFA was suture repaired and patient was shifted for elective monitoring.

Outcome: Patient made excellent recovery in form of relieved abdominal angina, controlled BP, relieved back pain without any neurological deficit. Needs follow up for aortic dimensions and blood pressure control.

To our knowledge this is the first case of complicated acute type B Aortic dissection treated successfully using staged hybrid repair (Carotid-carotid bypass followed by TEVAR thoracic endovascular aneurism repair)

10th

Annual Scientific Symposium

19th Year of Academics

CIMSRE-CON 2014

Education For Innovation

January 10-12, 2014

Organized by CIMSRE Care Institute Medical Society for Research and Education

in association with American Association of Physicians of Indian Origin (AAPI)

All time record leading International Faculty with over 250 lectures to give you a great academic extravaganza

TRACKS - DAY-1 (January 10, 2014)

CARDIOLOGY TRACK

- Introduction Session
- Coronary Artery Disease / Acute Coronary Syndromes
- Plenary Lectures by International Speakers
- Hypertension / Lipids & Cardiovascular Risk Management
- Medical Devices in Cardiology / Interventional Cardiology
- Debates
- Special Topics

Satellite Sessions

(Time : 8.00 pm - 10.00 pm)

- Pharmacology & Therapeutics - 1 & 2
- Cardiology Guidelines
- Peripheral/ Endovascular /Diabetic Foot
- Stroke

TRACKS - DAY-2 (January 11, 2014)

CARDIOLOGY TRACK

- Interactive ECGs/Arrhythmia
- Atrial Fibrillation/ Arrhythmia
- Plenary Lectures
- CIMSRE-Oration
- Structural / Congenital Heart Disease
- Heart Failure
- Live Case Session

CARDIOVASCULAR THORACIC SURGERY (CVTS) TRACK

NEONATAL & PEDIATRIC CRITICAL CARE TRACK

CRITICAL CARE & PULMONARY TRACK

TOTAL KNEE REPLACEMENT (TKR) TRACK

TRACKS - DAY-3 (January 12, 2014)

CLINICAL CARDIOLOGY TRACK

CARDIOVASCULAR THORACIC SURGERY (CVTS) TRACK

NEONATAL & PEDIATRIC CRITICAL CARE TRACK

CRITICAL CARE & PULMONARY TRACK

TOTAL KNEE REPLACEMENT (TKR) TRACK

INTERNAL MEDICINE TRACK

TRAUMA CARE TRACK

Registration Information

Cheque or DD's to be made A/C payee and in the name of **'CIMS Hospital Pvt. Ltd.'** Kindly mail the registration form along with the cheque/DD to our office. All Cash Payments are to be made at 'CIMS Hospital, Ahmedabad' only.

Module	Before 31-10-2013	Before 31-12-2013	Spot Registration (After 31-12-2013)
Main Conference (January 10-12, 2014) (including certification course)	₹ 6000	₹ 7000	₹ 9000
Certification Courses (January 11-12, 2014)	₹ 2500	₹ 3500	₹ 4000
** Deposit for Hotel Accommodation (Separate cheque)	₹ 3500	₹ 3500	₹ 3500
For students doing MD (Medicine) with proof	₹ 3000	₹ 3500	₹ 4000
Spouse Hotel Registration (Non- refundable)	₹ 3500	₹ 3500	₹ 3500
In case of cancellation	25 %	50 %	100 %

Organized by CIMSRE Care Institute Medical Society for Research and Education

Due to an unprecedented response and over booking, registration fees for MD - Physician will be refunded if registered before August 31, 2013.

Email : communication@cimshospital.org

Web : www.cimsre.org / www.cims.me

Healthy Heart Registered under RNI No. GUJENG/2008/28043
Published on 5th of every month
Permitted to post at PSO, Ahmedabad-380002 on the 12th to 17th of every month under
Postal Registration No. GAMC-1725/2012-2014 issued by SSP Ahmedabad valid upto 31st December, 2014
Licence to Post Without Prepayment No. CPMG/GJ/97/2012 valid upto 30th June, 2014

If undelivered Please Return to :

CIMS Hospital, Nr. Shukan Mall,

Off Science City Road, Sola, Ahmedabad-380060.

Ph. : +91-79-2771 2771-75 (5 lines)

Fax: +91-79-2771 2770

Mobile : +91-98250 66664, 98250 66668

Subscribe "Healthy Heart" : Get your "Healthy Heart", the information of the latest medical updates only ₹ 60/- for one year. To subscribe pay ₹ 60/- in cash or cheque/DD at CIMS Hospital Pvt. Ltd. Nr. Shukan Mall, Off Science City Road, Sola, Ahmedabad-380060. Phone : +91-79-3010 1059 / 3010 1060. Cheque/DD should be in the name of : **"CIMS Hospital Pvt. Ltd."** Please provide your **complete postal address with pincode, phone, mobile and email id** along with your subscription

Printed, Published and Edited by Dr. Keyur Parikh on behalf of the CIMS Hospital
Printed at Hari Om Printery, 15/1, Nagori Estate, Opp. E.S.I. Dispensary, Dudheshwar Road, Ahmedabad-380004.
Published from CIMS Hospital, Nr. Shukan Mall, Off Science City Road, Sola, Ahmedabad-380060.