



HEALTHY HEART

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Honorary Editor :

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Consultant Cardiac Surgeon



Aortic dissection is a life-threatening condition caused by a tear in the intimal Layer (innermost) of the aorta or bleeding within the aortic wall, resulting in the separation (dissection) of the layers of the aortic wall. A tear in the intimal layer results in the progression of the dissection (either proximal or retrograde) chiefly due to the entry of blood.



AORTIC DISSECTION

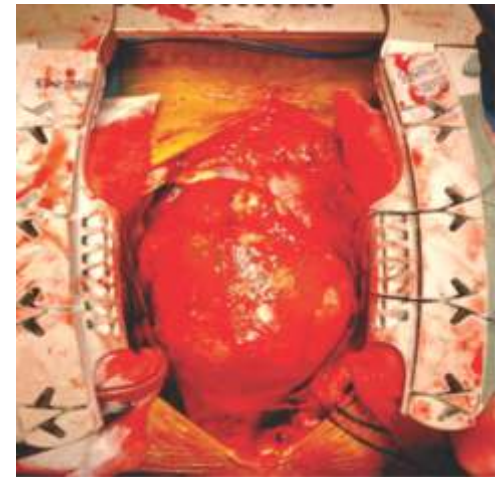
What is Incidence ?

The incidence of acute aortic syndromes in the general population ranges from 40 to 60 cases per million person years, but increases up to 6 times or more in people older than 65 years.

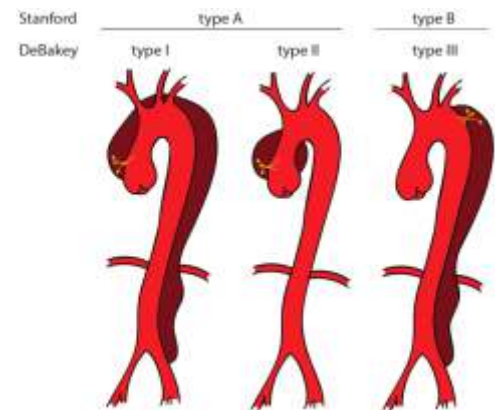
How dangerous is this condition for life?

An acute aortic dissection is associated with very high mortality of **1 to 2% per hour** after symptom onset in untreated patients or sometimes to >50% ; the majority die even before reaching the emergency department.

In patients with acute type A aortic dissection, the most severe form, the mortality rate amounted to 26% if they received surgery, but up to 58% if they could only be treated noninvasively because of advanced age or the presence of comorbidities.



Types of aortic dissection



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Risk factors for aortic dissection

- Male > females
- Hypertension (80% of the aortic dissection patients have hypertension)
- Age > 65 years
- Smoking (twice risk as compared to non-smokers)
- Family history
- Atherosclerosis/aneurysms
- Congenital disorders (Marfan syndrome, Loeys-Dietz syndrome, Vascular Ehlers-Danlos syndrome, Bicuspid aortic valve)
- Inflammatory disease (Aortitis, Giant cell arteritis, Takayasu arteritis, Systemic lupus erythematosus)

Diagnosis by clinical assessment and imaging

Patients present with sharp/stabbing chest pain or back pain, excruciating in nature, abrupt onset. The pain can be located in the anterior chest in case of ascending aorta and in the back if the dissection is descending. Patients with type B aortic dissection have abdominal pain and hypertension more frequently than in those with type A dissection. Symptoms may mimic other cardiac conditions, such as myocardial infarction or pulmonary embolism.

Transthoracic echocardiography (TTE) offers rapid and noninvasive assessment of several aortic segments, particularly the aortic root and proximal ascending aorta. Contrast-enhanced CT is probably the most widely used imaging technique in the diagnosis of aortic dissection and provides fast image acquisition and processing with the ability to obtain complete 3D datasets of the entire aorta. **(Figure 1 to 3)**

Figure 1

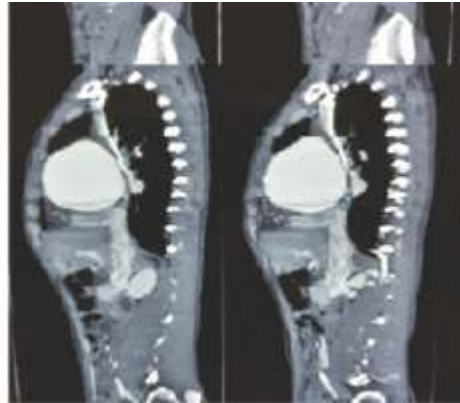


Figure 2

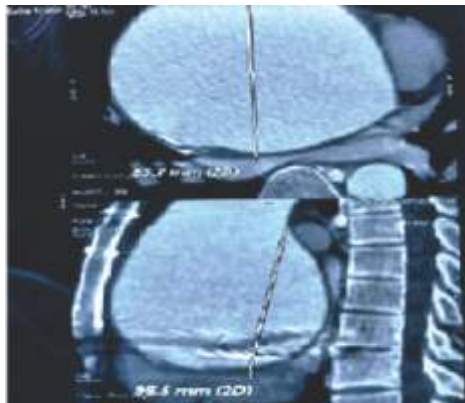
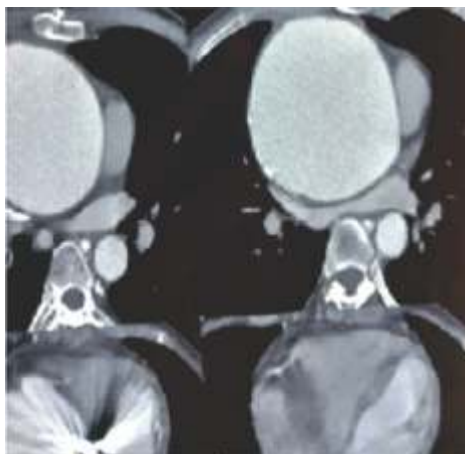


Figure 3

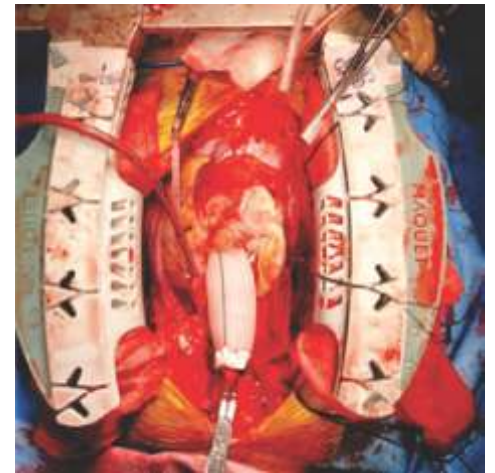


Surgery

Open surgical repair is most commonly used for dissections involving the ascending aorta and the aortic arch, whereas minimally invasive endovascular intervention is appropriate for descending aorta dissections that are complicated by rupture, malperfusion, ongoing pain, hypotension or imaging features of high risk.

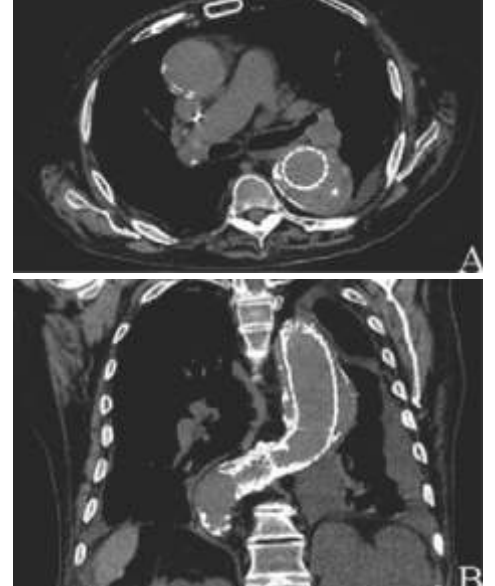
Surgical therapy for type A Acute Aortic Dissection involves excision of the intimal tear, obliteration of entry into the false lumen proximally, and reconstitution of the aorta with the interposition of a synthetic vascular graft. **(Figure 4)**

Surgical intervention for type B Acute aortic dissection tends to be reserved for **Figure 4**



patients who have a complicated course. Endovascular stent-grafting (TEVAR-Thoracic endovascular aortic repair) has been employed as a less invasive alternative to surgery, primarily for patients with *complicated type B dissections*. **(Figure 5)**

Figure 5





For aortic dissection involving the ascending aorta, the aorta has to be replaced and aortic valve has to be assessed. In most cases, the aortic valve may also have to be excised and replaced with a prosthetic valve along with repositioning of the native coronary arteries to the synthetic graft.

Complications

1. Multiorgan failure/ malperfusion
2. Stroke/ paraplegia
3. MI/ cardiac tamponade
4. Renal failure
5. Bowel ischemia
6. Acute aortic regurgitation
7. Death

How to proceed?

Because of the extremely high lethality, patient presenting with symptoms of aortic dissection should be promptly diagnosed and referred for surgical or endovascular management.

Postoperative and Rehabilitation Care

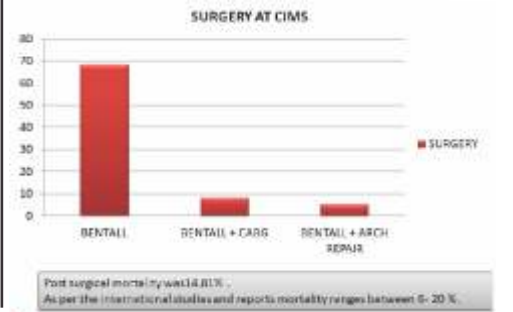
- Once the patient is treated surgically or medically, the blood pressure must be controlled
- The patient must be closely monitored for the progression of the aortic dissection
- Anticoagulation to be continued in patients undergoing bentall repair.
- A regular CT scan of the chest or MRI is recommended at 3-6 month intervals to check for the progression of the disease

Deterrence and Patient Education

- Controlling blood pressure
- Avoid the use of illicit drugs
- Maintain a healthy weight
- Discontinue smoking

Aortic dissection whether complicated or uncomplicated should be managed based on multidisciplinary approach involving collaboration between cardiac surgeons,

cardiac anesthetists, radiologists, cardiologists and per fusionists. Our Experience at CIMS With this multi-disciplinary approach we have successfully managed **81** patients surgically for aortic dissection in this decade. Out of 81 patients, **8** patients underwent bentall + CABG, **5** patients underwent bent all with arch replacement. Youngest patient to undergo surgery was 25 years old and oldest was 75 years old. **Post surgical mortality was 14.81%**. 13 patients underwent successful TEVAR for complicated/uncomplicated type B dissections.



CIMS HOSPITAL

**AGE IS JUST A NUMBER:
THIS 91-YEAR-OLD WHO BEAT AGE,
COVID AND HEART ATTACK ALL TOGETHER !**

Sushilaben underwent angioplasty at CIMS while simultaneously recovering from COVID-19

**700-GM INFANT UNDERGOES
CARDIAC SURGERY AT CIMS**

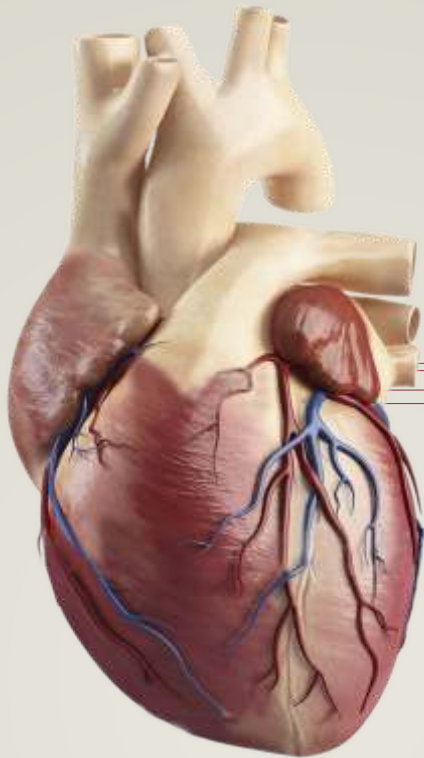
Team of doctors at CIMS Hospital overcomes multiple challenges to perform the surgery on the 24-day-old girl



A WEAK HEART NEEDS A STRONG TEAM

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A CASE OF INFECTED HUMERUS FRACTURE WITH 3 FAILED PREVIOUS SURGERIES – ONE STAGE REVISION DONE

This 20 yrs old boy from Bikaner had motorbike accident 2 yrs ago, with 3 surgeries done in Rajasthan. But he continued to have pain, total stiffness of elbow and pus discharge for 16 months. His fracture had failed to heal.

He was operated by Dr Pranav Shah (Senior Orthopaedic, Trauma & Hip Surgeon) in Jan 2021 and his dead bone piece was removed and plating was done with antibiotic beads. He could not come for follow up due to COVID situation, yet his healing was complete in 5 months with elbow function also started. Dr. Pranav Shah is well known expert for revision surgeries with experience of more than 10,000 such surgeries.

3 TIMES OPERATED ELSEWHERE

1st plating, Then bone grafting and finally implant removal due to infection – 14 months since last surgery but infection Persists



Stiff elbow with no movement



INFECTED DEAD BONE :

Sequestrum Identified in CT Scan, MRI Scan and Removed Surgically

Fully healed with excellent function in 5 months – Infection Cured !Just with one properly done surgery!





700-GM INFANT UNDERGOES CARDIAC SURGERY AT CIMS

Team of doctors at CIMS hospital overcomes multiple challenges to perform the surgery on the 24-day-old girl

Ahmedabad: In an amazing and extremely challenging feat, a 700-gram infant that had premature birth has been successfully operated on for a heart defect at CIMS hospital in Ahmedabad.

The 24-day-old infant, a girl, was born in Kheralu in Mehsana, with Patent Ductus Arteriosus (PDA), a heart defect. In this condition, the ductus arteriosus, which normally closes at birth, stays open. As a result, instead of the blood circulating into the body, the blood goes back to the lungs.

The infant suffered from apnea and suddenly stopped breathing and was evaluated by Dr. Divyesh Sadadiwala, CIMS Paediatric Cardiologist, who referred her for surgery.

“PDA ligation is the surgery required to correct the defect, but it was highly risky in this case due to multiple factors. The baby had a premature birth and had low weight. She had a high creatinine level indicating impaired kidney function. Plus, there was some evidence of infection. Moreover, the baby was extremely fragile because of low



birth weight. Still, we decided to go ahead with PDA ligation surgery as it was the only option,” said Dr. Shaunak Shah, Paediatric Cardiac Surgeon at CIMS hospital.

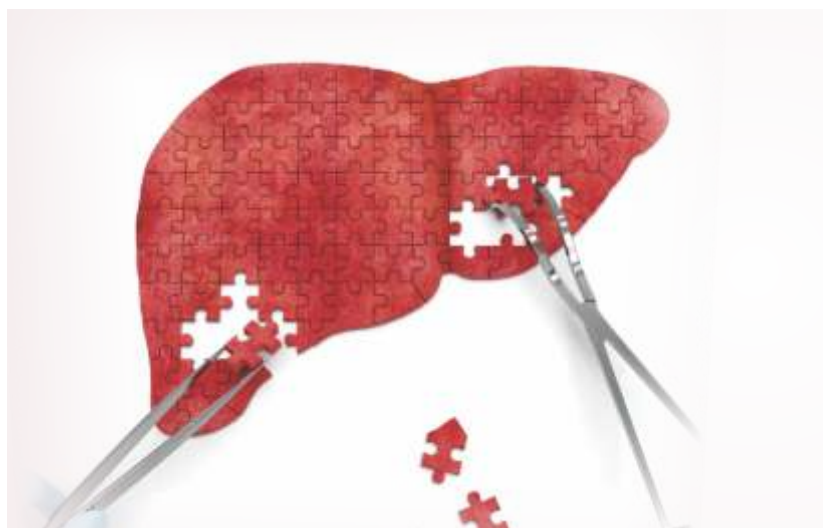
He said the baby successfully underwent the PDA ligation surgery on Saturday. CIMS Anaesthesia Team led by Dr Niren Bhavsar, Dr. Hiren Dholakia, Dr. Chintan Sheth and CIMS Neonatal and Paediatric Intensivist, Dr Amit Chitaliya were also a part of the team that performed the successful surgery on the neonate, who is now recovering.

“The neonate was the lowest-weighting baby we have operated on at CIMS, and probably

one of the smallest in Gujarat to have undergone cardiac surgery,” he said.

In addition to the above challenges, children with low birth weight are also prone to hypothermia, i.e., a sudden drop in temperature. The team did not switch on the air conditioner during the surgery. Moreover, the baby was operated on an infant warmer.

“These were additional challenges, but we were able to overcome them because of team effort and the support system. Also, a special mention for CIMS Foundation which has supported and helped paediatric patients for such lifesaving surgeries in the past” he added.



28th

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