

HEART VALVE SURGERY (REPAIR/REPLACEMENT)

TO THE PATIENT

Heart Valve surgery has become a common procedure for restoring health and vigor to persons suffering from chronic heart valve disease. This information is prepared for the patient who is considering such an operation and for his/her family. While it may not answer all your questions about the procedure, it should help you understand what this type of operation involves. Any doubts and questions should be discussed with your doctor who will be able to explain more details of the surgical procedure and recovery period.

WHAT ARE HEART VALVES?

The heart is a pump made of muscle tissue. It has four pumping chambers: two upper chambers, called atria, and two lower chambers, called ventricles. The right atrium pumps blood into the right ventricle, which then pumps blood into the lungs where carbon dioxide is given off and oxygen is taken into the blood.

From the lungs, blood flows back into the left atrium, is pumped into the left ventricle, and then is pumped through the aorta out to the rest of the body.

There are four valves in your heart (fig-1), made of thin flaps of tissue that open and close as your heart pumps. They are there to make sure that blood flows through your heart in only one way.

1. Tricuspid valve-located between the right atrium and the right ventricle.
2. Pulmonary valve-located between the right ventricle and the pulmonary artery
3. Mitral valve-located between the left atrium and the left ventricle
4. Aortic valve –located between the left ventricle and the aorta

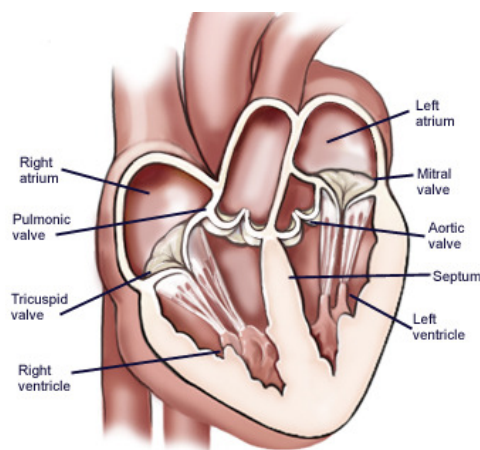


Fig-1

HOW ARE THE VALVES DAMAGED?

There are many diseases that can damage heart valves. Common ones are:

1. Rheumatic fever: In India this is the commonest cause. This follows infections in throat
2. Degenerative: Due to aging, sometimes valves can get damaged
3. Some birth defects can also result in damage to heart valves
4. These can result in two types of problems:
 - a. valve doesn't open enough, there by enough blood doesn't flow through: called stenosis
 - b. valve doesn't close properly and allows blood to leak back: called incompetence, insufficiency or regurgitation

WHAT ARE THE SYMPTOMS OF VALVE DISEASE?

Valvular disease can cause the following symptoms:

1. dizziness
2. chest pain
3. breathing difficulties
4. palpitations
5. edema (swelling) of feet, ankles or abdomen
6. rapid weight gain due to fluid retention

WHAT ARE THE INDICATIONS FOR VALVE SURGERY?

Decision to do surgery is taken by your cardiologist and cardiac surgeon after looking at your symptomatic status, response to medical treatment and extent of valve damage assessed by echo cardiogram and sometimes by cardiac catheterization and angiogram.

WHAT IS DONE IN VALVE SURGERY?

Heart valve surgery is done after stopping your heart. During this time your blood is circulated using artificial heart-lung machine. Basically there are two types of surgeries available for valve diseases-repairing your valve (fig-2) or removing it and replacing it with a new artificial valve. Artificial valves may be mechanical (made of metal or plastic fig-3) or tissue valves (fig-4 animal valves or human valves taken from cadavers). What method suits you will be decided by your surgeon in the operating room.

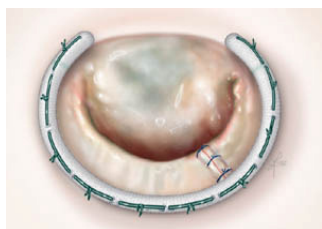


Fig-2Repair with Ring



Fig-3 Metallic valves



Fig-4Tissue Valves

HOW DOES ONE PREPARE FOR HEART VALVE SURGERY?

Both you and your family should have sufficient information and understand about the operation and hospital procedure to relieve your natural anxiety. You should feel free to discuss any concerns with the doctor. Because procedures vary from one hospital to another, be sure to find out about visiting hours, discussions with physicians and any other hospital related concerns you may have.

WHAT ABOUT HOSPITAL ADMISSION?

Admission to the hospital is usually scheduled for two or three days before the date of the operation to allow time for pre-operative testing, control of diabetes etc. Instructions for clearing the lungs of mucus secretions, coughing techniques and deep breathing exercises will be given. During this time, you will become acquainted with the team of surgeons, anesthetists, nurses and therapists who provide your care during and after the operation.

ARE PEOPLE FRIGHTENED OR NERVOUS BEFORE THE OPERATION?

It is normal to feel nervous before important events. Nervousness or anxiety before an operation is a normal reaction just as athletes often are nervous before important games.

Nervousness often is lessened by understanding the need for the operation, meeting members of the surgical team and asking questions. Sometimes mild sedatives may be needed.

THE NIGHT BEFORE SURGERY:

Your anesthesiologist takes a brief medical history and explains your anesthesia to you. You will be given a normal dinner. If you are for surgery early next day, you should not eat or drink anything after midnight. If you are for surgery in the afternoon, you will be given early breakfast and after that you should not take anything. To help prevent infection after surgery, your chest, legs and groin will be shaved and you will be asked to shower before going to bed.

THE MORNING OF SURGERY:

Before going for surgery, you are weighed to help your doctor know if you are retaining fluid after surgery. You may be given a mild sedative to help you relax and you are taken to the operating room on a trolley for your safety. Your family or other support people are directed to a waiting area and will be kept informed of the progress of your surgery.

HOW LONG DO THESE OPERATIONS USUALLY LAST?

Generally, this operation takes from three to four hours. However, the length of the operation depends on its complexity. Because of this, each operation is different and the duration is difficult to predict accurately.

WHAT HAPPENS IMMEDIATELY AFTER THE OPERATION?

Once the operation is over, patients are cared for in an intensive care unit. It is here that patients regain consciousness after the anesthesia wears off. Tubes and wires are attached to parts of the body to provide for safe and efficient recovery. You may spend a few days in intensive care unit, although everyone recovers from surgery at a different pace. During this time one visitor will be allowed in the morning and again in the evening to see you. Make sure that at least one of your attendants will be available in the morning outside intensive care unit area. After doing rounds in the morning, doctor will discuss with them about your progress.

WHERE WILL THE INCISIONS BE MADE?

Usually the incision used to reach the heart is made along the midline of the chest through the breastbone (fig-5). Sometimes it is done through an incision below the right breast (fig-6) or by splitting the breast bone only partially (fig-7).

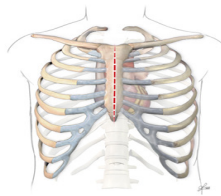


Fig-5 Traditional Incision

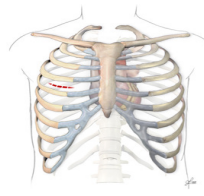


Fig-6 Minimally Invasive
Thoracotomy

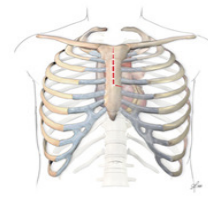


Fig-7 Minimally Invasive
sternotomy

WHAT CAN BE DONE TO HELP IN RECOVERY?

Deep breathing exercises and coughing are important ways to help recover quickly. Coughing reduces the chances of pneumonia and fever and will not disturb the incision or valve. The nurse or therapist will clap her/his hands against the side of your chest, causing internal vibrations that loosen the secretions in the lungs. This makes it easier to cough them up. Most patients, fearing pain or discomfort, do not like to cough after an operation. But it is essential that it be done. Some patients find it easier to cough if the chest is supported by a pillow. You may be asked to inhale or exhale into a spirometer, a device to expand and exercise your lungs.

WHAT ACTIVITY LEVELS ARE PRESCRIBED?

The activity level is prescribed individually for each patient. At first, it may be sitting in a chair or walking around the room. Later, there will be short walks in the hall and eventually, stair climbing and brisk, longer walks in preparation to go home. Sponge baths are given right away and it is only a few days before a shower and shampoo is permissible.

WILL I FEEL PAIN AFTER THE OPERATION?

Most patients complain of being sore but do not have severe pain. This soreness originates from the surgical incisions and muscle spasms. It can be helped by good posture and frequent movement of the arms and shoulders. If the pain is severe, medication may be obtained from the nurse upon request.

WHAT ABOUT THE HEALING OF THE INCISIONS?

You can keep the incisions clean by washing them gently in your daily bath or shower. If you find excess swelling, redness, oozing or tenderness, call your doctor. About six weeks are required for complete healing of these wounds. External stitches are removed about 2 weeks from the day of surgery.

YOUR HOME ACTIVITY PLAN

After discharge from Hospital: It is important to follow a few basic guidelines.

- Initially limit your activities at your home
- Get plenty of rest; Your body requires 6 to 8 hours of sleep every night

1. During Weeks 1 and 2

- Stay on level ground. Avoid climbing a full flight of stairs more than once or twice a day. Also avoid lifting weights.
- Resume self-care activities. When bathing, avoid very hot or very cold water. This may cause dizziness or light-headedness.
- Avoid driving and bending activities. You may be weak from your hospitalization, so you may not react as quickly as you normally would. Riding in a car is acceptable after one month.
- Begin walking for short periods of time. (Two to four times a day starting with 5 mins each time). You may walk through the rooms in your home.
- Begin light home activities, including simple meal preparation and lap activities such as sewing and paper work.

II. During weeks 3 and 4

- Increase walking by adding five minutes each week to the total daily walking time.
- Continue to avoid lifting heavy objects-those more than 10 kgs.

III. During weeks 5 and 6:

- Walking at least 25 minutes each time- twice a day
- You can gradually lift objects up to 15 kgs.

VI. Spirometry exercise and breathing exercise up to one month as explained.

DRIVING:

Since it takes 4-6 weeks for your breast bone to heal, avoid driving during this time. Your medications may also make you drowsy and slow your reflexes.

SEX:

Rest assured that sex won't interfere with your healing, although you may feel more comfortable sharing your affection in nonsexual ways like dancing, going out to dinner or just being close-for the first few weeks after surgery. When you feel ready for intercourse, any position is fine as long as it is comfortable, relaxing and allows for easy breathing.

RETURN TO WORK:

Your doctor can advise you when to return to work at your first follow-up visit. People with desk jobs often return in 6-8 weeks, it may be longer for more physical work.

ZEST:

Recovering your former zest may take some time. But take heart: it will happen. You will feel like yourself before long. Open heart surgery is a unique physical and personal challenge. When your sense of well-being and enjoyment in life return, you will know you have successfully recovered.

WHAT ARE THE LONG TERM PRECAUTIONS?

1. Diet: Maintain optimum body weight. If you have an artificial mechanical valve, you have to avoid vitamin K rich foods like green leafy vegetables.

2. Regular Exercise: Regular exercise can strengthen your heart muscle and boost its ability to use oxygen. Jogging, brisk walking, swimming and bicycling are all excellent ways to exercise. Your exercise program should start slowly and progress gradually. After heart surgery, an exercise programme should only be started with your doctor's supervision.

3. Taking your medications: Medications are usually needed after valve surgery. In case you have a mechanical valve, your doctor may prescribe certain medications which prevent clotting of blood, on the artificial valve (anticoagulants or blood thinning agents). Take exact dose as directed. You may be directed to do Prothrombin time/INR tests to adjust the dose of blood thinning agents. It is essential that you get that test done as advised by your doctor and show him so that he can adjust the dose accordingly. INR has to be maintained between 2.5 and 3.5.

Caution: Many over-the-counter medicines like antibiotics and pain killers can cause major problems for people with artificial valves. Always get your doctor's opinion about all medicines that you take. Alcoholic drinks can also alter activity of anticoagulant drugs. Verify with your doctor before you can drink.

4. Avoid injuries: These can result in excess bleeding if you are on blood –thinning agents. These can also become a focus for infection to get into your heart.

5. Contact your doctor before any surgical procedures like dental surgeries or if you are pregnant or any suspicion of infection like fever.

6. Always keep a card in your pocket with details of the operation you underwent, drugs you are taking and your blood group and contact numbers of your family members.

7. If you are visiting any other doctor for any health reason, inform him about your surgery and medications. Some drugs can interfere with the action of blood thinning agents. Some procedure like dental work can release bacteria into blood stream and cause infection in your heart.

FOLLOW-UP VISITS:

Follow-up visits with your doctor help assure that you are recovering safely after surgery. A follow-up schedule with the necessary investigations needed will be given to you at the time of discharge.

WHAT CAN I LOOK FORWARD TO AFTER THE OPERATION?

As your recovery progresses, you will be able to appreciate more fully the effects of the surgery. All the previous symptoms will disappear or will come down. You may find you need much less medication, if any, and that you are able to sustain physical activity and exercise with a greater capacity. In addition to feeling better, your valve surgery may prolong your life

CAN I BECOME PREGNANT?

If you a woman you may generally be permitted to become pregnant one year after surgery. When you become pregnant, that puts strain on your heart and anticoagulants you are taking may need to be altered. Discuss with your doctor all the details when you are contemplating to get pregnant.

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