

Pericardiocentesis

Introduction

Collection of fluid in the pericardial space (membranous sac wrapping around the heart) is called pericardial effusion. Causes of pericardial effusion include infection, inflammation, malignancy, metabolic disease, trauma, congestive heart failure, etc. Pericardial effusion can restrict the normal blood filling of the heart and decrease heart function, leading to heart failure. Rapid accumulation of fluid can cause acute pulmonary edema, shock or sudden death. Pericardiocentesis (PC) is an invasive procedure used to treat pericardial effusion. It is done by introducing a drainage tube into the pericardial space, usually under echocardiographic guidance or sometimes fluoroscopic guidance.

Importance of Procedure

PC serves 2 important purposes. First, by removing abnormal collection of fluid from the pericardial space it restores the normal function of the heart. Second, laboratory tests of the collected fluid can give a diagnosis of the pericardial effusion. Emergency PC is needed in the case of rapid fluid accumulation. If this procedure is refused, the condition of patients can deteriorate rapidly. Alternative treatment methods include surgical opening of the pericardium.

Pre-Procedure Preparation

- An echocardiogram (ultrasound imaging of your heart) will be performed to assess and confirm the location, amount and clinical significance of the pericardial effusion.
- Your doctor will explain to you the benefit and risk of this procedure. You need to sign an informed consent.
- Your blood pressure, heart rate and electrocardiogram will be monitored closely. An intravenous drip site will be set up.
- In the case of an elective procedure, blood thinning drug should be stopped 3-5 days before. For emergency procedure, special drug or infusion may be given to neutralize the effect of blood thinning drug.

The Procedure

- Echocardiogram is performed to determine the needle entry site. It can be approached below the tip of the xiphoid process, at the apex of the heart, or parallel to the border of the sternum.
- The procedural area will be disinfected.
- Local anesthesia will be given to the needle entry site.
- A needle is inserted into the pericardial space and a flexible wire introduced through the needle. A hollow tube is exchanged over the wire and secured in the pericardial space. The tube is then connected to a sterile collection bag or bottle outside your body. Fluid will be drained into the bag/ bottle.
- Fluid is sent for laboratory analyses.

Post-Procedure Care

- The hollow tube is left connected to the drainage bag until there is no more fluid drained and no accumulation of fluid in the pericardium. This may take a few days.
- Sometimes, the position of the hollow tube requires adjustment to facilitate fluid drainage.
- Echocardiogram will be performed to monitor the clearance of fluid.

Post-Procedure Follow Up

- A small wound will be seen after removing the tube and will be covered with light dressing. Please keep the wound site clean and avoid making the dressing wet during a bath. Always change the dressing if wet.
- Your doctor will discuss with you the result of the procedure and further plan of management.

Risks and Complications

- The procedure carries certain risks.
- Major complications (2-4%) include death, heart attack, perforation of the heart chamber, injury to major blood vessels, arrhythmia, injury to the liver, pneumothorax and severe bleeding.
- Other potential risks include air embolism resulting in death or neurological damage, retained foreign body such as guide wires.
- Device deployment complications include device dislodgement, device entrapment and wire fracture.

Remarks

- It is hard to mention all the possible consequences if this procedure is refused.
- The list of complications is not exhaustive and other unforeseen complications may occasionally occur. The risk quoted is in general terms. In special patient group (e.g. diabetics), the actual risk may be higher.
- Should a complication occur, another life-saving procedure or treatment may be required immediately.
- If there is further query concerning this procedure, please feel free to contact your nurse or your doctor.