

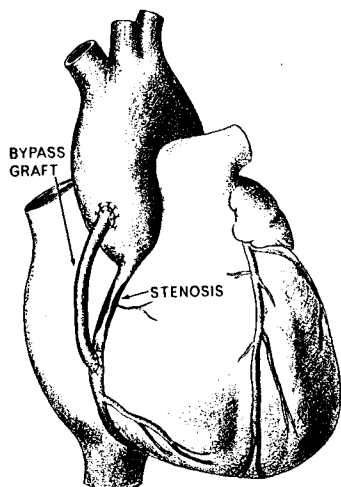


Figure 1: Sketch of an aortocoronary bypass graft.

SYMPOSIUM

GIVEN: The aortocoronary bypass graft.

QUESTION: Describe the rationale, technique and pump-oxygenator circuitry your team favors for this procedure.

FORWARD

The aortocoronary bypass graft has probably become the most frequent cardiac procedure of late. We all live in a world that revolves around the National Guard motto 'Ever on Call', echoed by 'Be Prepared' from the Boy Scouts. Emergency cardiac surgery puts us all to task. This case report deals with a valve replacement and coronary bypass graft. The time from when the diagnosis was made to the completion of surgery span a mere 24 hours.

CASE:

This 50 year old, white, male had a myocardial infarction 11 days ago. He was doing fairly well except for a faint systolic murmur until today when he developed severe pulmonary edema with a loud murmur.

Mid-afternoon the internist summoned the cardiac surgeon; after his evaluation, the cardiac catheterization department from the University was called. At 7:00 P.M. the patient was transferred from another hospital directly to the University Cath. Lab. The patient's pressure was in the 40's and vasopressors were in continuous drips.

Catheterization Impression:

1. Severe coronary artery disease with complete obstruction of main, right coronary artery.
2. Severe mitral regurgitation
3. No left to right shunt by O_2 sat. data.
4. Papillary muscle infarction

He was immediately taken to the operating room. At 10:45 P.M. under local anesthesia the femoral artery and vein were exposed. The patient totally heparinized (3 mg./kg.) the large cannula ($\frac{3}{8}$ " ID tubing) was inserted into the femoral vein and directed up toward the inferior vena cava. Another cannula was inserted into the common femoral artery. The patient was then anesthetized with general anesthesia and the chest opened. As the pericardium was opened he began to have some difficulty with a drop in blood pressure and was slowly placed on the pump for support. Another cannula was inserted into the right atrium and directed up into the superior vena cava; total bypass began at 11:57 P.M.

PUMP SET UP:

Sarns-Travenol roller pumps were used with the Bentley Temptrol oxygenator and cardiectomy reservoir; (the reservoir is used for the ventricle sump that can be placed on gravity drainage or remain on the suction system.) An aneroid manometer was placed in the arterial line from the pump to the patient. Calibrated flow was 4200 cc (M^2) and 5800

DIARY OF A CASE

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cc (kg). The prime solution consisted of 1000 cc D5W. Lactate Ringers, and whole blood. 30 mg. of heparin was added to each liter of diluent and each unit of blood was converted with 22 mg. heparin and 6 cc Calcium Chloride. (Under emergency situations the blood was not heparinized as normally it would have been.) Na Bicarbonate (44.6 meq.) was used in the pre-circulation. He was cooled to 31° during the initial phase and the flow cut back to 3500 cc from 4200 cc. Blood gases were run at 30 min. intervals. Mannitol 12.5 Gm. was given to maintain adequate urinary output. Extra heparin was given each hour after the original dosage.

Total pump time: 2 hours 27 minutes

Total heparin time: 3 hours 33 minutes

Protamine sulfate was given to neutralize the heparin.

SURGICAL FINDINGS:

There was complete disruption of the inferior leaflet of the mitral valve with the papillary muscles appearing to be markedly fibrotic and completely necrotic through this center. The attachment of the upper portion of the papillary muscle and the chordae tendineae was completely free. Free mitral regurgitation was present. There was also rather pronounced arteriosclerosis in the right coronary artery. There was a small area near the apex of the left ventricle that appeared to be rather thin but did not definitely present an aneurysm.

A #3 Starr—Edwards mitral valve Model 6120 was inserted. The saphenous vein was used in the coronary bypass.

OUTCOME:

After 72 rocky hours he began to stabilize and on the 20th post operative day the patient was discharged home to return for follow up cath studies in 60 days. As in all emergency situations, time and efficiency are of prime importance; when they pay off it's called *teamwork*; if they don't—it's *bedlam*!