

Aortic Dissection in the Second Trimester of Pregnancy: Is It Possible to Save Both Lives?

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ABSTRACT

Aortic dissection during pregnancy is a potentially catastrophic clinical condition and can be lethal to both mother and fetus. The treatment of aortic dissection in pregnancy is based on location, severity, and gestational age. We report a case of acute aortic dissection in a 30-year-old female patient in her 26th week of gestation. Ascending aorta resection and interposition of a 26-mm Dacron graft was carried out without circulatory arrest by means of a double-felt “sandwich” technique on both anastomoses. The patient was discharged from the hospital 10 days after her initial admission. At the 34th week of gestation, the patient delivered a healthy baby by cesarean section. Because our patient was hemodynamically unstable, our aim at the 26th week of gestation was to perform a simplified surgical procedure, to avoid circulatory arrest, and to maintain a high perfusion pressure, in order to save the patient’s life and to decrease the potential risk of damage to the fetus.

INTRODUCTION

Aortic dissection during pregnancy is a potentially catastrophic clinical condition and can be lethal to both mother and fetus. According to data from the International Registry of Acute Dissection (IRAD), 0.2% of all acute aortic-dissection cases were associated with pregnancy [Nienaber 2004]; however, in a cohort group of IRAD female patients who were younger than 40 years of age, pregnancy was involved in 12% of these patients [Jannuzzi 2004]. The treatment of aortic dissection in pregnancy is based on its location and severity, as well as on the gestational age [Sakaguchi 2005].

We report a case of acute aortic dissection in a 30-year-old female patient in the 26th week of gestation.

CASE REPORT

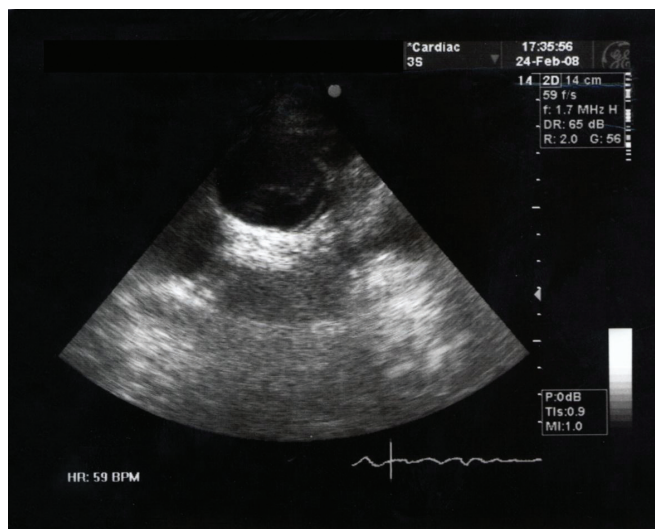
A 30-year-old patient in the 26th week of gestation experienced severe retrosternal pain and hypotension. At admission,

Received February 6, 2011; received in revised form April 12, 2011; accepted April 29, 2011.

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the patient was conscious, dyspneic, and pale, with a blood pressure of 80/40 mm Hg. An echocardiogram revealed a Stanford type A aortic dissection with an intimal tear 3 cm above the right coronary ostium, mild aortic regurgitation, pericardial effusion, and a normal left ventricular function (Figure). In view of the risk of aortic rupture, an immediate operation was indicated. The patient and her family participated in and agreed with the decision.

Anesthesia was induced with divided doses of propofol, which was combined with midazolam, fentanyl as an opioid analgesic, and rocuronium for muscle relaxation. No inhalational agents were used. After sternotomy and evacuation of a hemopericardium, cardiopulmonary bypass was established by retrograde perfusion through the left main femoral artery and venous drainage via a single cannula advanced into the right atrium via the femoral vein. Myocardial protection was carried out with cold cardioplegic solution and hypothermia at 34°C. Ascending aorta resection and interposition of 26-mm Dacron graft was carried out without circulatory arrest, with a double-felt “sandwich” technique used on both anastomoses. The reperfusion pressure was kept high during cardiopulmonary bypass. That was achieved by maintaining the highest calculated flow and without use of any medical support. During weaning of the patient from cardiopulmonary bypass, we found no need for mechanical or inotropic



Transthoracic echocardiogram showing a Stanford type A aortic dissection.

support of the myocardium; the overall course of the operation was uneventful.

After surgery, we maintained the patient on assisted ventilation for 10 hours, and she remained hemodynamically stable. An echography evaluation demonstrated a viable fetus. All of the drugs known to be potentially harmful to a fetus at this stage of pregnancy were avoided successfully. No medical inotropic support of the myocardium and no vasopressors were used during the patient's stay in the intensive care unit. Metoprolol, prazosin, and diuretics were used for the treatment of hypertension.

A postoperative echocardiogram showed mild aortic regurgitation, normal left ventricular function, and nonsignificant pericardial effusion. The patient was discharged from the hospital 10 days after her initial admission. At the 34th week of gestation, the patient delivered a healthy baby by cesarean section.

DISCUSSION

The limited experience reported in the literature does not allow the determination of guidelines for clinical and surgical management of aortic dissection in pregnancy. Our approach was consistent with the scarce literature data. For a pregnant woman with an acute type A dissection, treatment should be aimed at saving both lives. Before 28 weeks of gestation, aortic repair with the fetus kept in utero is recommended. If the fetus is viable (after 32 weeks of gestation), primary cesarean section followed by aortic repair during the same operation is the treatment of choice. There is a dilemma between 28 weeks and 32 weeks of gestation, however, with the delivery strategy determined by the fetus' condition [Pomini 1996;

Immer 2003; Sakaguchi 2005; Avila 2006; Matsuda 2006; Wakiyama 2007].

Because our patient was hemodynamically unstable and at the 26th week of gestation, our aim was to perform a simplified surgical procedure, to avoid circulatory arrest, and to keep a high perfusion pressure, in order to save the patient's life and to decrease the potential risk of damage to the fetus.

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