Two Successful Term Pregnancies with a Large Descending Aorta Aneurysm: Case Report

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Abstract
Aortic aneurysm is a rare but potentially lethal complication during pregnancy. In this article we described a 30-year-old woman with a large size descending aorta aneurysm (11 cm in length and 5.6 cm in its greatest diameter), who had two term uncomplicated pregnancies. The patient received prophylactic β-blocker drug during her second pregnancy. Both pregnancies were terminated by caesarean section without any serious complications. Postpartum period was recovered successfully, but a noticeable increase in aneurysm’s length was detected in the period between two pregnancies.

Key words: Aortic Aneurysm, Term Pregnancy, Caesarean Section, β-Blocker Therapy

Introduction
Despite the rare prevalence of aortic aneurysm during pregnancy, it seems to be an important problem, which may lead to catastrophic complications during gestation and high maternal mortality. Here we describe a non-Marfan syndrome patient with two term uncomplicated pregnancies accompanied by a large aortic aneurysm.

Case report
A 30-year-old pregnant woman was referred to Ayatollah Taleghani Hospital as a known case of aortic aneurysm for termination of her pregnancy. The patient had no history of personal or familial connective tissue disorder, though; she had a 6 year history of primary infertility due to male factor. Her descending aorta aneurysm was detected 5 years ago due to short breath and palpitation. The aneurysm was measured 4 cm in length and 5.6 cm in its greatest diameter on the first abdominal ultrasound. Her first spontaneous pregnancy was terminated 2 years ago at 37 weeks of gestational age with caesarean section surgery and she gave birth to a healthy boy weighing 3750 grams. Her first scheduled caesarean section through an abdominal midline incision has been performed due to her aortic aneurysm. The patient was still breast-feeding her first child and using minipills (Lynestrenol) as contraceptive while getting pregnant again.

At the time of admission, her gestational age was 39 weeks based on patient’s last menstrual period date and 37.5 weeks based on 23 and 35 weeks prenatal ultrasound scans. She had a CT scan performed one year before her recent pregnancy, suggesting the increase in aneurysm’s size after her first term pregnancy. The CT scan reported a fusiform aneurysm in descending aorta measuring 11 cm in length and 5.6 cm in greatest diameter, which ends 1 cm before celiac trunk, and contains small amount of wall haema-
toma with no sign of dissection. The celiac trunk and bilateral main renal arteries were reported normal. Echocardiography revealed trivial mitral regurgitation and diastolic dysfunction. The patient received β-blocker therapy (Metoral, ¼ tablet two times a day) during her pregnancy. At the time of admission, she was complaining of frequent abdominal pain, palpitation and dyspnea and was not able to sleep in supine position, though; she had no uterine contractions, vaginal bleeding or rupture of membranes. The examination of heart and lungs was normal except of a II/VI systolic murmur, and the peripheral pulses were also normal. She had a blood pressure of 100/65 and a heart rate of 96 with a normal ECG. Fetal heart rate and fetal movements were also normal and she had a uterine height of 37 cm.

The patient was admitted and under general anaesthesia caesarean section through a midline abdominal incision was performed. A normal healthy female newborn weighted 3700 g was delivered with Apgar score of 9/10 with no detectable cardiovascular abnormalities through a Kerr incision. The amniotic fluid was clear but less than normal for gestational age in volume and the placenta had some degrees of adhesion to the decidua. There was no excessive blood loss and patient’s heart rate and blood pressure were tightly monitored and controlled during the operation.

After the surgery, monitoring was continued in intensive care unit for the first 24 hours and healthy mother and baby were discharged four days later. The patient was referred to the vascular surgery clinic for further evaluations and surgical treatment of aortic aneurysm.

Discussion
Aortic aneurysms occur very rarely in young women. They usually accompany congenital heart diseases, Marfan's syndrome, bicuspid aortic valve and coarctation, and less frequently they may be the consequence of syphilis and trauma (1). Despite their rare incidence, aortic aneurysms seem to be an important problem due to high maternal mortality during gestation. Easterling and colleagues found that aortic diameter increased significantly even in normal women over the course of pregnancy, and this increase was even greater for women who develop preeclampsia (2). It seems that haemodynamic changes, which occur in pregnancy, favour the appearance of this pathology and deteriorating the prognosis (1). Acute aortic dissection is rare but potentially catastrophlic complication of pregnancy and half of the cases of aortic ruptures in women aged below 40 years are associated with pregnancy (3).

Rahman and co-workers reported no maternal deaths in their review among 14 women with Marfan syndrome, but they found that aortic dilatation of more than 40 mm or mitral valve dysfunction are high-risk factors for life – threatening cardiovascular complications during pregnancy (4). Lederle and colleagues have shown that survival in non-pregnant patients is not improved by elective repair of abdominal aortic aneurysm smaller than 5.5 cm (5). Moreover, Gott and collaborators recommended that if the dilatation of aneurysm reaches 50 to 60 mm, then elective surgery should be considered before pregnancy (6).

Initial medical treatment is considered to lower blood pressure in women with aortic involvement. Elkayam and co-workers recommended β-blocker prophylactic therapy during pregnancy (7). Prophylactic beta-adrenergic blockage is effective in slowing the rate of aortic dilatation and reducing the development of aortic complications in some patients with Marfan's syndrome (8).

Mul and co-workers recommended caesarean delivery in pregnant women with Marfan syndrome, if there is aortic involvement (9). Gelpi and colleagues described the cases of two non-Marfan women with no history of cardiovascular disease who developed an acute aortic type A dissection within a few days after term caesarean section delivery. They recommended that compared with spontaneous delivery, scheduled caesarean section allows for better control of haemodynamic parameters and should protect against aortic dissection (10).

Most of the aortic dissections reported to date involve the ascending aorta and occur before delivery, but a few cases of postpartum aortic dissection have also been described in both Marfan and non-Marfan syndrome patients, either after vaginal or caesarean section delivery (10, 11, 12, 13, 14).

Surgical repair of aortic aneurysm during pregnancy has been described by some recent case reports, although intrauterine fetal death or hypoxic cerebral damages have also been reported following surgery (9, 15, 16, 17).

Tilak and colleagues recommended that with appropriate care and surgical correction of the dissecting aneurysm early in pregnancy, a successful outcome for the pregnancy was possible (18).

In conclusion, women with the aortic aneurysm
should be counselled during pre-conception and closely observed by an interdisciplinary team during pregnancy and also after delivery, as the aortic dissection is a rare but potentially lethal complication of pregnancy. Prophylactic use of beta-blockers during pregnancy may be useful in preventing aortic dilatation and dissection. In patients with aortic involvement, caesarean section seems to be the preferred method of delivery. Further studies are needed to evaluate the best management of pregnancies with aortic aneurysms.

References