

Uncomplicated vaginal delivery 6 years after stent graft repair of an acute traumatic aortic transection

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Abstract

Acute traumatic transection of the aorta (ATAT) is a devastating event. Transluminal endovascular aortic repair (TEVAR) has meanwhile become an excellent alternative for such lesions. A 27-year old woman sustained a multiple trauma in a car accident including ATAT which was treated by aortic stent graft placement. Six years after the endovascular repair, our patient had only noticed, just shortly after an annual computed tomography (CT) check-up, that she was pregnant and in the 9th week of gestation. The CT was considered as unproblematic for the foetus since direct radiation of the uterus had been avoided. Our patient clearly preferred a vaginal delivery over a caesarean section. The pregnancy was uneventful with uncomplicated vaginal delivery at term. This case shows that vaginal delivery is possible if the stent graft is in regular position without signs of endoleaks and the rest of the aorta is free from dissection or aneurysm formation. It indicates that TEVAR is a sound and durable treatment modality in ATATs and that aortic stent grafts can resist increased intravascular volume and elevated aortic pressure levels as encountered in pregnancy and during vaginal delivery. This particular case also shows that it is possible to respect a patient's right of self-determination.

Keywords: Aortic stent graft • Acute aortic transection • Pregnancy • Vaginal delivery

INTRODUCTION

Acute traumatic transection of the aorta (ATAT) is a devastating event. Up to 80% of these patients who are usually polytraumatized are reported to die at the time of injury at the scene [1]. For decades, the treatment of choice has been surgical repair via a left thoracotomy with or without cardiopulmonary bypass. The mortality ranges from 12% to 26% and is surgery-related but in the majority of the cases due to associated injuries. Transluminal endovascular aortic repair (TEVAR) has only recently been introduced as a treatment modality for such lesions and has meanwhile become the preferred strategy for ATAT [2, 3]. Currently, there is not a single report in the scientific literature on patients with TEVAR for ATAT and pregnancy or delivery. Critical issues are the increased intravascular volume in pregnancy and elevated aortic pressure during labour and vaginal delivery. Herein, we describe the first case of a patient with uneventful pregnancy and vaginal delivery at term 6 years after stent graft placement for ATAT.

CASE REPORT

A young lady sustained a multiple trauma in a car accident at the age of 27. She suffered from a brainstem-bleed, serial rib fractures, pneumothorax, fractures of the scapula and humerus. The sacrum was fractured and the sacroiliac joint was injured and had to be fixed surgically with sacral screws. The life-

threatening injury was an ATAT 1 cm distal to the left subclavian artery. The patient was intubated on admission and TEVAR (Medtronic Talent™ Thoracic Stent Graft) was undertaken within a few hours after the injury via the left femoral artery. She was discharged 17 days after the procedure and fully recovered from her multiple injuries. Routine check-up consisted of a computed tomography (CT) once a year and none of them showed stent graft failure or aortic compromise (Fig. 1 shows the most recent CT scan). Six years after stent graft placement, the annual CT had been performed and shortly after our patient became aware of her pregnancy in the 9th week of gestation. Due to her medical history, she was followed-up at our department by a team of obstetricians, heart surgeons and interventional radiologists at regular intervals. There were concerns regarding the elevated aortic pressure during labour and delivery. Despite this, the patient clearly preferred a vaginal birth over a caesarean section. The stent graft was in regular position without any signs of an endoleak and the descending aorta was normal. However, it was determined that she could deliver the baby vaginally with a low threshold to moving towards caesarean section, defined as a foetus large for gestational age or necessity of induced labour. The elevated aortic pressure during labour and vaginal delivery was considered to be no contraindication. In 37+5 weeks of gestation, a birth weight of 2988 g was estimated. In 39+2 weeks of gestation, labour began spontaneously and our patient was admitted to the delivery ward. Cardiotocography was used for foetal monitoring. The patient required no pain medication during labour and birth. The operating room is



Figure 1: CT imaging of the thoracic aorta: sagittal cut showing the stent graft in regular position.

located next to the delivery ward with anaesthesiologists and vascular surgeons available immediately.

No antibiotics for subacute bacterial endocarditis prophylaxis were required. Assisted second stage of labour was not necessary and vaginal delivery was completely uneventful (the first and second stages of labour were 5 h 30 m and 30 m, respectively; newborn: male, birth weight 3380 g). A further hospital stay was also uneventful and the patient was discharged from the hospital on the fourth day post partum.

DISCUSSION

Herein, we describe the first case of an uneventful pregnancy and vaginal birth after TEVAR for ATAT. So far, there is no

information on thoracic aortic stent grafts in pregnancy and vaginal delivery with elevated aortic pressure and increased intravascular volume as the main risk factors. Our patient had only noticed just shortly after an annual check-up CT that she was pregnant and in the 9th week of gestation. The CT was considered as unproblematic for the foetus since direct radiation of the uterus had been avoided in this particular case as the ATAT was located in the upper descending aorta near the aortic isthmus. Apart from that, the radiation dose did not exceed 10 mSv. Our patient clearly preferred a vaginal delivery over a caesarean section. Since the CT showed a regular position of the stent graft without signs of an endoleak and a normal descending aorta, we decided that a vaginal delivery was possible. This case shows that vaginal delivery is possible if the stent graft is in regular position without signs of endoleaks and the rest of the aorta is free from dissection or aneurysm formation. TEVAR has already become the method of choice for patients with ATAT. The case described herein indicates that TEVAR is a sound and durable treatment modality in ATATs and that these stent grafts can resist increased intravascular volume and elevated aortic pressure levels as encountered in pregnancy and during vaginal delivery. Despite this unusual situation, we were able to respect the patient's explicit choice of delivery with a proper safety-net.

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Conflict of interest: none declared.

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