

## Page for the General Public

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(on behalf of the Editorial Office)

### *Martijn van Dorp et al.: Local Anesthesia for Percutaneous Thoracic Endovascular Aortic Repair*

In some cases, diseases of the aorta, the body's main artery, have in recent years become treatable by "Thoracic Endovascular Aortic Repair", or TEVAR. In this technique, the diseased vessel is not surgically replaced, but rather stabilized from the inside by a stent graft prosthesis that is inserted via a vessel in the groin. Usually, this vessel is surgically exposed to introduce the stent graft. In their study, *Martijn van Dorp and colleagues* investigated a technique that allows inserting the stent graft through a puncture through the skin into the groin vessel. They report their experience with 34 patients in whom they used this device for stent grafts whose introducing sheath were larger than previously recommended. With this puncture technique, they were able to perform these procedures under local anesthesia. With local anesthesia, some complications of these procedures, e.g. a stroke of the brain, can be recognized earlier. Furthermore, patients tend to

be more comfortable and tend to be discharged home earlier after procedures under local anesthesia. In this study, the device mostly worked well, and there were no patients who needed surgical exposure of the vessel or general anesthesia. Only one patient had a complication concerning the access site vessel. The authors therefore conclude that with their puncture technique, this type of procedure can be performed under local anesthesia even when using larger diameter stent grafts.

### *lakubova et al.: "KIF6 719Arg Genetic Variant and Risk for Thoracic Aortic Dissection"*

"KIF6" is the name of a gene that occurs in different variants in the human genome. One of the variants called "719Arg" previously has been associated with a high risk of developing coronary heart disease, which can cause a heart attack. In their study, *lakubova and colleagues* studied whether this variant of the gene might be associated with a higher risk of developing an aortic aneurysm or sustaining an aortic dissection.

In aortic aneurysm, the aorta, the main artery that arises from the heart and distributes oxygenated blood in the body, dilates and can eventually rupture. In aortic dissection, a tear occurs in the vessel wall of the enlarged aorta through which blood enters in the vessel wall, creating a disruption of vessel layers. Both aneurysm and dissection are potentially life threatening diseases that often warrant major surgery. Since the disease usually presents with few warning signs, identifying risk factors is important to permit identification of patients at risk.

The authors tested 912 patients' genes to determine which variant they had. These findings were then analyzed as to whether patients were being healthy or had aortic aneurysm or dissection. The results showed that the odds of aortic dissection were about two-fold higher in patients who carried the "719Arg" variant of the gene. The odds of having thoracic aortic aneurysm were not increased. The KIF6 gene contains the code for a group of molecules that are responsible for transportation within



cells. The mechanism by which the variant might cause a predisposition for aortic dissection is unclear.

However, this study does not prove yet that the studied variant increases the risk of aortic dissection, because it does have some limitations. For studies of this type, the study group is quite small. Further trials are necessary to find out if the "KIF6 719Arg"-variant is indeed associated with aortic dissection and if testing for KIF6 is a helpful tool to identify patients at risk for aortic aneurysm and dissection.

### Case reports

*Ahmad Zeeshan et al.: Immediate Improvement in Severe Mitral Regurgitation After Aortic Valve Replacement for Severe Aortic Insufficiency*

In patients with regurgitation (backward leakage) of the aortic valve, which serves as a gate keeper between the heart and the aorta, the body's main artery, leakage through the aortic valve can cause another valve in the heart, the mitral valve, to leak as well. When planning surgery in patients with leakage of both valves, it is a matter of judgement if only the aortic valve, or both valves need to be repaired or replaced. Operating on both valves might significantly increase the risk of surgery. *Ahmad Zeeshan and colleagues* describe a case of a patient who had a leaking aortic valve and secondary mitral valve leakage who after isolated aortic valve replacement showed full and immediate resolution of his mitral valve leakage. Correcting the leakage of the aortic valve

"took the load off" the mitral valve, restoring its competency.

*Yannick Deswysen et al.: Unusual Management of Thoracic Aortic Injury After Spinal Instrumentation: Just Glue It!*

The aorta, the body's main artery runs very close to the spine. Injury to the aorta is therefore a rare but possible complication of spinal surgery. In case of such injury, aortic repair with open replacement surgery or using a stent graft that is placed into the aorta via the groin vessels might be necessary. *Yannick Deswysen and colleagues* describe two cases of misplaced screws used for spinal surgery inadvertently penetrating the aorta, but without causing bleeding. Both cases were handled by removing the screw and gluing the injury with biological glue. Both patients recovered uneventfully. The suggested approach could significantly reduce the extent of aortic repair in asymptomatic and uncomplicated cases of aortic injury after spinal surgery.

*Michelle Eddins et al.: Intraoperative Epi-aortic Ultrasound for Traumatic Pseudoaneurysm of the Ascending Aorta*

Ultrasound is a technique that uses sound waves that are echoed by body structures to create images of these structures. Usually, the ultrasound probe is placed on the skin or in the esophagus behind the heart. *Michelle Eddins and colleagues* present the case of a patient who suffered traumatic injury to his aorta, the body's main artery in a car accident. The injury needed to be surgically repaired,

but proved difficult to visualize. During surgery, the surgical team placed a sterile ultrasound probe on the aorta to produce images of the exact anatomy of the injury. This technique, called "epiaortic ultrasound", helped them to plan the surgical procedure.

*Youchi Yanagawa et al.: The Migration of Air into the Aorta from A Pneumothorax in a Patient with a Penetrating Injury of the Aorta*

*Youchi Yanagawa and colleagues* describe the case of a man who died when a tree fell on his back. They performed a CT scan (a 3D X-ray study) of the man's body that showed that several ribs had been broken, with one of them penetrating into the aorta. The unexpected finding was that air had not only entered through the man's rib cage, but had also traversed into the aorta. The authors hypothesize that the patient did not die only from exsanguination, but also due to the air that entered the aorta.

*Ankur Phatarpekar et al.: "Is the Sac Waiting to Rupture? Sinus of Valsalva Aneurysm"*

The Sinuses of Valsalva are normal bulges of the wall of the aorta, the body's main artery, at the level of the aortic valve, which serves as a gate between the heart and the aorta. *Ankur Phatarpekar and colleagues* present a case of a boy who underwent an intervention to close a hole in the wall between two of the heart's chambers (atrial septal defect). He subsequently developed an enlargement of one of the Sinuses of Valsalva, called Sinus of Valsalva aneurysm, that lead to rupture and required

emergent surgical repair. Sinus of Valsalva aneurysm can be caused by a congenital weakness of the vessel wall, by an infection or by degenerative processes, leading to a variety of complications and symptoms. The authors discuss when patients with this type of anomaly need to be operated. If the patient has no complications or symptoms from the aneurysm, surgery is usually recommended when the aneurysm is very large or grows quickly. In all cases, close follow-up is necessary.

*Andrés Enríquez Puga et al.: Chronic Type A Aortic Dissection and Giant*

#### *Root Aneurysm After Aortic Valve Replacement*

*Andrés Enríquez Puga and colleagues* describe a case of a patient who underwent replacement of his aortic valve, which represents the gate between the heart and the aorta, the body's main artery. At the time of surgery, his aorta was already somewhat larger than expected, but was not replaced. Several years later, his aorta had enlarged to giant proportions (called aneurysm), and developed a dissection, which describes a tear in the inner wall of the vessel potentially leading to life threatening complications. He underwent

surgical replacement of his aorta and recovered well. This case illustrates that if the risk is acceptable, replacement of a moderately enlarged aorta should be considered at the time of original aortic valve surgery to prevent further aortic enlargement.

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