Transcatheter aortic valve implantation applications in Turkey; the role of the heart team approach

Türkiye'de transkateter aortik kapak implantasyonu uygulamaları: Kalp takım çalışmasının rolü

Dear editor,

Severe calcific aortic stenosis (AS) is the most common valvular disease in older population, which affects 2-7% of the population over the age of 65 years. In Turkey, the total population is 72.5 million and 7% of them were over 65 years of age according to official data (TUIK) in 2010.

Surgery is still a gold standard approach, but surgical risk rises with age and the mean STS (Society of Thoracic Surgeons) score is approximately 15% in older age groups due to severe comorbidities leading to denial of surgery in 30-40% of these patients (1).

Transcatheter aortic valve implantation (TAVI) is a novel technique, initiated by Alain Cribier in 2002 (2). So far, two available systems, Edwards SAPIEN (Edwards Life Sciences, Irvine, CA, USA) (Fig. 1) and Corevalve ReValving System (Medronic Inc, Minneapolis, MN, USA) have been widely used in Europe and USA. TAVI procedure is not only a novel interventional therapy, but also an excellent example for a hybrid procedure, which is successfully being performed with collaboration of cardiovascular surgeons and cardiologists.

From 2002 to 2012, besides the experience gained, improvements in devices and technique resulted in an increase in procedural success rate from 75% to 98.5%. TAVI procedure was started in Turkey in early 2009 (3), and then followed by another center with a procedural success reaching up to 100% (4). These first two attempts were followed by other private and public training and research hospitals. In 2010, Turkish Ministry of Health finally began to support TAVI procedure in a particular group of training hospitals with a special budget making a pivotal financial plan. After the initial success rate and experience, Turkish Ministry of Health has decided to generalize TAVI to whole country by selecting university hospitals, which may be capable to do this procedure in 2011. Within the framework of this plan, TAVI procedure was began in Erzurum in November 2011 and will start in Trabzon in January 2012. So far, TAVI procedure was performed totally in 116 cases; 8 in 2009, 28 in 2010 and 80 cases in 2011, and continues to advance rapidly.

One must be very careful and retain the property of acting ethically, because the excitement created by the interventional therapy may increase the unethical behaviors that had been experienced in the early period of widespread use of drug eluting stents.

On the other hand, operator training is a crucial component of TAVI procedure, and it is also essential for the candidate center to have experience on coronary, endovascular and structural heart interventions; sufficient infrastructure (hybrid operation theater), and surgical support. The cost is important issue for national economy in our country, so the candidates for TAVI should be carefully selected among high-risk patients refused by surgeon to operate, because TAVI still has many life-threatening complications (5) and high stroke rate.

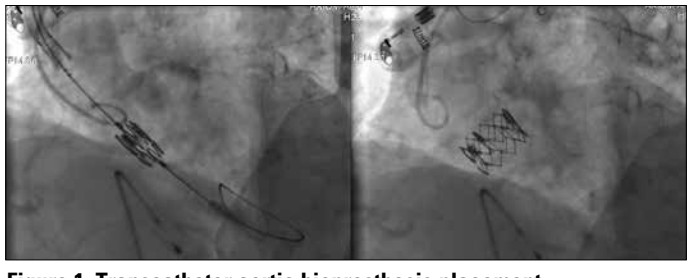

Figure 1. Transcatheter aortic bioprosthesis placement

Finally, in November 2011 the US Food and Drug Administration has approved the TAVI for inoperable AS, the Sapien (Edwards-Life sciences). TAVI is a promising intervention and will probably be offered to a wider group of patients in the future. However, the heart team consisting of surgeons and cardiologists must be fully aware of the clinical concept and rationality of TAVI bearing the economic reality of Turkey in mind. We must not be hasty and impatient to perform TAVI in an unrealistically liberal way. A national health policy must be established with collaboration of Turkish Cardiovascular Societies and Ministry of Health. New technologies and interventions must inevitably and constantly be brought to clinical practice by experienced training centers with a team approach.

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Migration of a foreign body to the right ventricle following traumatic penetration to the right subclavian vein

Travma sonrası sağ subklavian vene penetre olan yabancı cismin sağ ventriküle migrasyonu

Intracardiac foreign body embolizations are rarely seen. The most common causes are catheter pieces, pacemaker electrodes and stents (1). Rarely, foreign bodies may penetrate to peripheral and central veins secondary to trauma and migrate to heart spaces (2, 3). In this article we represent a case and treatment of a metallic object penetrating to the right subclavian vein after trauma and migrating to heart.

A 24- year-old tunnel worker was admitted to the Sinop State Hospital after a piece detached from a maul targeted his right shoulder.

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On his postero-anterior chest X-ray (Fig. 1), a metallic object with bright reflection was determined between the basis of the heart and diaphragm. He was referred to our Faculty of Medicine hospital after initial interventions. On admission, the patient was conscious with good orientation-cooperation and general situation. His vital signs were as follows: TA: 120/80, heart rate: 65/min. In physical examination, a suturated wound of 1.5 cm on the right midclavicular line was observed. There wasn't any sign of hemothorax, pneumothorax, active bleeding, hematoma or emphysema under the skin. Examinations of other systems were normal. In the thorax CT (Fig. 2), a foreign body in the right ventricle was observed. When an echocardiography was performed, a hyperechoic object of about 1. 2 cm long with a shadow on the apical region of right ventricle was determined. Its relation with pericardium was not clear. Pericardial fluid was not determined. Metallic object was mobile on fluoroscopy. The patient has immediately undergone surgery.

Median sternotomy was performed. When pericardium was opened it was intact and no pericardial fluid was observed. Then, aorto-bicaval cannulation was performed. Under a moderate hypothermia of 28°C, cardiac arrest was obtained with antegrade isothermic potassium blood cardioplegia. Then, right atriotomy was performed. Foreign body could not be reached through right atrium. On palpation of right atrium, foreign body was palpated in right ventricle. Transverse ventriculotomy of 3 cm was performed beside apex of right ventricle. Foreign body was observed through right ventricle trabeculae. Sharp edged metal of 1.2 cm was removed accurately (Fig. 3). Right ventriculotomy was repaired with 2/0 polyester suture material continually and the operation was ended.

Foreign bodies in heart may cause ischemia and infarctus and also arrhythmias and endocarditis depending on their localization. The ones with rigid structure may cause rupture of ventricle and vessels. Asymptomatic patients with well-proportioned foreign body lesser than 5 mm may be observed with antibiotic prophylaxis for endocarditis. Otherwise, surgery and other interventions for treatment must be performed. The foreign body we determined 1.2 mm long and mobile. Due to risk of infection and embolization it was removed surgically (4-6).

In our case penetration was through right subclavicular region. It was noteworthy that foreign body penetrated through subclavian vein and migrated to heart without any sign of serious bleeding, hematoma and tissue damage on this region.

As a result, rapid and accurate determination of foreign bodies located in the heart radiologically and appropriate treatment is important to prevent probable complications.

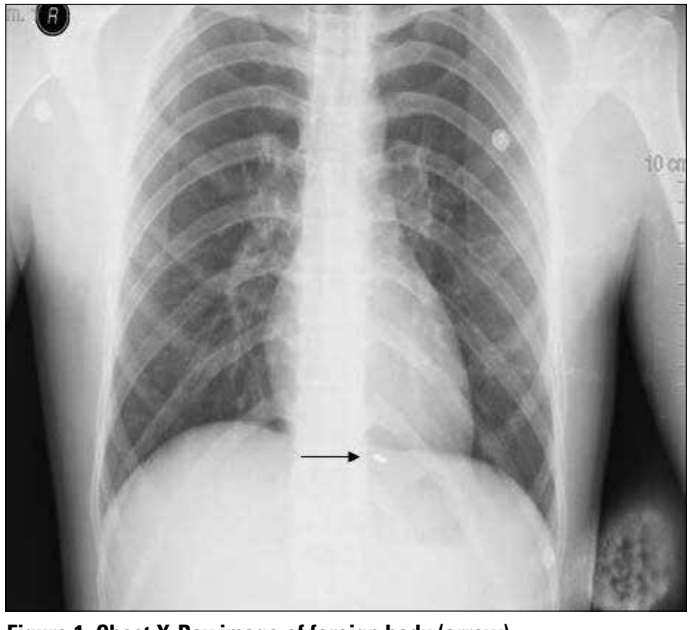

Figure 1. Chest X-Ray image of foreign body (arrow)

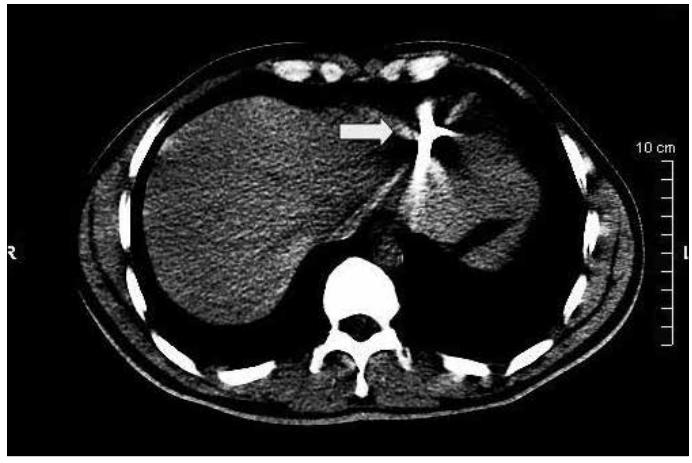

Figure 2. Thorax computed tomography image of foreign body (arrow)

Figure 3. Macroscopic view of foreign body after operation

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