time: 165 minutes and aortic cross-clamping time: 104 minutes. The patient leaves the operating room with open chest, and adrenaline and milrinone infusion. Forty-eight hours later, the chest is closed and 10 days after the patient is extubated. He is discharged from hospital at 21 days postoperatively.

After 22-months follow-up the patient is asymptomatic, with no cardiac medication, and a weight of 13 kg. The echocardiogram shows closed IVC without residual shunt, mild pulmonary valve stenosis without hemodynamic repercussions, with normal aortic flow and ventricular diameters.

The aortopulmonary window can occur alone, but in 10% of cases it is associated with other lesions (3, 5). The variation in terms of location and size gives rise to different classifications. The most commonly used are Richardson´s classification that divides it into type 1, 2 and 3 and Mori´s classification that divides it into proximal, distal and total.

Type 1 or proximal: the defect is located between the ascending aorta and the pulmonary trunk above the Valsalva sinuses. Type 2 or distal: the defect is more distal between the ascending aorta and the pulmonary trunk involving the origin of the right pulmonary artery. Type 3 or total: the right pulmonary artery arises from the ascending aorta.

Both the type of associated lesion as the APW size affects the patient's clinical condition. In infants with isolated APW, signs and symptoms of heart failure usually develop early and its presentation is similar to a large ductus or IVC. The continuous heart murmur is heard only in less than half of the cases (when the defect is small) and the ECG and chest X-.ray are nonspecific, evidencing a large L-R short circuit with cardiomegaly and pulmonary hyperflow. Echocardiography should distinguish the presence of two separate semilunar valves, which allows differentiating the APW from the trunkus arteriosus. It is vital to define the distance between the proximal border of the defect and the valves, the position of the coronary arteries, and the distance between the distal border and the pulmonary branches. (6).

Surgical experience in APW is limited since it is a very rare defect. Mortality ranges from 8 to 30%, depending on the age at surgery, pulmonary vascular resistance, associated lesions and patient condition. (2, 4, 5, 7, 8) Once diagnosed, it should be corrected as early as possible

Simple ligation or division has relatively high frequency of complications, such as recanalization, bleeding and narrowing of the aorta or pulmonary artery. Currently, this technique should be reserved for very young severely ill patients, in whom ECC would be very deleterious and in type 1 isolated, small size APW, located distantly from the pulmonary artery and the semilunar valves. This type of APW would also be candidate for hemodynamic closure. (9)

In most reports transaortic closure with simple patch is preferred. In our patient with large APW associated with tetralogy of Fallot we preferred the complete separation of the arteries, with incision in the pulmonary end, favoring direct closure of the aorta without patch, with good visualization of coronary arteries and semilunar valves, based on the technique described by Van Son. (10) In our case, due to the associated disease we also had to explore and expand the pulmonary trunk with a pericardial patch.

We believe that the technique of choice in these cases is the complete separation of the APW, favoring primary closure of the aorta and using the pericardium for pulmonary artery closure. The correction of APW with associated complex lesion can be performed simultaneously with low morbidity and mortality.

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Nosocomial Infective Endocarditis Caused by Extended-Spectrum Beta-Lactamase-Producting Klebsiella pneumoniae

Nosocomial infective endocarditis (IE) caused by extended-spectrum beta-lactamase-producing Gram-

negative bacilli is a severe and rarely reported complication. Associated with health care, it arises from invasive procedures that cause bacteremia, with an increase in recent years in the number of cases due to the growing frequency and complexity of diagnostic and therapeutic maneuvers .(1) In a recent prospective, observational, multicenter study, IE associated with health care accounted for 34% of all recorded episodes. Most of these cases were caused by Staphylococcus aureus, while Gram-negative bacilli accounted for < 2%. (2) Infective endocarditis by Klebsiella pneumoniae is rare, as evidenced by the small number of cases described in the literature, and has a bad prognosis. (3) Nosocomial infections by extended-spectrum beta-lactamase-producing (ESBL) K. pneumoniae are an emerging entity and represent a major health problem. The description of a health care-associated IE case on the aortic valve due to ESBL-producing K. pneumonia was considered of interest because of its low frequency and high mortality.

A 53-year-old male patient with type II diabetes is hospitalized for decompensated heart failure. Transthoracic echocardiography (TTE) reveals severe bicuspid aortic valve stenosis with severe ventricular dysfunction. The patient evolves with fever 48 hours after admission, without apparent infective focus. Blood and urine cultures are performed and empirical antibiotic treatment is initiated. Subsequently, antibioticis are suspended for negative cultures. Forty-eight hours later he presents with fever associated with hypotension. New cultures are performed and empirical antibiotic treatment with piperacillin-tazobactam and vancomycin is reinitiated. In 3/3 blood cultures ESBL-producing K. pneumoniae is isolated only sensitive to imipenem, meropenem and colistin. Due to this finding, the antibiotic treatment is changed to imipenem. Transesophageal echocardiogram showed aortic ring abscess and aortic valve vegetations. Valve replacement surgery with mechanical prosthesis and perivalvular abscess drainage is performed. The postoperative echocardiogram shows a normally functioning mechanical prosthesis. The patient evolves afebrile and hemodynamically stable. After 5 weeks of postoperative imipenem antibiotic treatment with negative culture control, the patient is discharged. Twenty days later the patient consults for febrile episodes and is rehospitalized due to hemodynamic decompensation. Blood culture (5/5) bacteriological rescue of ESBL-producing K. pneumoniae is obtained with the same antibiotype of the first episode, and an pseudoaneurysm of the prosthetic ring with left ventricular communication is observed by TTE. (Fig. 1 y 2) The patient evolves with cardio-respiratory arrest within a tachycardia / ventricular fibrillation context, unresponsive to resuscitation maneuvers.

Infective endocarditis episodes of non-HACEK Gram-negative bacilli are uncommon (1.8% of all etiologic agents) affecting in most cases the native valve. (4) E. coli, followed by P. aeruginosa and K. pneumonia were found in order of frequency. The latter group evidenced the highest in-hospital mortality (40%). Most IE episodes are related to health care, intravascular devices being the most common source of infection (29%). Among endocarditis complications there is increased frequency of paravalvular involvement and abscess formation, and a predominant presence of comorbidities, mainly of diabetes. (5) Regarding K. pneumoniae as a cause of IE, this is unusual given the poor adherence to heart valves, and there are few reports of IE caused by this microorganism. The most important review showed that the aortic valve was the most affected (74%) with a mortality rate of 38% for the native valve and 57% for the prosthetic valve, whereas mortality in cases of early and late prosthetic valve endocarditis was 80% and 40%, respectively.(3) In this review, the overall mortality of K. pneumonia endocarditis was 49%. So far there are four cases reported in the international literature on ESBL-producing K. pneumoniae IE. (6) Our patient had a heart condition with poor prognosis aggravated by IE that led to his death. Although this entity is rare, the increased consumption of antibiotics and increased contact with health care may favor the development of these cases, although it is necessary to have a high clinical suspicion to make the diagnosis.

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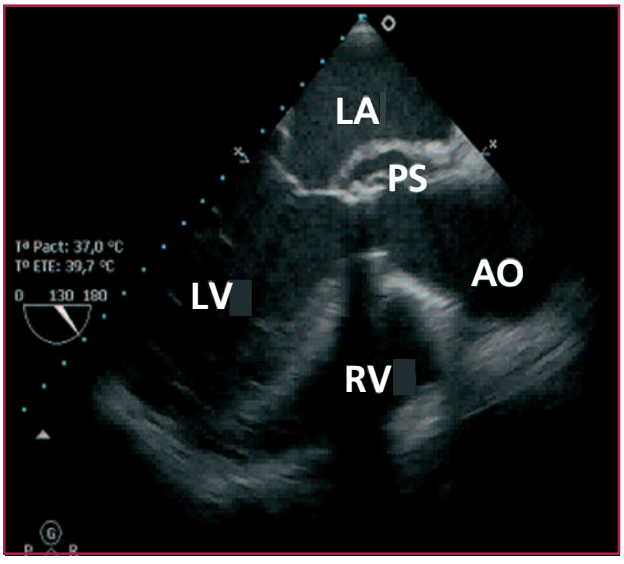

Fig. 1. TEE image showing abscessed peudoaneurysm of the posterior aortic prosthetic ring. LA: Left atrium; LV: Left ventricle; RV: Right ventricle; AO: Aorta; PS: Pseudoaneurysm.

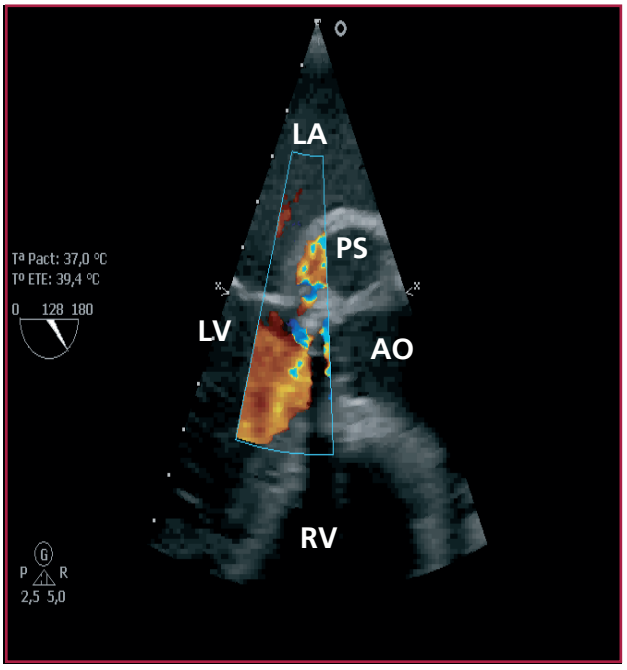

Fig. 2. TEE color zoom image showing pseudoaneurysm with LV communication. LA: Left atrium; LV: Left ventricle; RV: Right ventricle; AO: Aorta; PS: Pseudoaneurysm.

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Rev Argent Cardiol 2014;82:316-318 - http://dx.doi.org/10.7775/rac.v82.i4.3209

Endovascular Resolution of Mycotic Abdominal Aortic Aneurysm

Mycotic aneurysms are uncommon. Acquired immunosuppression predisposes to its formation. Early diagnosis and prompt treatment with antibiotics impact on survival. We report a case of mycotic aneurysm of the abdominal aorta by Staphylococcus aureus, successfully treated with endoluminal stent grafting and prolonged antibiotic therapy.

A 72-year old male hypertensive patient, with type 2 diabetes mellitus was hospitalized on November 23, 2007 for acute abdomen. He underwent laparotomy with enterostomy and evolved with nosocomial pneumonia. On December 1st, 2007, he was reoperated for obstruction distal to the suture with interloop abscesses, requiring bowel resection and meropenem and amikacin antibiotic therapy. Fever persisted (December 23, 2007) due to vascular catheter. On January 21, 2008, septic arthritis is diagnosed, surgical drainage is performed and treatment with vancomycin / trimethoprim-sulfamethoxazole is started.

The patient is admitted to our hospital on January 29, 2008 with sepsis for methicillin-resistant Staphylococcus aureus (MRSA). He presents with the following intercurrent diseases: MRSA sepsis with multiple embolic foci, right iliopsoas abscess and sternoclavicular and knee septic arthritis. An abdominal CT scan (Figure. 1A) reveals mycotic aneurysm with contained partial rupture. Endovascular resolution is decided with an Excluder endoprosthesis (Fig. 2) and prolonged antibiotic therapy.

The patient progresses well, and is discharged with vancomycin-sulfamethoxazole + trimethoprim - rifampicin on March 6, 2008. He is in his fourth asymptomatic year with clinical and tomographic control (Figure 1B) and neomycin treatment for life.

Mycotic aneurysms were described by Osler in association with infective endocarditis in 1851. Their true incidence is unknown and it is estimated to be about 0.65% to 1.3% of all aneurysms. (1) Reports are more numerous due to the increase in elderly patients, imaging methods and knowledge of the disease. (2)

These aneurysms are the result of bacteremia and subsequent embolization which causes plaque overinfection. Rarely, the healthy wall is colonized through the vasa vasorum, resulting in the formation of aneurysms. Other pathways are osteomyelitis penetrating directly or through the lymphatic system to the aorta, causing necrosis of the wall with false aneurysm formations and rupture.

The most common microorganisms are Staphylococcus and Salmonella species (28-71% and 15-24%, respectively), with Streptococcus pneumoniae in the third place.

Diagnostic suspicion is based on a pulsatile mass in the context of persistent sepsis with no clear focus, and positive blood cultures (50-85%). Negative blood cultures do not rule out the disease, and in this case imaging becomes very important. Angiotomography findings are: wall disruption, swelling of adjacent soft tissue, or presence of a perivascular mass.

Early diagnosis and therapy with broad-spectrum antibiotics associated with surgical or endovascular treatment directly impact on survival. Endovascular treatment is a good alternative to surgery, as it is minimally invasive and reduces cardiopulmonary, neurological and renal complications in critically ill patients. (2, 3)