A Delayed Staged Treatment Strategy In A Double-valve Septic Endocarditis Patient With Influenza, Severe ARDS And An Aortic Aneurism

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BACKGROUND AND AIM OF THE PRESENTATION

Despite advances in diagnostic microbiology and management of sepsis, it still has a very high rate of morbidity and mortality, hence complicated bacterial endocarditis remains a dreadful diagnosis. According to the current guidelines left side endocarditis with large vegetations and poorly tolerated valve disfunction is a class I indication for urgent surgical treatment.

In this case report we describe a staged approach of surgical treatment of a patient with complex left side endocarditis and large aortic root aneurism, complicated with type A influenza and severe ARDS.

RESULTS

Male 38 years old was hospitalized with signs of severe bacterial infection. A blood culture proved Streptococcus oralis caused sepsis. Echocardiography revealed severe aortic and mitral valve regurgitation with large vegetations and an ascending aorta aneurism 6.2 cm in diameter, confirmed by a CT scan (Fig.1.).

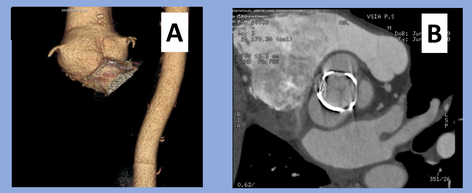


Figure 1 Patients MSCT angiography: A) 3D volume render, where the dilated aortic root can be seen; B) a reconstruction where the dilated sinuses of Valsalva and strongly radio-positive frame of the aortic bioprosthesis can be seen

RESULTS CONTINUED

Patient quickly worsened and clinically presented respiratory tract superinfection symptoms, and a positive RNA test for type A influenza, severe ARDS developed, as seen also in dramtically worsening chest x-ray (Fig. 2). At this time point in a multidisciplinary heart team meeting emergency surgery was deemed to be too high risk. As patients lung function rapidly deteriorated and he was assessed 3.25 points by Murray score, a V-V ECMO was implanted. It allowed extubating the patient and awake ECMO was continued for six days until partial lung recovery was achieved.

At another MDT meeting it was decided to advance with surgery. When planning the amount of intervention, surgical risk was assessed using Euroscore II, predicting 19.39% risk for a double-valve replacement and 41.29% if aortic root would be to replaced simultaneously. After discussions, as a first stage, mitral and aortic valve replacement alone was performed. In the postoperative period V-V ECMO was required for another 5 days and an intraaortic ballon pump for 4 days. The daily time-line of required organ support devices can be seen in the following table.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
V-V ECM0													V-V ECM0							
Spontaneous breathing													MV	Spontaneous breathing						
Cytosorb adsorbent													*Cytosorb adsorbent*							
													IABP	IABP	IABP	IABP				

SURGERY

Afterwards patient recovered well and was discharged home on the 15th postoperative day. After 6 months patient was readmitted for elective aortic root replacement due to the beforementioned aneurism. At that time point the calculated Euroscore II was only 3.42%. The procedure proceeded uneventfully and patient was discharged home on postoperative day 7.

Recently the patient passed the one year follow up after the second surgery doing excellent, physically active, back at his previous work in forestry.

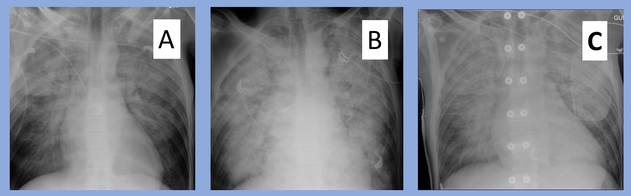


Figure 2 Patients chest x-ray: A) three days before V-V ECMO; B) on the day when first V-V ECMO was initiated; C) 5th day on ECMO, lungs starting to improve gradually

DISCUSION

As it has been well noted in the guidelines, in certain conditions it is reasonable to postpone surgery for endocarditis to stabilize the patient's condition in order to increase the chances of survival. Here we demonstrated a case of successfully reducing severe influenza caused ARDS with help of V-V ECMO before urgent surgery. The surgery itself was split to two instances, first treating endocarditis caused velve disfunctions and performing aortic root surgery after several months. This demonstrates how a stepwise approach to a seemingly incurable patient, handling one problem at a time can lead to a very successful result.

This abstract stresses the necessity of multidisciplinary approach to endocarditis patients and the absolute requirement of an "Endocarditis team" which is not always functional in all hospitals.