

bleeding was observed. He was discharged on the postoperative 8th day. Six months after surgery, he remains stable. Graft replacement of the distal aortic arch and the descending aorta will be performed later.

Histological examination of the aorta revealed a markedly inflammation, fibrosis and hyalinization in all thickened layers of the aorta. Inflammation was dominantly mononuclear but also contained eosinophils and polymorpholeucocytes (Fig. 2).

Discussion

Systemic arthritis and aneurismal dilatation of the aorta has rarely been reported in the WAS syndrome. To the best of our knowledge, a few adult patients (1-4) and children (5, 6) have been previously reported in the literature. The pathogenesis of aortic aneurysms remains unclear. Inflammatory aortitis is considered a possible etiology of the aortic lesions (3). Aneurysms could be found in everywhere of the aorta such as only in the ascending aorta, or both in the ascending and descending aorta. In our case, aneurysm was severe and widespread through all parts of the aorta till to the iliac bifurcation. In a few patients, two -stage surgery was performed (2, 4) whereas Bernabeu et al. (1) presented a 33-year- old man with WAS who underwent ascending aorta, aortic arch and descending aorta aneurysm repair in a single stage operation. We also planned two-stage operation. The first stage involved replacement of the ascending aorta which was completed successfully. Second operation for distal aortic arch and descending aorta will be performed in the future. The risk of death from aneurismal rupture was seemed to be higher in our patient because of thrombocytopenia and impaired platelet function. Although surgical management of these patients is considered more complex than the general population, surgical intervention should not be delayed.

We think that aneurysm formation and vasculitis may be more common in WAS than reported. Recently, Pellier et al. (6) reported that they have identified aortic aneurysms in 5 of 38 patients with WAS (13%) detected during childhood at the age of 10 to 16 years during childhood.

Conclusion

We suggest that children with WAS should be examined with echocardiography and MRI periodically to evaluate aneurysms of the aorta and surgical intervention shouldn't be delayed when it is indicated.

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Vacuum-assisted closure for skin infection in a patient with Berlin Heart Excor biventricular assist device

Berlin Heart Excor sol ventrikül destek cihazı takılmış bir hastada oluşan deri enfeksiyonunun vakum destekli kapama sistemi ile tedavisi

Introduction

Skin infection on cannulation and driveline sites is a serious and difficult complication of ventricular assist device (VAD) implantation procedures. Management of this complication is important to improve the morbidity and reduce the mortality rates (1). Vacuum assisted closure (VAC) is an effective tool for treatment of chronic wounds with application of continuous suction, which accelerates the healing process (2). We have used VAC for a patient with Berlin Heart Excor biventricular assist device, which had persistent skin infections during 14 months of postimplantation period until transplantation.

Case Report

Fifty two year old male patient was diagnosed as congestive heart failure 8 years ago. He had an implantable cardioverter-defibrillator implant in 2009. He was included to our transplantation program in 2010. In April 2010, he was hospitalized in the intensive care unit due to decompensated heart failure despite maximal medical treatment and intraaortic balloon pumping (IABP) was initiated. After significant improvement, he was weaned from the IABP and transferred to the ward. Unfortunately, he had a ventricular fibrillation attack, which was followed by cardiac arrest. He survived with effective cardiopulmonary resuscitation and no neurological deficit was present. Berlin Heart Excor biventricular assist device was implanted in May 2010. The procedure was uneventful including the postoperative period and he was discharged home in June 2010.

During periodical visits, skin infection on cannulation sites was diagnosed. There was significant amount of pus around the cannula. He was re-hospitalized and daily wound care with silver patch dressings was applied. These are commercially available wound dressing patches combined with silver, alginate and maltodextrin (Algidex Ag® Silver Alginate Wound Dressing, DeRoyal Industries, U.S.A.). Systemic treatment with antibiotics was consulted with the department of infectious

diseases. After clinical improvement on infection sites, he was discharged once again. In November 2010, he was admitted to our clinic with repeated skin infections on cannulation sites. There was no abscess in mediastinum on computerized tomography of the thorax. Systemic antibiotics and wound care was introduced. He had two consecutive attacks of skin infection until February 2011. He suffered a hemorrhagic stroke at this date. After stabilization of his neurological status, his general clinical condition was not improved and the skin infection on cannulation sites was worsened with increased purulent discharge. Pseudomonas species was identified on bacterial cultures of pus and blood in addition to fungus in urine analysis. Ceftazidime, ciprofloxacin and fluconazole treatment was initiated.

VAC application was added to the treatment on March 2011 (V.A.C. Therapy Unit, Kinetic Concepts, Inc., U.S.A.). Appropriate wound dressing drapes and foam material (GranuFoam Silver Dressing Kit, Kinetic Concepts, Inc., U.S.A.) were used to create an air-tight application for that kind of complicated wound with four drivelines (Fig. 1). There was up to 200 mL daily drainage during VAC. Skin infection was improved with VAC and daily drainage was reduced rapidly. After healing of the skin infection, he was successfully transplanted on April 29th, 2011 (Fig. 2). According to surgical observation during transplantation, there was no abscess formation in the mediastinum and the infection was limited to the skin and subcutaneous layers. All cannulation sites were surgically closed after excision of the VAD. The postoperative healing was successful.

Discussion

Skin and deep wound infections are difficult consequences of VAD implantations. Prolonged duration of VADs and decreased peripheral



Figure 1. Vacuum-assisted closure application for cannula infection in Berlin Heart Excor biventricular assist device



Figure 2. Wound healing after transplantation without skin defects

perfusion of those patients interfere with the healing process. Although VAD implantation offers a better circulatory condition, those cases are affected by flow disturbances, thromboembolic complications and infections in prolonged cases. Effective management of skin infections is essential until transplantation (3). VAC is a useful method for treatment of acute and chronic wounds, ulcers, skin burns, flaps and grafts for patients with malnutrition and chronic steroid treatment. Congestive heart failure and implanted foreign bodies are risk factors for infection in patients with VADs. Application of VAC in VAD patients has been formerly reported by several authors (4-6). Most of those cases report treatment of mediastinitis in VAD patients with VAC. Our case has been successfully transplanted after a prolonged period of VAD and there were not any deep wound infection at the time of transplantation.

Conclusion

We have applied VAC treatment in our VAD patient with major skin infection and the result was encouraging. He has survived this complication and was transplanted successfully.

Conflict of interest: The authors have no financial or other interest in the manufacture or distribution of the vacuum assisted closure device and no financial or other type of aid was given for the submitted paper from any manufacturer or company.

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