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Case Report OMICS International

# Endocarditis with Permanent Hemodialysis Tunneled Catheter: A Severe and Multidisciplinary Situation

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## Abstract

Tunnelled catheter endocarditis is a frequent and sever situation among hemodialysis patients. The management should be fast and multidisciplinary.

**Case report**: We report the case of a 36 year old woman with a history of systemic erythematous lupus, discovered at the age of twenty. She profited from a tunneled catheter because of exhaustion of her venous capital. One year later, the patient had an endocarditis of the tricuspid valve. An echocardiogram demonstrated mobile and friable 8 mm vegetation in the tricuspid valve. Blood cultures were positive for pseudomonas and klebsiella. The catheter was removed at the fifth day of the infection. The patient received antibiotic treatment which was changed on several occasions in front of multiresistant strains. Ten days later, the blood culture showed *Candida albicans*. The echocardiogram demonstrated an increase of the size of the vegetation to 15 mm. A chest CT carried out in front of a respiratory distress showed pulmonary septic emboli. Tricuspid valve replacement was performed. Culture of native valve was positive for multiresistant candida famata. The patient developed a pulmonary embolism causing her death.

**Discussion:** Endocarditis with permanent catheter is a severe situation with high mortality and poor prognosis among hemodialysis patients. Immune suppression due to a renal failure and auto immune disease can support the development of multiresistant strains difficult to treat.

**Conclusion:** Endocarditis on tunneled catheter is a serious infection. Nephrologists, cardiologists and infectiologists must collaborate in order to provide adequate therapy.

## Introduction

Central venous catheters (CVCs) for hemodialysis (HD) remain indispensable modality of vascular access in Tunisia. Many patients initiate hemodialysis using CVC. In the other hand CVC could be necessary because of exhaustion of venous capital.

There are certain advantages to use CVCs. These include ease of placement, immediate availability for use, avoidance of percutaneous cannulation for each treatment, and low risk of recirculation. Unfortunately, CVCs are associated with various complications; many of which can be life threatening such as endocarditis.

This report presents a case of sever tunneled dialysis catheter-related endocarditis.

## Case Report

A 36 year old woman was admitted with fever. His medical history included systemic erhytematous lupus which was discovered at the age of twenty and a renal failure related to extra membranous and endocapillary proliferative glomerulonephritis. End stage was hold in 2003. She profited from an arteriovenous fistula which was complicated with iterative thrombosis. Blood analysis showed a protein C deficiency. She profited from a tunneled catheter because of exhaustion of her venous capital.

Physical exam showed fever, tachycardia and low blood pressure.

Blood analysis showed elevated CRP and procalcitonin with cytolisis. Chest X-ray and abdominal ultrasound were normal. Echocardiogram showed mobile and friable 8 mm vegetation in the tricuspid valve. The catheter was removed at the fifth day of the infection. Blood and catheter cultures were positive for Pseudomonas, Klebsiella. The patient received antibiotic treatment which was changed on several occasions in front of multiresistant strains. Ten days later, the blood culture showed *Candida albicans*. The patient received antibiotic treatment which was changed on several occasions in front of multiresistant strains. The echocardiogram demonstrated an increase of the size of the vegetation to 15 mm. Tricuspid valve replacement was performed. Culture of native valve and blood were positive for multiresistant *Candida famata*. Antibiotic and anti-fungal were prolonged. But the patient developed a pulmonary embolism causing her death.

## Discussion

Endocarditis with permanent catheter is a severe situation with high mortality and poor prognosis among hemodialysis patients. Immune suppression due to a renal failure and auto immune disease can support the development of multiresistant strains difficult to treat.

Hemodialysis catheter-related bloodstream infection (HC-RBSI) is one of the most frequent causes of sepsis in patients under hemodialysis, and the incidence rates range from 0.5 to 7.6 episodes per 1000 catheter-days [1-5].

Microorganisms colonizing skin, hubs or both are considered the first step to catheter tip colonization and, consequently, to catheter-related bloodstream infection (C-RBSI) [6-9].

Several studies have suggested that *S. aureus* infections may be harder to eradicate and more likely to cause complications [10,11]. In

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our case we found three types of strains (Klebsiella, Pseudomonas and *Candida albicans*). All of them are resistant.

Candidemia is a rare complication in catheter-dependent hemodialysis patients. As a result, there is uncertainty about its optimal medical management. Systemic antifungal agents do not eradicate the Candida catheter biofilm, suggesting that the central vein catheter should be removed in patients with catheter-related candidemia [12].

An alternative approach is to use an antibiotic lock as adjunctive therapy to systemic antibiotics. This lock consists of a very high concentration of antibiotic. The antibiotic lock is instilled into each catheter lumen at the end of each dialysis session for the duration of the systemic antibiotic therapy (3 weeks). The goal is to sterilize the catheter lumens so that the catheter can be salvaged. If fever or bacteremia persists, the infected catheter is removed [13,14].

Endocarditis treatment with surgery is established for certain indications associated with improved survival. Surgical treatment carries quite a high mortality and requires close follow-up due to a continued postoperative risk. The selection of patients who benefit most from valve replacement is becoming more transparent, but treatment often remains biased because of surgeon preferences. A large number of ongoing studies and randomized trials will produce stronger evidence [15-17].

## Conclusion

Endocarditis on tunneled catheter is a serious infection. Nephrologists, cardiologists and infectiologists must collaborate in order to provide adequate therapy.

Should no options exist outside of HD catheter placement, proper catheter care and infection control procedures are the first step in preventing infections. Auditing and educating both patients and dialysis unit personnel are of the utmost importance.

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