Thrombectomy by using a Fogarty catheter in a case of trombosed hemodialysis catheter

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Vascular access is major source of morbidity among hemodialysis patients. The leading cause of hospitalization in this patient population is related to more than 20% vascular Access problems. Thrombosis, bleeding, infection and aneurysm are common complications in these patients. Catheter occlusion because of thrombus inside the catheter is often. Using the washing catheter with heparinized saline is common. Aspiration the catheter and heparin infusion is not possible itself. Thrombolytic (t-PA) using should be made to ensure patency. If it does not open with thrombolytic, the catheter must be removing and the new one must be installed. This case report presents a Fogarty catheter treatment for a patient who had been admitted to our clinic with a thrombosed hemodialysis catheter. The successful thrombectomy which resulted in sufficient catheter flow obviated a new iv line for dialysis.

**Key words:** Hemodialysis, Catheter, Thrombectomy, Imaging, Angiography

**Introduction**

The main complications of a permanent hemodialysis catheter are infection, dysfunction, venous stenosis and thrombosis (El Minshawy et al., 2004). Catheter thrombosis and fibrin sheath formation make the dialysis process difficult and lead to a lack of desired flow speeds.

In such cases, the immediate actions must be to connect the dialysis catheter ends reversely to the dialysis machine and to initiate the thrombolytic therapy. If these actions are ineffective the catheter is replaced by sliding over a guide wire. In case that the fibrin sheath formation prevents the function of the catheter, the old catheter is replaced by a new one and the fibrin sheath is shattered with an angioplasty balloon catheter. This report presents a case in which a thrombectomy was performed by using a Fogarty catheter.

**Case Report**

A 67 year-old male who is on dialysis for 2 years due to chronic renal insufficiency was admitted to our clinic with catheter obstruction. The patient’s medical history included diabetes mellitus, hypertension and coronary artery disease. Biochemical examinations ruled out any pathologies that could cause thrombosis. The previous opened arteriovenous fistula applications to the patient had failed. The patient's medication which he took daily, were 300 mg acetyl salicylic acid and 75 mg clopidogrel. To examine the patient's permanent hemodialysis catheter under fluoroscopy he was taken to the catheterization laboratory. Soon it turned out, the catheter was clogged. Therefore the catheter was washed with a heparinized fluid but the procedure failed. 3f and 4f Fogarty catheter were send thereupon into the hemodialysis catheter and a thrombectomy was performed. After the flow had been re-established by this method, this catheter was used for the patients further dialysis. Figure 1.
Discussion

Chronic kidney failure is a significant pathology with high morbidity and mortality rates. The vast majority of these patient's lives depend on hemodialysis (hd) and for these patients is an intravenous entrance way vital. Arteriovenous fistulas are the first choice of all intravenous entrance ways for these patients due to their permanentness. However, the maturation of the fistulae takes time and the hd catheters serve to satisfy the crucial needs for hd procedures during this period. Nevertheless these hd catheters have both advantages and disadvantages. Among the advantages are: providing high-volume blood flow, less painful during the dialysis and right after the placement they are ready to use (El Minshawy et al., 2004). The most important disadvantages of these catheters are their complications. These complications include infection, dysfunction, stenosis and thrombosis (Karakaya et al., 2000). Permanent catheters are usually preferred in patients who have peripheral vascular problems (diabetes mellitus, obesity and advanced age) and as well as in patients with severe heart and respiratory failure to whom an AV fistula formation is not recommended. Permanent tunneled hd catheters should be a last resort and only recommended in patients who are going to hd for more than a month considering their complications. During the placement (induction) of the hd catheter early or late complications may occur. The early complications include arterial puncture, hematoma formation, nerve injury, pneumothorax, hemothorax, catheter dysfunction and arrhythmias (Weijmer et al., 2004). However, the permanent hd catheter was the right choice for our patient due to his diabetes and peripheral vascular problems. The late complication of a permanent hd catheter include thrombosis. Clotting and insufficient flow are common problems and especially seen in catheters that are placed in the left side. The study made by Jean and Co. (Jean et al., 2001) included 125 patients with (Chronic Renal Failure) CRF and studied two different permanent dialysis catheters. The study showed an annual clearance rate 53% and the catheter thrombosis rate as 13%. So far many studies made with permanent hd catheters showed thrombosis rates range between 7.9% and 22%. Catheter thrombosis is most often observed in femoral veins. Many studies have shown that the right jugular vein should be preferred to place a permanent hd catheter (MacRae et al., 2005). Nevertheless we chose the right innominate vein over the jugular vein due to our patient's short neck. We found out that the reason for the thrombosis was the lack of care for the catheter during and as well after the hd. To utilize a Fogarty catheter for a thrombectomy is most particularly advantageous. It is easy to apply, economically advantageous and a fast procedure. Besides, the removal of a current catheter and finding a new line is a traumatizing situation for the patient. Therefore utilizing a Fogarty catheter for a thrombectomy is an method which does not only save the current catheter, it does also improve life-quality and should be considered in these patients. We identified in our detailed resource scan that this method has never been used in these type of patients before.

References

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