Thrombosed Internal Hemodialysis Access Fistula: Success of Systemic Fibrinolytic Treatment

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Dear Sir,

The maintenance of an access site to the circulatory system is one of the determinants of the survival and well-being of patients on hemodialysis. Thrombosis of the fistula can occur either soon after surgery or as a late event. Early thrombosis is usually due to technical problems. Several approaches have been used to deal with late thrombosis: surgery, using a Fogarty balloon catheter; percutaneous transluminal angioplasty (PTA), and local fibrinolysis. We report our experience with systemic fibrinolysis in a case of early endogenous arteriovenous fistula (AVF) thrombosis. To our knowledge, systemic fibrinolysis has not been reported as a successful therapeutic alternative for this condition. .

The patient, a 36-year-old man diagnosed as having chronic renal failure of unknown etiology 6 years earlier, was admitted because of impaired renal function. Dialytic treatment was indicated and an internal AVF was performed on the right forearm. The next day, he felt dizzy after getting up, and 2 h later a nonfunctional AVF was diagnosed. After treatment by open Fogarty balloon thrombectomy, thrill was still not present and a Doppler examination did not detect blood flow. After a bolus injection of 210,000 IU, a systemic peripheral venous infusion of 4,000IU/kg/h of urokinase was started. Three hours later, he felt pressure on the AVF site, and a thrill was present 5 h after fibrinolytic treatment was started. Urokinase was administered for a total of 8 h and then full-dose heparin was infused for 24 h. Fifteen days later, the AVF was used for hemodialysis, and it is still patent 6 months after the procedure.

Thrombosis is the most frequent cause of fistula failure. Despite all efforts to treat this complication, including correction of technical problems during the preceding surgery and thrombectomy, fistula salvage is frequently impossible. Two nonsurgical methods are available for restoring the patency of thrombosed dialysis

grafts: thrombolysis and/or PTA. These methods make the graft immediately available for dialysis, as opposed to the several days that may be required after placement of a new graft, and tend to prolong the life of each graft. PTA without the administration of a fibrinolytic agent has been used with varying success rates [1–4]. The 6-month patency rate varies between 68 and 76% [2, 5].

Fibrinolytic therapy has been used in problems similar to that of our patient, such as thrombosed hemodialysis catheters [6] and synthetic graft thrombosis [7]. Mixed results have been reported

with the use of intra-arterial injection of fibrinolytic agents [8,9], but due to local and remote hemorrhage, inordinately prolonged infusion, insufficient thrombolysis and necessity for surgery despite lysis in some patients, some authors do not recommend fibrinolysis in the treatment of thrombosed grafts [10]. According to the reported results of local injection of fibrinolytic agents [11–13], some authors have adopted the protocol of first trying to use fibrinolysis and PTA as an alternative to immediate surgical revision of the thrombosed graft.

In our case, the diagnosis of the thrombosed graft was supported by the clinical findings in the absence of a fistulogram. As an early AVF thrombosis, thrombectomy was initially attempted without success. Although fibrinolysis is risky in the immediated postoperative period, the administration of urokinase was considered a valid alternative given the failure of the surgical approach, the absence of cardiovascular problems in this patient and the easy local hemostasis over the potentially bleeding site. To our knowledge, there is no previous experience with the use of systemic fibrinolytic treatment for thrombosed endogenous AVFs. Although this is not certainly an established therapy for this condition, it may well be a valid alternative in attempting to salvage the fistula.

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