

**EVALUATION OF THE ENDOVASCULAR
MANAGEMENT OF THE FAILING ARTERIOVENOUS
FISTULA ACCORDING TO SITE OF THE LESION**

Thesis

Submitted for partial fulfillment of the M.D.Degree

InGeneral Surgery

By

Ahmed AbdElrahman Ahmed

(M.Sc.),General Surgery

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SUMMARY

The worldwide rise in the number of patients with chronic kidney disease and consequent end-stage renal disease is necessitating renal replacement therapy, on top use of this therapy is hemodialysis. Appropriate care for hemodialysis patients with stage 5 chronic kidney disease requires constant attention to the maintenance of their vascular access patency and function. Vascular access still remains the “Achilles’ heel” of the procedure. It seems that the native arteriovenous fistula that *Brescia* and *Cimino* described in 1966 still remains the first choice vascular access.

Until the near past, a dysfunctional AVF was synonymous with a temptation to decide a new access with resultant numerous procedures to maintain a safe HD and eventual exhaustion of all access sites. The introduction and evolution of endovascular techniques hold promise to salvage these AVFs that is to transform non-maturing, stenosed, or thrombosed fistulae to functioning fistulae again.

The site of lesion responsible for AVF dysfunction is a crucial factor from different aspects regarding the pathology, clinical presentation, and the way & outcome of treatment. Such lesions might be confronted in the arterial side, anastomotic, or in the venous side with variable site stratifications.

The aim of this study is to focus on the impact of the site of the lesion(s) tackled on the immediate and delayed outcomes of endovascular salvage of dysfunctional arteriovenous fistulas aiming at significant improvement in the management plan.

This study included 253 HD patients with dysfunctional native AVFs. They were 147 (58.1%) males and 106 (41.8%) females. Their mean age was 58 ± 15 years. Dysfunctional autogenous AVFs belonged to one of three common upper limb types whether radiocephalic, brachiocephalic, or brachiobasilic fistulas. Patients with persistent hypotension, associated infection, overlying skin integrity disruption, or known contrast allergy were excluded from the study.

All patients were scheduled for endovascular salvage of their dysfunctional AVF after proper clinical and radiological assessment in one hand and after obtaining the ethical approval from the faculty research committee and informed written consent from the patients in the other hand.

Anatomic success was achieved in 231/253 (91.3%) patients; whether directly through recanalization of the whole fistulous tract (n=219) or through recanalizing part of it then diverting the blood flow to a patent deeper vein (n=12). The technique has failed in 22 (8.6%) patients. The most common cause was failure to cross the lesion in 13 AVFs. The overall 1ry patency rate was 88.3% and 71.4% at 1 and 6 months, respectively. In single lesions' AVFs, 1ry patency rates were 90.3% and 75.4% at 1 and 6 months respectively; while in multiple lesions' AVFs, the 1ry patency rates were 69.5% and 34.7% respectively.

The site of the lesion has an impact on the outcome of endovascular salvage of dysfunctional AVF with variable immediate success and later patency rates. Unfavorable rates are

not an invitation to regret to pay an effort for a salvage. Simply, because intervention can be repeated and more importantly, using the suitable tools and techniques can optimize the results according to each site.