

CASE REPORT

Early Aneurysm in Dialysis access: A Case Report

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ABSTRACT

End-stage renal disease (ESRD) or chronic kidney disease (stage V), is the disease where the kidneys lose their ability to filter waste and excess fluid from the body. It's a huge burden to health sector in India with more than 230 per million population of ESRD patients. To ensure haemodialysis treatment for these patients creation of AVF in upper limb is the access of choice. But these AVF accesses are not free from complications, about one third of these patients develop complications which represent a significant cause of hospitalization in patients of end stage renal disease on haemodialysis. About 36 to 39% of admission in these patients is related to dialysis access. In our case aneurysm developed very early contrary to very delayed development of aneurysm. Of the many ways to deal with the aneurysm we preferred to ligate the aneurysm and take down the fistula because it had already ruptured.

KEYWORDS

• Aneurysm • Dialysis Access • Haemodialysis.

INTRODUCTION

End-stage renal disease (ESRD) or chronic kidney disease (stage V), is the disease where the kidneys lose their ability to filter waste and excess fluid from the body. It's a huge burden to health sector in India with more than 230 per million population of ESRD patients. These

patients need renal replacement therapy either in the form of kidney transplant or as dialysis to sustain life. To ensure haemodialysis treatment for these patients, creation of AVF in upper limb is the access of choice. But these AVF accesses are not free from complications, about one third of these patients develop

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complications which represent a significant cause of hospitalization in patients of end stage renal disease on haemodialysis. About 36 to 39% of admission in these patients is related to dialysis access.^{1,2} These complications are like stenosis, thrombosis, infection and aneurysm.³ The risk factors for these complication include diabetes mellitus, hypertension, hypotension, immunological disorders, arteriosclerosis, early puncture of AVF and repeated puncture at the same site.⁴

CASE

61 year old male, K/C/O diabetes, hypertension, CKD (V) was following nephrology department for renal replacement treatment (hemodialysis). Patient had already undergone AV Access (Left Radio-cephalic Fistula) which was not functional from the beginning. Venous Doppler was done which showed non-patent anastamotic site with complete thrombosis of left cephalic vein. The decision was taken to create left brachio-basillic fistula as dialysis access. Patient was admitted on 27th February, 2025 under CR No. 919252400584571. Patient was operated on the same day under local anesthesia with single stage brachio-basillic fistula with palpable good volume thrill present on examination. Patient was referred back to nephrology to continue with hemodialysis. Sutures were removed on day 12; thrill was palpable and good volume.



Patient presented to us in OPD with complaint of large swelling at incision site. There was history of needle puncture in AVF for dialysis, but patient had swelling at the fistula site after first dialysis through AVF. This AVF was discontinued for dialysis purpose and dialysis was continued using Permacath. On examination, about 7X7 cm large cystic swelling was present just proximal to anastamotic site with thinning of overlying skin. Patient was admitted in CTVS Ward on 23/06/2025. Doppler was done which showed 7X5 cm aneurysm of basillic vein proximal to anastamotic site with multiple clots present around the basillic vein. These findings are suggestive of ruptured basillic vein aneurysm. Patient was operated and on table decision was taken for fistula takedown with ligation of basillic vein proximal to anastomosis with clot evacuation. Patient was shifted to CTVS Ward in stable condition.

DISCUSSION

Dialysis access usually degenerates with time and can become aneurysmal. The aneurysm has been defined in several ways by different authors with the incidence of occurrence approximately 5% to 7%.⁵ while the prevalence is about 40%.⁶ These AV fistulas are threatened by many complications like stenosis, thrombosis, infection and aneurysm. Of these complications aneurysm formation is most serious complication which threatens both the longevity of AV access and the patient. The degeneration of AV Fistula is a very slow process and takes about 3-4 years for the development of aneurysm,⁷ while in our case the aneurysm has developed within 4 months of AV Fistula and it was cannulated for hemodialysis only once. The exact pathophysiology for the development of AVF Aneurysm is unclear. The aneurysm has been found even in those patients whose AV Access has never been used which suggests that there are factors other than cannulation for its development like age of access and outflow stenosis.⁶

The aetiology of aneurysm is not clear. Pseudoaneurysm may form as a result of surgical technique, post-operative infection or needling or from any intervention.⁸ Similarly, true aneurysm may form as a result of repeated needling for dialysis or can occur due to high flow through the vessel.^{9,10} Abnormal

hemodynamics are exacerbated by stenosis which may also be associated with aneurysm formation.¹¹ Different methods are available for the surgical repair of aneurysm, but each method should be individualized depending upon anatomy of fistula, co-morbidities of patient, life expectancy and remaining dialysis options. If the aneurysm is ruptured or risk of imminent rupture (skin ulcer, skin thinning or infection), emergency ligation of the aneurysm should be done.¹² In our case we did ligation of the aneurysm as it was already ruptured as suggested by Doppler.

CONCLUSION

Aneurysm is a serious complication of dialysis access which can compromise the life of fistula or sometimes the patient. The treatment should be decided based on each individual factors.

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