

The Brescia Cimino Aneurysm.

Sourya Acharya¹, Samarth Shukla², Sonam Goyal³, SN Mahajan⁴

^{1,3,4} Department of Medicine, JNMC, DMIMS, Wardha, India

² Department of Pathology, JNMC, DMIMS, Wardha, India

Abstract: AV (arteriovenous) fistulas are recognized as the preferred access method for haemodialysis over central venous catheter. Brachiocephalic fistula and radiocephalic fistula are the types of fistula done. AVF also have complications like aneurysm. A case of 71 yr old female of ckd on haemodialysis with a side-to-end Cimino–Brescia AVF presented with aneurysm of A V FISTULA.

Key Words: Aneurysm, Arterio Venous Fistula, Ckd, Dialysis, Law Of Laplace

I. INTRODUCTION

The ground-breaking article by Brescia and Cimino in 1966, revolutionized the creation of the vascular access, and the Cimino fistula was soon used in almost all dialysis patients.^[1] Aneurysm formation is a known complication of AV fistula (AVF).

II. CASE

A 71-year-old woman with end-stage renal disease secondary to membranoproliferative glomerulonephritis presented with a gradually progressive swelling over the AV fistula site, and pain in the swelling since 1 month. Ten years earlier, a side-to-end Cimino–Brescia AVF had been performed on the same wrist; in the last year, a remarkable dilation of the efferent vein had occurred. Examination revealed a 6*4 cm stiff aneurysm with a palpable thrill over a remarkably dilated efferent vein at the anastomotic site, whose direct pressure precipitated the pain. (Figure 1). X-ray examination revealed a notable calcification of the radial artery and a calcified mass at the anastomotic site. CT Angiography was done which revealed an aneurysm 5.7x 4.1 cm in size arising from the AV F causing mild compression of the artery distal to the fistula. (Figure 2). In view of the ongoing pain and fear of impending rupture, the patient underwent surgical exploration of the AVF. During operation a calcified aneurismatic anastomosis was identified and excised. The AVF was tied off and a proximal prosthetic AVF was placed subsequently on the same limb.

III. Conclusion

Aneurysms of the AV fistula are rare but a known complication. Aneurysm occurs usually as a result of destruction of the vessel wall and replacement by biophysically inferior collagenous tissue. Once it is formed, the law of Laplace predicts that there is a tendency to progress spontaneously, because wall stress becomes greater with increasing diameter of the aneurysm. Ultimately it is favored by replacement of the vessel wall by scar tissue after repetitive puncture of the same vessel segment. A precondition for formation of an aneurysm is usually a stenosis and a pre-stenotic rise of outflow pressure. Major complications are rupture, infection (which is favored by intra-aneurysmatic thrombi), and in rare cases orthograde or retrograde embolism. Before intervention, ultrasonography imaging is a must for identification of thrombi, assessment of the degree of outflow stenosis, and evaluation of the surrounding tissue. Treatment of choice is surgical, which includes partial or complete resection of the aneurysmatic sac, correction of accompanying stenosis, and reconstruction of an adequate lumen. The National Kidney Foundation-Disease Outcomes Quality Initiative guidelines suggest surgical revision of aneurysm involving the anastomosis [2].

References

- [1]. Brescia MJ, Cimino JE, Appel K, Hurwich BJ (1966). "Chronic hemodialysis using venipuncture and a surgically created arteriovenous fistula". N. Engl. J. Med. **275** (20): 1089–92. doi:10.1056/NEJM196611172752002. PMID 5923023.
- [2]. National Kidney Foundation-Kidney Disease Outcomes Quality Initiative (NFK-DOQI) Clinical Practice Guidelines for Vascular Access 2000. Am J Kidney Dis 2001;37:S163.



Fig 1 :AV Aneurysm at the Right elbow joint.

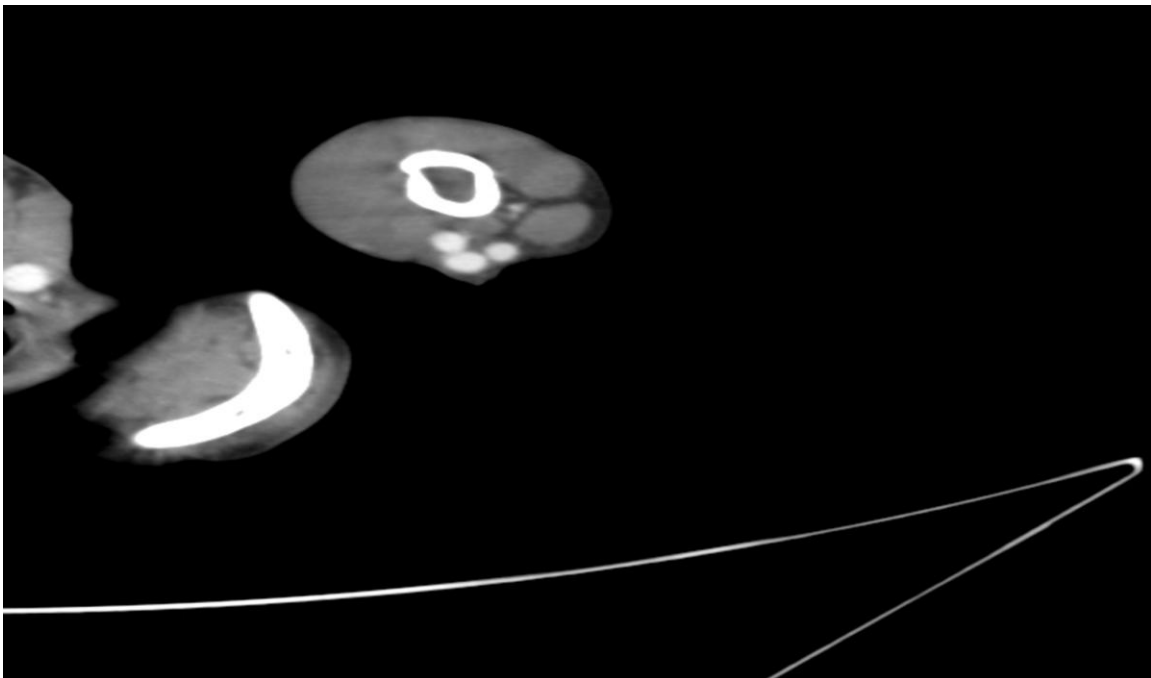


Fig 2: CT Angiogram showing the AV F causing mild compression of the artery distal to the fistula