Venous Aneurysm Complicating Dialytic Arteriovenous Fistula

Arjun K. Nambiar · K. T. Anand · A. G. Jayakrishnan

Received: 30 December 2009 / Accepted: 29 April 2010 / Published online: 14 June 2012
© Association of Surgeons of India 2012

Abstract A case of venous aneurysm complicating arteriovenous fistula created for chronic haemodialysis is presented. The patient underwent successful ligation and excision of the fistula and creation of a fistula on the opposite limb.

Keywords Arteriovenous fistula · Complication · Aneurysm · Dialysis

Patient and Method

Here we report a case of a 37 year old male patient who presented with a history of having undergone creation of Right Brachial Artery to Basilic Vein Arterio-Venous fistula just below the right elbow for haemodialysis 5 years previously, as a result of long standing diabetic nephropathy resulting in chronic renal failure. He was under regular haemodialysis during this period.

Two months prior to admission he developed pain, swelling and redness at the puncture site. The pain and redness subsided with conservative measures, however the swelling gradually increased in size and the patient also developed an infection over the swelling, with a resultant scab forming at the apex of the swelling.

Physical examination was unremarkable except for a pulsatile, compressible swelling in the medial aspect of the right arm, about 1"×2" in size (Fig. 1). The pulsation was expansile in nature and there was scab formation at the apex of the swelling. A clinical diagnosis of venous aneurysm complicating dialytic arteriovenous fistula was made.

Routine investigations were normal except for raised urea and creatinine levels

The patient underwent ligation of the fistula, ligation and excision of the aneurysm and creation of a new fistula (Left Brachial Artery to Left Cephalic Vein) under General Anaesthesia.

The fistula was exposed through the previous incision, isolated and doubly ligated. The venous aneurysm was exposed (including an ellipse of skin), isolated and ligated at the neck. The aneurysmal sac was excised (Fig. 2).

The patient made an uneventful recovery and the newly created AV Fistula is functioning well to date.

A. K. Nambiar · K. T. Anand · A. G. Jayakrishnan
Department of Cardiothoracic Surgery, Omega Hospitals (P) Ltd,
Mahaveer Circle, Kankanady,
Mangalore 575002, Karnataka, India

A. G. Jayakrishnan (✉)
Omega Hospitals (P) Ltd,
Villa A, The Pyramid, Falnir Main Road,
Mangalore 575002, Karnataka, India
e-mail: dr.jayakrishnan@gmail.com

Fig. 1 Clinical presentation (right cubital fossa region)

Fig. 2 Aneurysmal sac in situ

Here we aim to create awareness of this potentially life-threatening but essentially treatable complication of haemodialysis.

Discussion

One of the major complications of fistula creation for dialysis is aneurysm formation [2, 3], in part due to the repetitive stress on the vessel walls caused by multiple punctures (part of the rigours of long-term dialysis). Weakening of the

wall combined with the high pressure flow through the newly arterialised vein increases the risk of aneurysm formation manifold. Once aneurysm formation begins of course, the law of Laplace makes rupture an inevitability. Needless to say, rupture of such an aneurysm would result in rapid exsanguination and potentially fatal haemorrhage. There is no gold standard evidence to indicate at what size or stage aneurysmal rupture is most likely, therefore surgical intervention becomes a necessity as soon as aneurysm formation is detected.

The decision of whether to plicate or ligate is largely a matter of individual preference [1]. Plication is usually done when salvage of existing AV fistula is desired. However, in the presence of local infection, as it was in our case, plication may lead to recurrence of aneurysm. In such circumstances ligation is considered as ideal although it necessitates creation of another AV fistula at a fresh site.

References

1. Lo H-Y, Tan S-G (2007) Arteriovenous fistula aneurysm—plicate, not ligate. *Ann Acad Med Singap* 36:851–853
2. Winsett OE, Wolma FJ (1985) Complications of vascular access for hemodialysis. *South Med J* 78:513–517
3. Bachleda P, Utikal P, Zadrazil J, Grosmanova T (1998) Aneurysm as a complication of arteriovenous anastomoses for hemodialysis [Czech]. *Rozhl Chir* 77:541–544