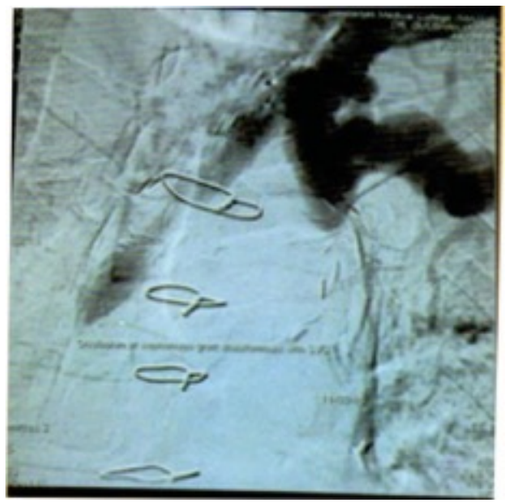
ANGIOPLASTY OF BYPASS AUTOGRAFT USED FOR CENTRAL VENOUS STENOSIS IN HEMODIALYSIS PATIENT

Dr. G. K. Mukhiya, Interventional Nephrologist, Head of Nephrology section, department of Medicine – GMCH

Case: 50 years old male presented to us with facial puffiness, dialysis fistula arm swelling and high venous pressure for past several weeks. Dialysis staff alsonoticed prolonged bleeding on removal of fistula after completion of dialysis.

Patient's past medical history was significant for end stage kidney disease (ESKD) for last 3 years. For this, he was on maintenance hemodialysis twice a week. His dialysis vascular access history was noticeable for repeated dialysis catheters use in first 6 months of hemodialysis followed by creation of left brachiocephalic fistula two and half years back. Soon after creation of fistula, patient developed clinical features of central venous stenosis. Diagnostic fistulography revealed left IJV and left Subclavian junction stenosis with scarring and almostcomplete obliteration of left brachiocephalic vein. Autologous saphenous vein graft was anastmosed to left IJV and Subclavian junction and then it was anastmosed to SVC by our CTVS team lead by Dr. Sanjay Gandhi. It resultedin improvement of patients symptoms. This time patient was again taken up for diagnostic fistulography and central wein venography. It revealed occlusion of distal end of saphenous vein autograft I.e. at its anastomosis with SVC. Patient was counseled regarding surgical and endovascular therapy and he chose to undergo later. Occlusive segment was first approached through femoral route as fistula was aneurysmal and tortuous course. However, guide wire could not be negotiated through the stenosis. Subsequently lesion of interest was approached though fistula, and after almost 1 hour, lesion was traversed utilizing 0.014" floppy tip guide wire. Next challenge was to pass high pressure balloon over terumo guide wire as fistula was aneurysmal and had tortuous course. As terumo wire was not supporting balloon, Amplantz stiif guide wire was utilized to pass balloon. Stenosis was dilated with Conquest high pressure 8mm *2cm balloon. Immediate radiological and clinical results were good. Over subsequent days, patient's symptoms improved and hemodialysis in being continued. To our knowledge, it is the first time in Rajasthan that stenosis of autologous saphenous vein bypass graft is successfully treated by angioplasty by Interventional Nephrologist. This case was particularly challenging due to several factors. Firstly, it is technically difficult to navigate guide wire through 2 years old occluded autograft placed for treatment of central venous stenosis. The course was tortuous with many collaterals. Secondly, due to tortuous course of central drainage of AV

fistula, routine terumo guide wire didn’t support ballon passage. To circumvent this, stiff Amplantz guide wire was used. Thirdly, stenosis in autograft was tight, thus high pressure conquest ballon was utilized for angioplasty.



Pre-angioplasty initial image

Endovascular procedures for dialysis vascular access

Arteriovenous fistula (AVF) is life line for any hemodialysis patient. Creation and maintenance of dialysis fistula is an important aspect of management of ESKD patient. Endovascular procedures namely angioplasty and decloclotting have become standard of care for maintaining patency of AVF due to less invasivenss and repeatability. However, cost still is prohibitive for general use. In this case, Bhamashah health insurance provided financial support.

This patient represents a useful application of endovascular proced naemly angioplasty to treat symptomatic central venous stenosis (CVS). CVS is a debilitating complication in hemodialysis patients as it becomes symptomatic after the placement of AVF.

Risk factors for CVS are previous placement of central venous catheter and pacemaker wires, more with subclavian vein use than internal jugular vein use. Clinically, CVS presents commonly as ipsilateral arm swelling

with visible collaterals, difficulty in achieving hemostasis after cannulation for dialysis, clot aspiration by dialysis staff on needling and high venous pressure alarm on hemodialysis machine.

Treatment of this bebilitating condition is either by endovascular or surgical. Endovascular treatment by means of angioplasty with or without stent is preferred due to its less evil nature. However, the drawback of this type of treatment is significant rate of restenosis which requires repeat procedure. On the other hand, surgical therapy is advised for those lesions which are not amenable by endovacular therapy. It is a major undertaking which requires careful preoperative assessment.

Post angioplasty image