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Axillary Loop Grafts For Hemodialysis Access After Exhaution Of Upper Lumb Vascular Access: About One Case Report

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ABSTRACT :

Introduction : The number of patients with end-stage renal disease (ESRD) requiring haemodialysis is rising steadily worldwide..(1) While the life expectancy of patients on chronic dialysis continues to lengthen,(1,2)the durability of these vascular accesses is limited.

Case report : we report the case of a 71-year-old female patient with antecedents of arterial hypertension, end-stage renal failure dialysis due to vascular nephropathy, antiphospholipid syndrome with femoral and inferior venous thrombosis aspirated during hemodialysis. we decided to perform a right axillary arterioarterial loop.

Conclusion : axillary loop graft (ALG) may represent a supplementary option for chronic hemodialysis patients with vascular steal or inadequate upper extremity venous access sites.

keywords:hemodialysis , axillary loop graft

Introduction :

The number of patients with end-stage renal disease (ESRD) requiring haemodialysis is rising steadily worldwide..(1) While the life expectancy of patients on chronic dialysis continues to lengthen,(1,2)the durability of these vascular accesses is limited , Repeat fistula construction at different levels of the upper extremity (wrist, forearm, upper arm) is often necessary and can ultimately result in exhaustion of autogenous vascular access sites. Use of a synthetic prosthesis to construct on the upper arm an arteriovenous brachial-axillary graft or on the forearm a brachial-brachial loop graft is currently the recommended treatment alternative for patients who have exhausted all native fistulas access options.(3, 4)But such grafts have lower patency rates and shorter lifespans than autogenous arteriovenous fistulas.(3) The construction of a loop graft from an axillary artery to the ipsilateral axillary vein may represent an additional alternative for these patients(5).

Case report

we report the case of a 71-year-old female patient with antecedents of arterial hypertension, end-stage renal failure dialysis due to vascular nephropathy, antiphospholipid syndrome with femoral and inferior venous thrombosis aspirated during hemodialysis.

The patient came to the department with exhausted venous accesses to the upper limbs for vascular accesses for haemodialysis, the arteriovenous fistulas had become non-functional with stenosis of the central venous trunks incompatible with the placement of central catheters. The clinical examination was unremarkable on

admission.

we decided to perform a right axillary arterioarterial loop.

Primary access procedure was performed with the patient under general anesthesia
, A right subclavicular incision was made, we transected the pectoralis minor muscle below the coracoid process and retracted the pectoralis major muscle , the axillar artery was identified and laced, general heparinisation was given to the patient, the axillary artery was clamped and sectioned, a proximal end-to-end anastomosis was performed between the axillary artery and the prosthesis (PTFE) , The size of the PTFE graft was chosen according to the diameter of the axillary artery during operation ,we performed a purge, unclamped upstream and tunnellised the prosthesis in a prethoracic loop, and then performed a proximal
end-to-end anastomosis between the prosthesis and the axillary artery using a 6/0 prolene.

A control Doppler was carried out and the right axillary-subclavian loop was found to be perfectly patent with no stenosis visualised at the proximal and distal anastomoses.Well-pulsed biphasic Doppler flow at an average of 100cm/s over the entire area explored, from the proximal subclavian artery to the right humeral artery.

The loop conduit was allowed to mature for three weeks before puncture.

Discussion

The main indications for the construction of an ALG in chronic haemodialysis patients is the exhaustion of conventional upper limb vascular access sites and the unsuitability of upper limb veins for the construction of an autologous arteriovenous fistula or a traditional upper limb arteriovenous graft, as in the case of our patient in whom all upper limb vascular access had been exhausted ; Several innovative alternative techniques, often reflecting great creativity, have been proposed for these indications. The use of vessels from the lower limbs (6) and exotic arteriovenous graft configurations(5, 7)axillary-jugular,
axillary-contralateral, axillary-femoral or even axillary-popliteal) have been reported, but their results remain uncertain. Bunger et al reported acceptable primary and secondary patency rates (90% and 93% at 6 months, respectively)(8) using axillary-axillary interarterial thoracic loop conduits. Huber et al described the translocation of the superficial femoral vein to the upper extremity for the creation of a brachial-axillary graft(9-10).ALG is prefered rather than any arteriovenous access involving lower extremity vessels owing to the latter's higher inherent risks of sepsis, ischemia, and amputation.(11, 12)

One of the constraints encountered in the making of axillary loops is the need for construction under general anaesthetic in patients who are already fragile. A contraindication to general anaesthesia could be considered a theoretical contraindication to ALG construction. Although various techniques of loco-regional anaesthesia can be used for the construction of loop grafts, they were not used in our patient in order to guarantee the absolute immobility of the patient intraoperatively, which remains important during the anastomosis of the graft to the axillary vessels.(13)

Zanow et al, reported that the differences between ALG for vascular access in haemodialysis and conventional arteriovenous access were that it was not necessary to have a suitable vein, that there was no impact on distal perfusion and that the cardiac load was not increased.unfortunately we have no long-term follow-up for our patient to see if there was a cardiac impact(14).No large series using the axillary artery has been described, so the incidence of complications and the durability of these grafts have not been established to date. The experiences described show that the graft has an acceptable thrombosis rate and an acceptable, small infection rate, and can be easily repaired if necessary. It is suitable for patients who have undergone vascular steal from a brachial artery-based graft. It is also well tolerated by patients.(7)

CONCLUSION:

ALG is a supplementary alternative for patients on chronic hemodialysis with inadequate upper extremity venous access options or vascular steal. Results suggest that ALG construction may be preferable to lower extremity vascular access, in particular for patients without any history of subclavian vein catheterization or pacemaker placement. This technique might be particularly suitable for patients with central vein occlusion. An acceptable perioperative morbidity and an excellent short-term secondary patency rate could be demonstrated. Further follow-up is necessary to determine the long-term complication rate and to allow more reasonable comparison with other methods of access.

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