LOWER LIMP ARTERIO – VENOUS ACCESS FOR HEMODIALYSIS IN PATIENTS WITH CHRONIC END-STAGE RENAL DISEASE

Thesis

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Abstract

As a result of the depletion of the available options arterial venous connection used for dialysis industrial parties Alawites as a result of increasing age of patients with chronic renal failure in addition to the complications of the Central obstructive venous which may lead to the loss of the link in the upper limbs, which have the advantage on the link arterial venous at other sites, such as the lower limbs The al-Sadr and others. Use the lower limbs as the location for the entrance to the blood vessels of the kidney failure patients it is increasingly began. Consequently, our aim is to review the available research and analysis of flow rates and complications for most of the different types of entrances vascular lower limbs parties. As evidenced by the National Kidney Foundation recommendations of the United States of America, which recommended using natural or industrial links in the lower limbs and chest area after the consumption of all the parts available to the parties Alawites. We have multiple types of arterial venous connections in the lower limbs, including natural link using one of the veins of the body such as the saphenous vein and the femoral vein, or industrial link via implanted in multiple ways, using the femoral or popliteal arteries as input, and using or femoral veins Alsafnh as a director. Several private tests work prefer to assess the condition of the arteries and veins of Lower Limb before the decision to take the type of link to be developed, including the clinical examination of the pulse of the arteries when the foot and the use of ultrasound dual vocal own blood vessels and also filmed the arteries and veins using a dye and then exclude the presence of his palaces circulatory peripheral or the presence of a narrow or pulmonary veins to be used to the process. Most studies have indicated that the flow connections dialysis parties the lower rates are not far from the relevant links used for parties Alawites flow rates.

Keywords:

Chronic Renal Failure, Dialysis industrial, For arterial, venous connection, Blood vessels and Natural or industrial connectors


بسم الله الرحمن الرحيم
وأنزل الله عليك
الكتاب والحكمة
وعلَّمَكَ مَا لَمْ تَكُنْ
تَعْلَمُ وكَانَ فَضْلُ
اللَّهِ عَلَيْكَ عَظِيماً
صدق الله العظيم
سورة النساء الآية
(١١٣)

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Mohamed Elhosseiny Elsherif

List of Contents

List of Abbreviations

ABI	Ankle-brachial index
AV	Arteriovenous
AVF	Arteriovenous fistula
AVG	Arteriovenous graft
CT	Computed tomography
DM	Diabetes mellitus
ESRD	End-stage renal disease
FEM-FEM	Femoro-femoral
GSV	Great saphenous vein
HD	Hemodialysis
IH	Intimal hyperplasia
NK/DOQI	National Kidney Disease Outcomes Quality Initiative
PSA	Pseudoaneurysm
PTFE	Polytetrafluoroethylene
SD	Standard deviation
SFA	Superficial femoral artery
SFJ	Saphenofemoral junction
SVS	Society for Vascular Surgery

List of Tables

List of Figures

INTRODUCTION

No doubt that there is much progressive management of patients suffering of chronic renal failure who don't have the option of renal transplantation. These patients are in need of regular hemodialysis. As the process of hemodialysis needs a vascular access to be done, the patient has to undergo operation to make arterio-venous (A-V) access at any suitable site by different methods. Always the upper limb was the first choice of permanent A-V access due to less complications and easy techniques in comparison to other sites.

Exhaustion of upper extremity dialysis access options is becoming more prevalent due to the longer survival of this patient population. In addition, central venous occlusive disease (CVOD) increases the risk of losing access viability in the ipsilateral extremity.***(Colvard, Anaya-Ayala et al. 2011)***

The lower extremity is increasingly used as an access site in end-stage renal disease patients. However, reports present conflicting results, creating confusion regarding the feasibility and outcomes. ***(Antoniou, Lazarides et al. 2009).***

According to NKF-DOQI recommendations Lower extremity fistula or graft should be done after all upper-arm sites exhausted.***(Colvard, Anaya-Ayala et al. 2011)***

Our objective is to review the available literature and analyze the patency rates and complications of the most common two types of lower-extremity arterio-venous access. This review will be performed on most of known lower-extremity A-V access literature. The analysis will involve studies comprising many arterio-venous accesses with both inflow and outflow vessels in the lower extremity which include autogenous accesses and prosthetic accesses (with different configurations) and reporting on patency rates and access-related complications (e.g. Ischemia, infection…etc.) ***(Colvard, Anaya-Ayala et al. 2011)***

AIM OF THE WORK

This work aims to assess the efficacy of the groin femoro-femoral AV loop graft versus the mid-thigh femoro-femoral AV loop graft in lower limb for hemodialysis in patients with chronic end-stage renal disease by assessing its patency rate and incidence of complications. The primary end points will be assessing the primary and secondary patency rates over one year follow up. The secondary end points will be assessing thirty days mortality and morbidity.

ANATOMY

Anatomy of the Femorol Artery

The femoral artery

The femoral artery (fig. 1) begins immediately behind the inguinal ligament, midway between the anterior superior spine of the ilium and the symphysis pubis, and passes down the front and medial side of the thigh. It ends at the junction of the middle with the lower third of the thigh, where it passes through an opening in the Adductor magnus to become the popliteal artery. The vessel, at the upper part of the thigh, lies in front of the hip-joint; in the lower part of its course it lies to the medial side of the body of the femur, and between these two parts, where it crosses the angle between the head and body, the vessel is some distance from the bone. The first 4 cm. of the vessel is enclosed, together with the femoral vein, in a fibrous sheath—the femoral sheath. In the upper third of the thigh the femoral artery is contained in the femoral triangle (Scarpa's triangle), and in the middle third of the thigh, in the adductor canal (Hunter's canal) ***(Gray and Lewis, 2008).***

The femoral sheath (crural sheath)

The femoral sheath (fig. 2) is formed by a downward prolongation, behind the inguinal ligament, of the fasciae, which

line the abdomen, the transversalis fascia being continued down in front of the femoral vessels and the iliac fascia behind them ***(Gray and Lewis, 2008).***

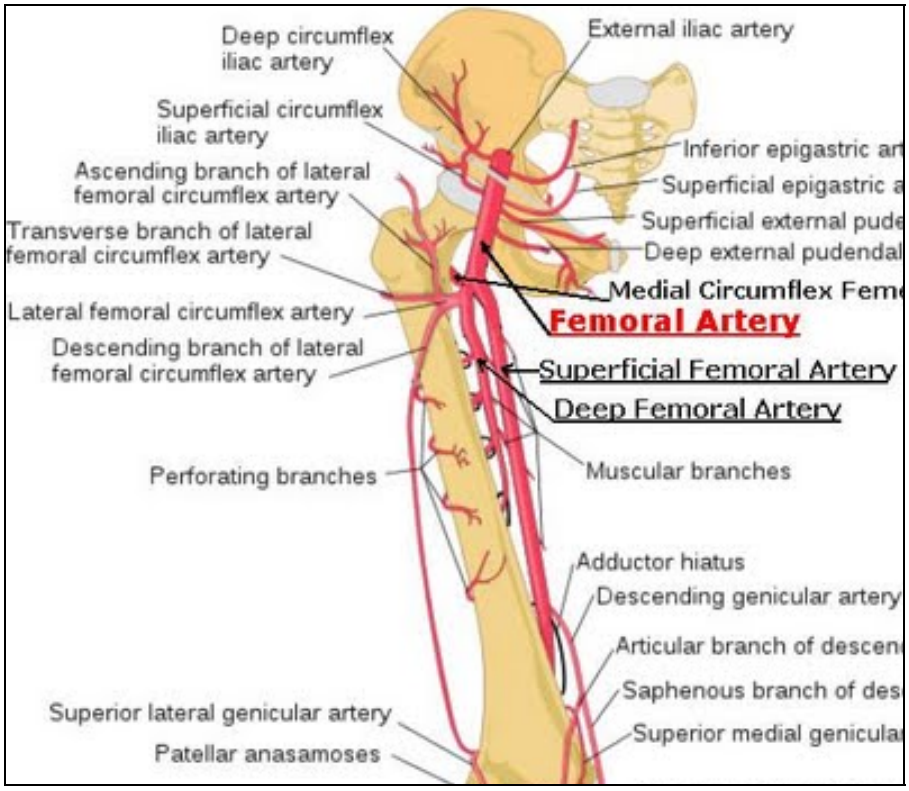

Fig. (1): The femoral artery.

The sheath assumes the form of a short funnel, the wide end of which is directed upward, while the lower, narrow end fuses with the fascial investment of the vessels, about 4 cm. below the inguinal ligament. It is strengthened in front by a band termed the deep crural arch. The lateral wall of the sheath is vertical and is perforated by the lumboinguinal nerve; the medial

wall is directed obliquely downward and lateraly, and is pierced by the great saphenous vein and by some lymphatic vessels. The sheath is divided by two vertical partitions, which stretch between its anterior and posterior walls. The lateral compartment contains the femoral artery, and the intermediate the femoral vein, while the medial and smallest compartment is named the femoral canal, that contains some lymphatic vessels and a lymph gland imbedded in a small amount of areolar tissue ***(Williams et al., 2003).***

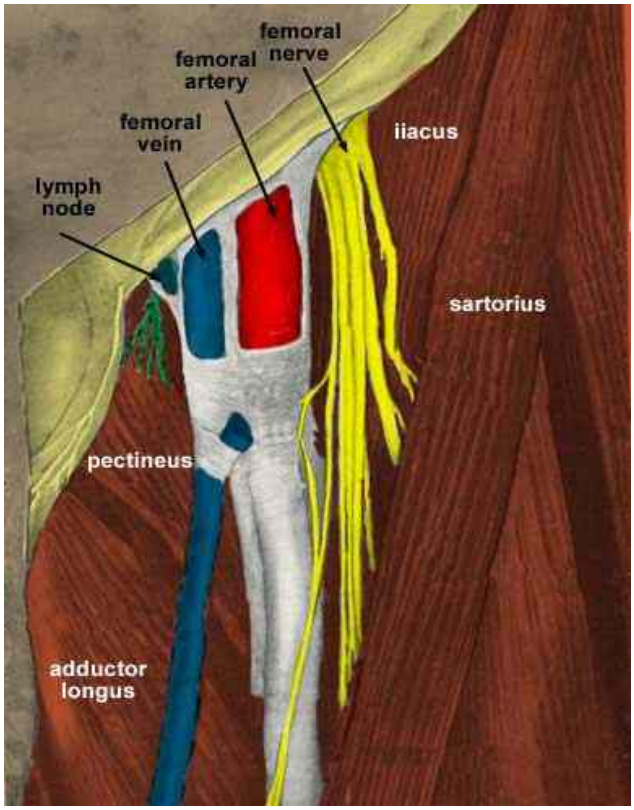

Fig. (2): The femoral Sheath.

The femoral triangle (Scarpa's triangle):

The femoral triangle (fig. 3) Corresponds to the depression seen immediately below the fold of the groin. Its apex is directed downward, and the sides are formed laterally by the medial margin of the Sartorius, medially by the medial margin of the Adductor longus, and above by the inguinal ligament. The floor of the space is formed from its lateral to its medial side by the Iliacus, Psoas major, Pectineus, in some cases a small part of the Adductor brevis, and the Adductor longus; and it is divided into two nearly equal parts by the femoral vessels: the artery giving off in this situation its superficial and profunda branches, the vein receiving the deep femoral and great saphenous tributaries. On the lateral side of the femoral artery is the femoral nerve dividing into its branches ***(Gray and Lewis, 2008).***