

# **Endovascular Versus Open Surgical Reconstruction In Long Segment Superficial Femoral Artery Occlusive Disease**

***Thesis***

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of M.Sc. Degree in General Surgery*

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قَالَ

لَسْبَحَانَكَ لَا عِلْمَ لَنَا  
إِلَّا مَا عَلَّمْتَنَا إِنَّكَ أَنْتَ  
الْعَلِيمُ الْعَظِيمُ

صدق الله العظيم

سورة البقرة الآية: ٣٢

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## *List of Abbreviations*

ABI	=	Ankle-brachial index
ACC/AHA	=	American college of cardiology/American heart association.
ACE	=	Angiotensin converting enzyme.
CABG	=	Coronary artery bypass graft
CAD	=	Coronary artery disease
CB	=	Cutting balloon
CFA	=	Common femoral artery
CHD	=	Coronary heart disease
CL	=	Crossed leg
CLI	=	Critical limb ischemia
CRF	=	Chronic renal failure
CRP	=	C-reactive protein
CTA	=	Computed tomography angiography
CTO	=	Chronic total occlusion
DBP	=	Diastolic blood pressure
DSA	=	Digital subtraction angiography
ESRD	=	End stage renal disease
FDA	=	Food and drug association
HDL	=	High density lipoprotein
HERS	=	Heart Estrogen Progesterone replacement
IDL	=	Intermediate density lipoprotein
ISR	=	In stent restenosis
IVUS	=	Intravascular ultrasound
LDL	=	Low density lipoprotein
LE	=	Lower extremity
LMWH	=	Low molecular weight heparin
IC	=	Intermittent claudication
MRA	=	Magnetic resonance angiography
NCEP	=	National cholesterol education programme
NICE	=	National institute of clinical evidence
NSF	=	Nephrogenic systemic fibrosis
PAD	=	Peripheral arterial disease
PAOD	=	Peripheral arterial occlusive disease

PFA	=	Profundafemoris artery
PFCI	=	Profunda popliteal collateral index
PP	=	Pulse pressure
PVR	=	Pulse volume recording
PTA	=	Percutaneous transluminal angioplasty
PTFE	=	Polytetrafluoroethylene
RSEFA	=	Remote superficial femoral endarterectomy
SBP	=	Systolic blood pressure
SFA	=	Superficial femoral artery
SIA	=	Subintimal angioplasty
SL	=	Straight leg
SMC	=	Smooth muscle cells
SVS	=	Society of vascular surgery
TASC	=	Trans-Atlantic inter-society consensus
VLDL	=	Very low density lipoprotein
WIFI	=	Wound infection foot ischemia

## **AIM OF THE WORK**

The aim of the work is to compare the safety and effectiveness of endovascular treatment versus open surgical bypass in treatment of superficial femoral artery occlusive disease.

*Chapter 1*

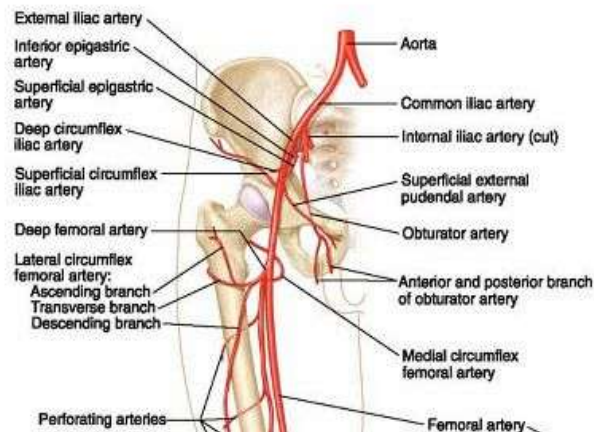
## **SFA ANATOMICAL AND PATHOPHYSIOLOGICAL CHARACTERISTICS**

### **Surgical and Radiological Anatomy of L.L. Arteries:**

The common femoral artery (CFA) is the continuation of the external iliac artery after it passes beneath the inguinal ligament. The common femoral artery gives rise to the superficial circumflex iliac artery and the pudendal branches. The common femoral artery then bifurcates into the superficial femoral artery and the profunda femoris. The femoral profunda artery comes off posterolaterally, and thus the femoral bifurcation is best seen angiographically with a 30° ipsilateral anterior oblique view. The superficial femoral artery courses along the medial aspect of the thigh and continues on as the popliteal artery when it exits the adductor canal via the adductor hiatus. Prior to passing through the adductor canal, it gives rise to the superior genicular artery. It provides the superior, middle, and inferior genicular arteries which have anastomoses with genicular branches from the superficial femoral and femoral profunda arteries (**Figures 1 and 2**) (*Gray et al., 2007*).

The popliteal artery continues below the knee until it bifurcates into the anterior tibial (lateral takeoff) and tibioperoneal trunk, which subsequently bifurcates into the peroneal artery and the posterior tibial artery, which is the most medial artery (**Figures 1, 2 and 3**) (*Gray et al., 2007*).

**A. Anterior view**



**B. Posterior view**

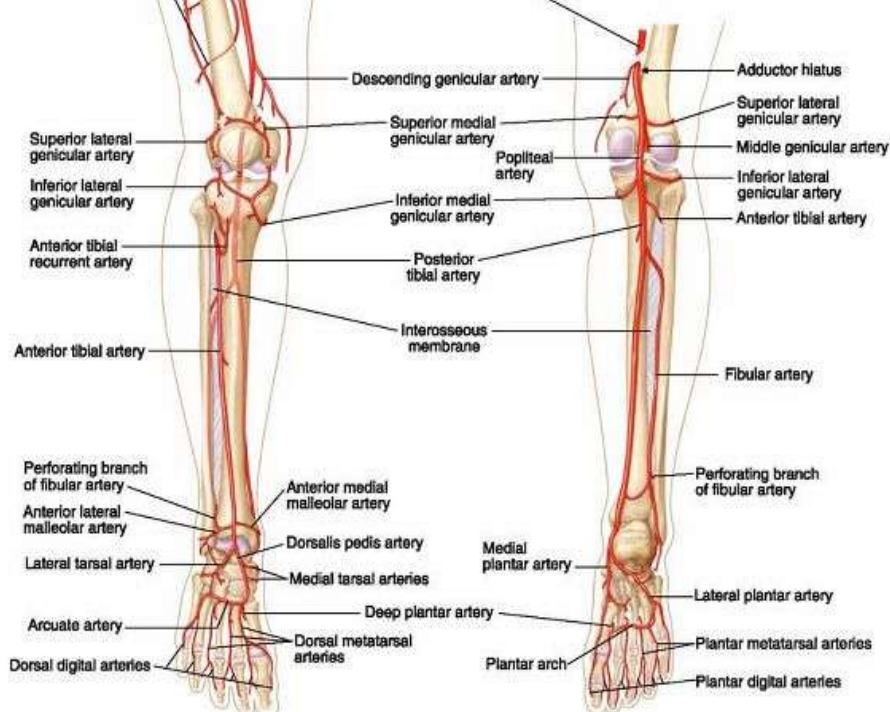
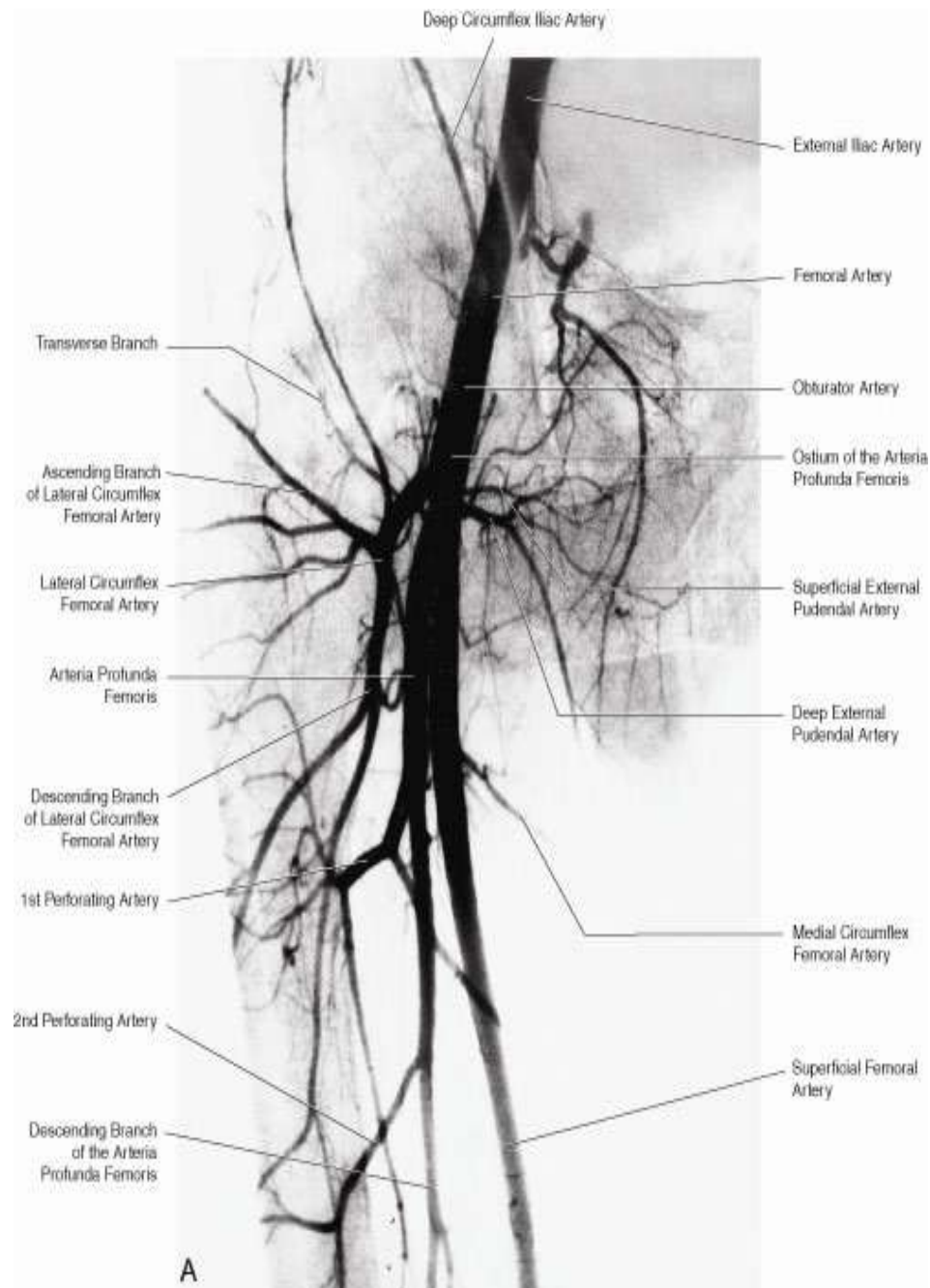
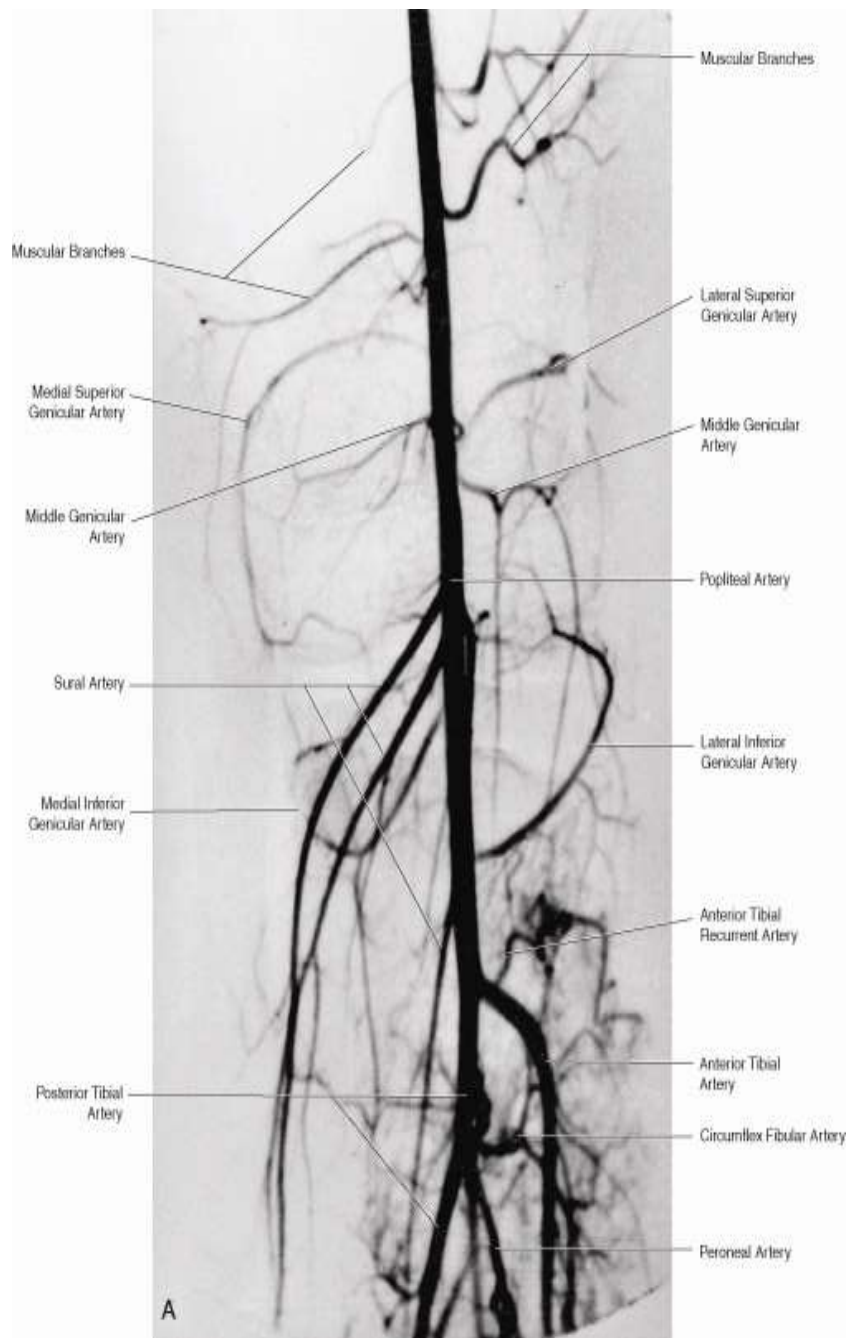


Fig. (1): Detailed anatomy of lower limb arteries (*Patric et al., 2009*).



**Fig. (2):** Angiogram of femoral artery and its main branches (*Renan, 2007*).



**Fig. (3):** Angiogram of popliteal artery and its main branches (*Renan, 2007*).