



Collateral Damage: The Importance of the Hypogastric and Profunda Femoris Artery

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Introduction

Chronic atherosclerotic disease of the infrainguinal vessels is the most prevalent presentation of peripheral arterial disease.

Extent of disease manifestation is dependent upon development of collateral circulation.

The profunda femoris artery is a robust source of collaterals to the lower extremity and can reduce risk of acute limb ischemia.

In the setting of an occluded profunda femoris, the hypogastric artery serves as an alternative source of collateral vessels for distal profunda reconstitution.

Interruptions in these collaterals can cause acute on chronic limb ischemia, a surgical emergency.

Surgical management is a balance of endovascular, open, or hybrid options.



Figure 1

Patient Presentation

70-year-old female who presents with a nonhealing wound along the left medial thigh due to atherosclerotic peripheral vascular disease with chronic limb threatening ischemia (Figure 1).

- Past medical history: hypertension, coronary artery disease, cerebral vascular accident, 15 pack-year smoking history

CT scan: patent left common femoral to popliteal artery stent, occlusion of the profunda femoris artery (Figure 2).

Left hypogastric artery stenosis (Figure 3) treated via balloon angioplasty with subsequent healing of medial thigh wound.

The patient presented to the ER 2 years later with acute left leg ischemia with motor and sensory deficits.

CT scan: occlusion of left common femoral to popliteal artery stent.

She underwent emergent antegrade percutaneous suction thrombectomy and retrograde open thrombectomy via the tibioperoneal trunk ultimately resulting in limb salvage.

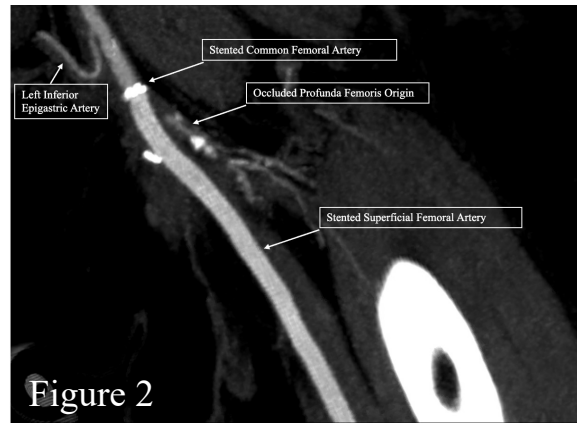


Figure 2



Figure 3

Discussion

- The profunda femoris provides a rich source of collateral vessels that increase in size with the progression of atherosclerotic disease. These branches limit the risk of acute limb ischemia.
- A patent hypogastric artery augments perfusion to the leg and can be integral in the healing of superomedial thigh wounds in the setting of a compromised profunda femoris.
- Here is such an example; an occluded profunda femoris hinders the development of collaterals, therefore risks acute limb ischemia. Revascularization of the profunda via endarterectomy or bypass with close surveillance decreases the risk of future ischemic episodes.

Conclusion

- In the setting of peripheral vascular disease, the hypogastric and profunda femoris serve as durable sources of collateralization.
- Limb threatening ischemia may present emergent/acute (neurologic insult) or chronic (rest pain or tissue loss).
- Reducing atherosclerotic disease in the hypogastric and profunda femoris arteries is therefore integral in limb salvage.