

*Research Article***Infragenicular Angioplasty as a Primary Management for Critical Lower Limb Ischemia****Mostafa N. El Sanadeky, Wael M. Kamal, Micheal S. Ayad Gerges and Mostafa R. Said Ahmed**

General Surgery Department, Faculty of Medicine, Minia university

**Abstract**

**Introduction:** Percutaneous transluminal angioplasty (PTA) is an established alternative to surgical bypass for the treatment of infrainguinal peripheral arterial disease in patients of limited life expectancy, poor surgical candidates, or those who lack adequate venous conduit. **Aim of the work** This study was undertaken in an effort to evaluate the efficacy of angioplasty as a primary choice for the management of infrapopliteal arterial diseases. Infrapopliteal angioplasty (percutaneous transluminal angioplasty (PTA)) is routinely used to treat critical limb ischemia (CLI) despite limited data on long-term outcomes. **Results:** This prospective study was conducted in El-Minia University Hospital after being approved by the faculty ethical committee. This study included 30 patients presented to outpatient clinics or admitted in hospitals with critical lower limb ischemia with infrapopliteal arterial diseases. **Summary:** This study was conducted during July 2018 through February 2019. It included thirty patients who have been admitted to vascular surgery department at Minia University Hospitals. Patients have been admitted one or two days before intervention to be prepared for endovascular intervention.

**Keywords:** Dorsalis pedis artery, Magnetic Resonance Imaging, Over the wire**Introduction & Aim of the work**

Percutaneous transluminal angioplasty (PTA) is an established alternative to surgical bypass for the treatment of infrainguinal peripheral arterial disease in patients of limited life expectancy, poor surgical candidates, or those who lack adequate venous conduit. Citing lower perioperative morbidity and mortality, high technical success, and equivalent rates of limb salvage, some groups now endorse PTA as a comparable, if not preferred first-line therapy for patients with critical limb ischemia (CLI)<sup>(1)</sup>

Although early success with infrapopliteal PTA has been reported little data are available on mid- and long-term outcomes. As evidence emerges to suggest that primary treatment with PTA may threaten the success of subsequent bypass and may result in higher costs and more frequent reinterventions than bypass a more complete understanding of the outcomes following infrapopliteal PTA is needed.<sup>(2)</sup>

The treatment paradigm of CLI is evolving rapidly, particularly with the cutting edge technology and increasing experience of

interventionalists. The growing complexity of arterial lesions, the failure rates with crossing them.<sup>(3)</sup>

Without successful revascularization, major amputation and mortality rates for CLI diabetic patients are substantial. However, surgical management of CLI in diabetic patients still remains a major challenge.<sup>(5)</sup>

**Aim of the work**

This study was undertaken in an effort to evaluate the efficacy of angioplasty as a primary choice for the management of infrapopliteal arterial diseases.

**Patients and Methods**

This is a prospective study which has been conducted at Minia University hospitals. It included **30** patients who have been admitted to vascular surgery department at Minia University Hospitals between July 2018 to February 2019.

**Inclusion criteria**

- Patients with unilateral critical lower limb ischemia Rutherford categories 3, 4, 5 and 6.

- Patients TASC A, B, C.
- All patients should have infrapopliteal arterial lesions.
- Age: > 30 years old.
- Gender: both sexes.

included 30 patients presented to outpatient clinics or admitted in hospitals with critical lower limb ischemia with infrapopliteal arterial diseases.

**A. Demographic data:**

**1. Gender:**

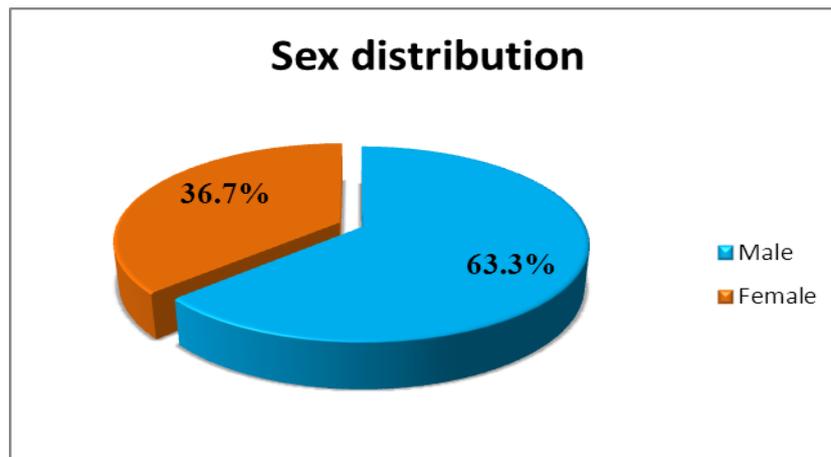
This study included 30 patients; 19 of them were male patients while there were only 11 female patients.

**Results**

This prospective study was conducted in El-Minia University Hospital after being approved by the faculty ethical committee. This study

**Table: Sex of the studied patients.**

Sex	Number of patients (n=30)	Percentage
Male	19	63.3%
Female	11	36.7%



**Figure: Sex distribution of the studied patients.**

## Discussion

As regards methods of crossing the lesions Caitlin w. Hicks, Alireza et al.<sup>11</sup> stated that 0.014-inch hydrophilic-coated can cross the stenosis and penetrate occlusive lesions. However, it is not possible to provide enough support to cross long occlusions, and it cannot replace the 0.035 inch hydrophilic-coated guidewire Thomas Zeller, Iris et al.,<sup>12</sup>. In our study we used both 0.018 and 0.035 but 0.018 cross infrapopliteal lesions more easier than 0.035 guide wire.<sup>(6,7)</sup>

Regarding our study indications of intervention were gangrene in 23 patients (76.7%), nonhealing ulcers in 10 patients (33.3%) with or without rest pain and rest pain in 24 patients (80%), but in Caitlin w. Hicks, Alireza et al.,<sup>1</sup> there were about (77%) of cases presented with tissue loss and (23%) presented with rest pain.<sup>(8,9)</sup>

In Thomas Zeller, Ulrich et al.,<sup>2</sup> study: patients presented with claudication were about (21%), (6%) presented with rest pain and (73%) presented with tissue loss.<sup>(10)</sup>

## Summary

In our procedure the patient lie in supine position under C-arm with local anesthesia, most of cases submitted to ipsilateral antegrade access but when it failed we entered via retrograde trans pedal access, angiography was done before introduction of guide wire as angiography is more accurate than arterial duplex and CT angiography to mark the lesions. Then we selected the vessels which need to be revascularized so in our study we tried to revascularize more than one tibial vessel in cases with gangrene or ulcers.

## References

1. Aboyans, V., et al., (2006). "Risk factors for progression of peripheral arterial

- disease in large and small vessels." 113(22): 2623-2629.
2. Aftab, S. A., et al., (2014). "Randomized clinical trial of cutting balloon angioplasty versus high-pressure balloon angioplasty in hemodialysis arteriovenous fistula stenoses resistant to conventional balloon angioplasty." *Journal of Vascular and Interventional Radiology* 25(2): 190-198.
3. Andras, A. and B. Ferket (2014). "Screening for peripheral arterial disease." *Cochrane Database of Systematic Reviews* (4).
4. Au, T. B., et al., (2013). "Peripheral arterial disease: diagnosis and management in general practice." *Australian family physician* 42(6): 397.
5. Blevins Jr, W., et al., (2010). "Endovascular management of critical limb ischemia." 39(6): 756-761.
6. Brownrigg, J., et al., (2015). "Diagnosis and assessment of peripheral arterial disease in the diabetic foot." *Diabetic Medicine* 32(6): 738-747.
7. Das, T., et al., (2014). "Technique optimization of orbital atherectomy in calcified peripheral lesions of the lower extremities: the CONFIRM series, a prospective multi-center registry." *Catheterization and Cardiovascular Interventions* 83(1):115-122.
8. Dash, D. (2016). "Guidewire crossing techniques in coronary chronic total occlusion intervention: A to Z." *Indian heart journal* 68(3): 410-420.
9. De Poli, F., et al., (2014). FemoSeal Evaluation Registry (FER). Prospective study of femoral arterial closure with a mechanical system on 100 patients who underwent angioplasty procedures. *Annales de cardiologie et d'angiologie*, Elsevier.
10. Eraso, L. H., et al., (2014). "Peripheral arterial disease, prevalence and cumulative risk factor profile analysis." *European journal of preventive cardiology* 21(6): 704-711.