



BACKGROUND

- Chronic limb-threatening ischemia (CLTI) represents a severe form of peripheral artery disease (PAD)
- High risks of morbidity (57.4%), and mortality (37.6%) post- intervention¹.
- Popliteal stenting has been avoided due to concerns about stent durability.
- Recent FDA approval for nitinol woven stent placement in the behind-knee popliteal artery

This study analyzes the efficacy and durability of popliteal artery revascularization for patients with CLTI who were too high-risk for open revascularization.

METHODS

Study Population: All patients undergoing endovascular intervention of the popliteal artery from 2017-2023 at a single institution. Patients selected were those experiencing symptoms of rest pain or ischemic wounds, but did not include individuals with claudication.

Data Collection: Electronic Medical Record collection of

- Preoperative details
 - Demographics, comorbidities, medications, and disease severity
- Intraoperative details
 - Primary intervention performed and adjunct interventions
- Postoperative Outcomes
 - Mortality, major amputation free survival, reintervention free survival, symptom resolution, and recurrence of symptoms

Statistical Analysis: GraphPad Prism 9 to generate:

- Kaplan-Meier Survival Curves
- Data Tables

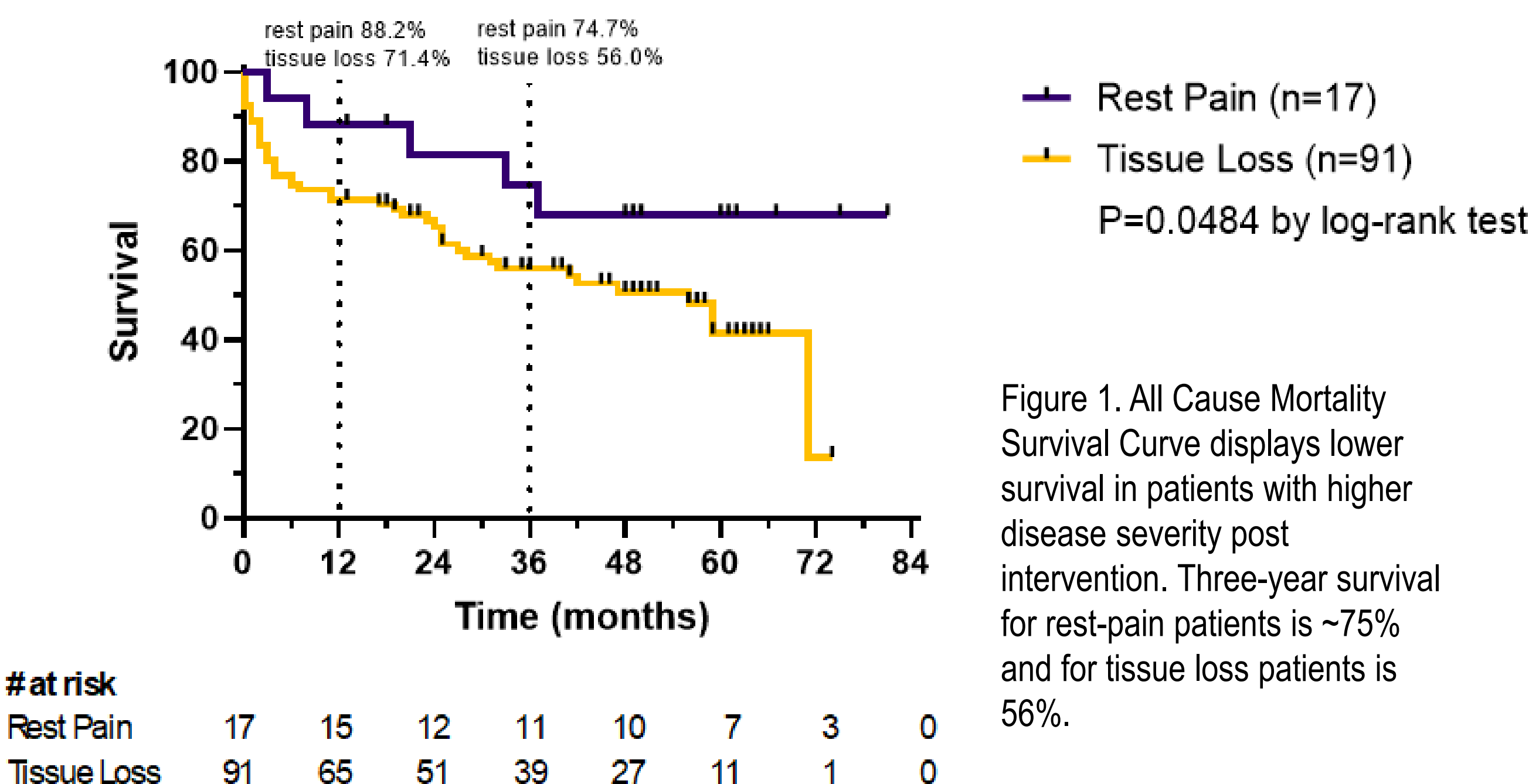
RESULTS

Post-Operative Outcomes

All Interventions (n=108)	
30-day Mortality	8 (7.4)
Major amputation	12 (11.1)
Months until major amputation	20.3 ± 19.1
Reintervention	32 (29.6)
Months until reintervention	11.9 ± 12.4
Wound healed	47/61 (77.0)
Months until wound healing	3.9 ± 4.3
Resolution of Rest Pain	37/45 (82.2)
Months until resolution of rest pain	1.7 ± 1.7

Data presented as Mean ± Standard Deviation or Number(%)

Table 3. Patient Post-Operative Outcomes show symptom resolution, including both wound and rest pain resolution, in most patients who underwent endovascular revascularization.



The majority of patients were white (82%) , non-Hispanic (99%), and male (59%) with a smoking history (66%). HTN, diabetes mellitus, and CKD were the most common comorbid conditions. Symptom resolution was seen in 77% of patients with wounds, and 82% of patients with rest pain (Table 3.). 3-year survival for rest-pain patients was 75% and for tissue loss patients is 56% (Figure 1.)

DISCUSSION

Limitations:

Single site, low diversity of patient population, observational study

Interpretation:

Woven nitinol stents were durable with high rates of symptom resolution, even out to 3-years post intervention, opening a new avenue for symptom control of CLTI in patients too sick to be candidates for an open bypass surgery.

- Large majorities of both rest pain and tissue loss patients had resolution of symptoms (rest pain or ischemic wounds)
- There was a 0% incidence of stent fracture in reinterventions

CONCLUSIONS

Popliteal endovascular intervention in high-risk patients is an effective treatment strategy for patients with tissue loss, as well as rest pain.

Overall, these findings support the use of patient-tailored revascularization strategies for CLTI patients, aligning with findings from the BEST-CLI trial and European guidelines which emphasize individualized treatment approaches and early intervention for limb salvage¹.

ACKNOWLEDGEMENTS

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REFERENCES

¹Farber, A., Menard et al. (2022). Surgery or endovascular therapy for chronic limb-threatening ischemia. New England Journal of Medicine, 387(25), 2305–2316.
<https://doi.org/10.1056/nejmoa2207899>