Quantifiable Soft Tissue Assessment Prompted Immediate Fasciotomy When Clinical Findings Were Inconclusive

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CASE PRESENTATION

A 35-year-old male presented to the Emergency Department at midnight after a bicycle fall. On examination, both forearms were swollen; the right forearm was notably firm with stiff wrists and fingers.
Sensory reports were inconsistent.
No other major injuries were reported.

To support decision-making, non-invasive soft tissue compressibility measurements were performed using the Compremium Quantis® ST device on both forearms. The computed CP Value is the percentage change in compartment thickness between low and high applied pressures.

MEASUREMENTS

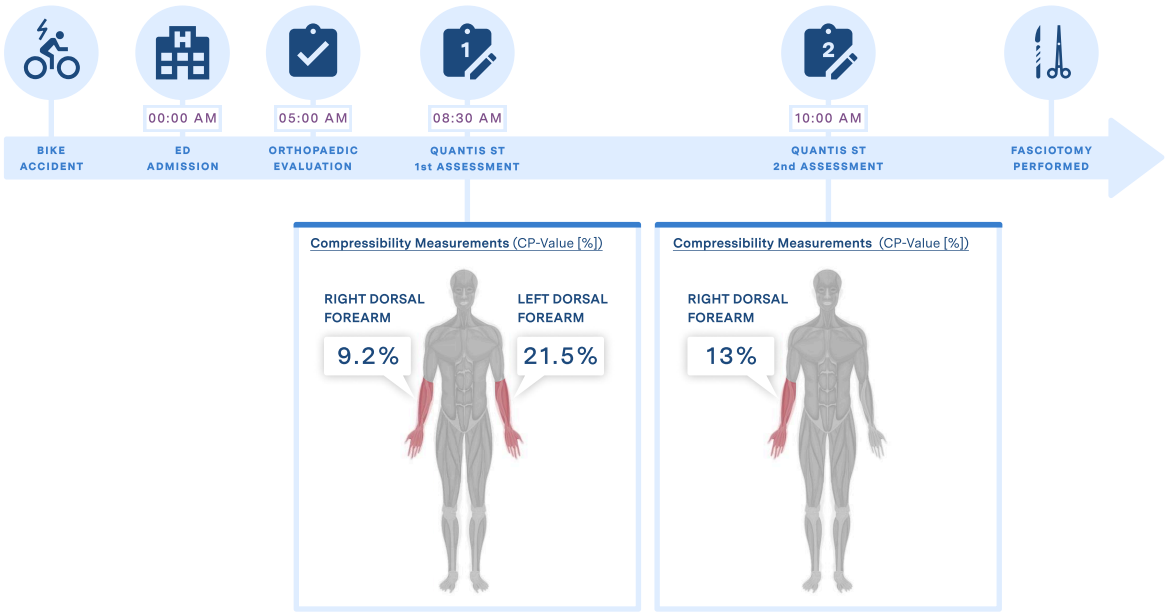

Figure 1. Clinical Timeline of Assessment and Intervention

Timeline illustrating the patient's course from bicycle accident to emergency evaluation, orthopedic review, serial soft-tissue compressibility measurements using Compremium Quantis® ST, and ultimate fasciotomy.

The right forearm demonstrated markedly reduced compressibility compared to the left, aligning with the initial clinical assessment.

OUTCOME & CONCLUSION

Clinical findings and low compressibility measurements indicated evolving acute compartment syndrome in the right forearm. Quantis ST clarified laterality, identifying significantly higher risk on the right despite bilateral swelling. This enabled targeted fasciotomy and avoided prophylactic surgery on the left, preventing irreversible tissue damage and systemic complications.

REFERENCES

1. Bouklouch, Yasser et al. Rethinking the Paradigm of Using Ps for Diagnosing Compartment Syndrome. JBJS Open Access 10(2):e24.00065, April-June 2025. | DOI: 10.2106/JBJS.OA.24.00065
2. Yasser Bouklouch, Theodore Miclau, Edward Harvey, Diagnosis of acute compartment syndrome: current diagnostic parameters, Injury, Volume 56, Supplement 1, 2025, 112773, ISSN 0020-1383, https://doi.org/10.1016/j.injury.2025.112773

CE-approved intended use

The CPMX1 Software is intended for real-time and intermittent measurement and monitoring of relative compartment compressibility.

FDA-cleared intended use

The Compartmental Compressibility Monitoring System (CPM#1) is intended for real-time and intermittent monitoring of relative compartment compressibility. The relative compartment compressibility (CP Value) is not meant for trend analysis.
510(k) Number: K223509.