

Avoided Prophylactic Fasciotomy: Quantifying soft-tissue assessment for more confident clinical decision-making

Preliminary data – shared prior to publication with allowance by Prof. Dr. med. R. Sellei, Germany

INTRODUCTION

A 65-year-old male patient presented with a dislocated proximal tibial fracture following a high-energy direct-impact trauma.

At admission, the injured leg showed severe soft-tissue swelling and hemorrhagic blisters - raising immediate concern for acute compartment syndrome (ACS) and the potential need for fasciotomy. To support decision-making, non-invasive soft-tissue compressibility measurements were performed using Compremium Quantis® ST on both the injured and healthy lower leg.



Figure 1. Injured leg showed severe soft-tissue swelling and hemorrhagic blisters.

COMPRESSIBILITY MEASUREMENTS

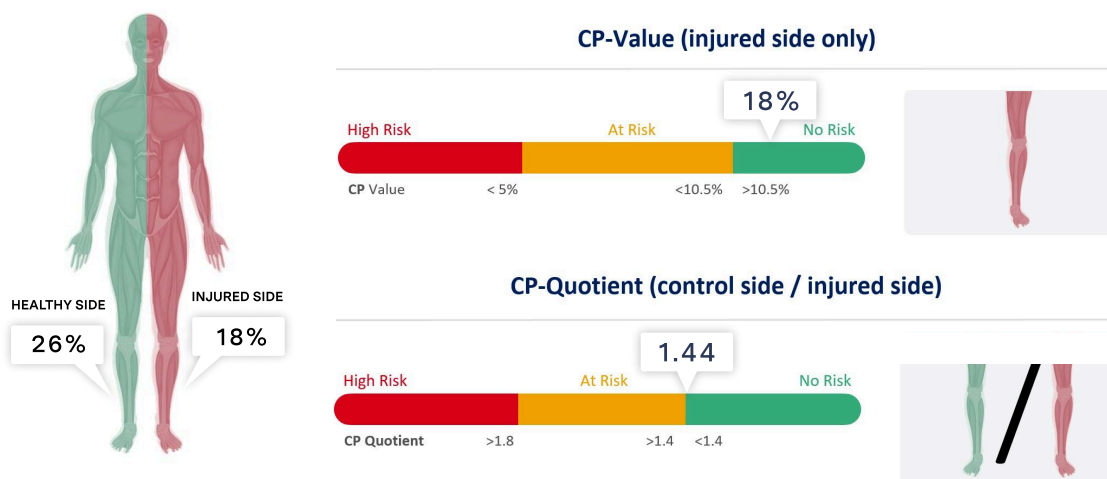


Figure 2. CP-Value & CP-Quotient as Quantitative Indicators of Soft Tissue Compressibility and Risk Stratification.

CP-Value provides a real-time measurement of tissue compressibility, while CP-Quotient compares readings from the injured and uninjured limbs to establish a personalized baseline. These measurements can be tracked over time to support more informed clinical decisions. The above illustration is for information purposes only.

OUTCOME & CONCLUSION

- **Objective Measurement:** The CP-value of 18%, interpreted within the no risk green zone (fig.2), combined with clinical findings, suggested no evidence of compartment at risk.
- **Clinical Decision:** No prophylactic fasciotomy performed.
- **Management:** The limb was stabilised using an external fixator as part of staged treatment before definitive fixation.

As a non-invasive, repeatable method, Quantis ST strengthens clinical confidence by adding quantitative soft-tissue information to the decision-making process, particularly in patients with suspected ACS.

REFERENCES

1. Sellei RM, Wollnitz J, Reinhardt N, de la Fuente M, Radermacher K, Weber C, Kobbe P, Hildebrand F. Non-invasive measurement of muscle compartment elasticity in lower limbs to determine acute compartment syndrome: Clinical results with pressure related ultrasound. *Injury*. 2020 Feb;51(2):301-306. doi: 10.1016/j.injury.2019.11.027. Epub 2019 Nov 21. PMID: 31784057.
2. Marmor M, Charlu J, Knox R, Curtis W, Hoogervorst P, Herfat S. Use of standard musculoskeletal ultrasound to determine the need for fasciotomy in an elevated muscle compartment pressure cadaver leg model. *Injury*. 2019 Mar;50(3):627-632. doi: 10.1016/j.injury.2019.01.015. Epub 2019 Jan 14. PMID: 30745127.

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.