Type-B Aortic Dissection Patients’ Risk Prediction with Machine Learning

J V Ramana Reddy
Tohoku University, AIMR

Purpose: Cross-Sectional Shape Analysis

Methods: We collected DICOM data from 21 TBAD patients, extracted True, False, and Full lumen cross-sectional shapes from dissected aortas, and introduced a Resistance to Bending (RB) parameter for shape analysis. We utilized an interpretable discriminant machine learning method to classify the patients' risk and also predict the patient's risk using LOPO-CV.

Results: Despite having imbalanced clinical data, our approach can accurately classify and predict TBAD patient severity with a 75% success rate.

Conclusions: The proposed approach predicts TBAD patient risk, benefiting physiologists/ cardiologists in enhancing patient health. This study covers both theoretical principles and their practical applications, with a focus on analysing the principles and highlighting their relevance in various domains.