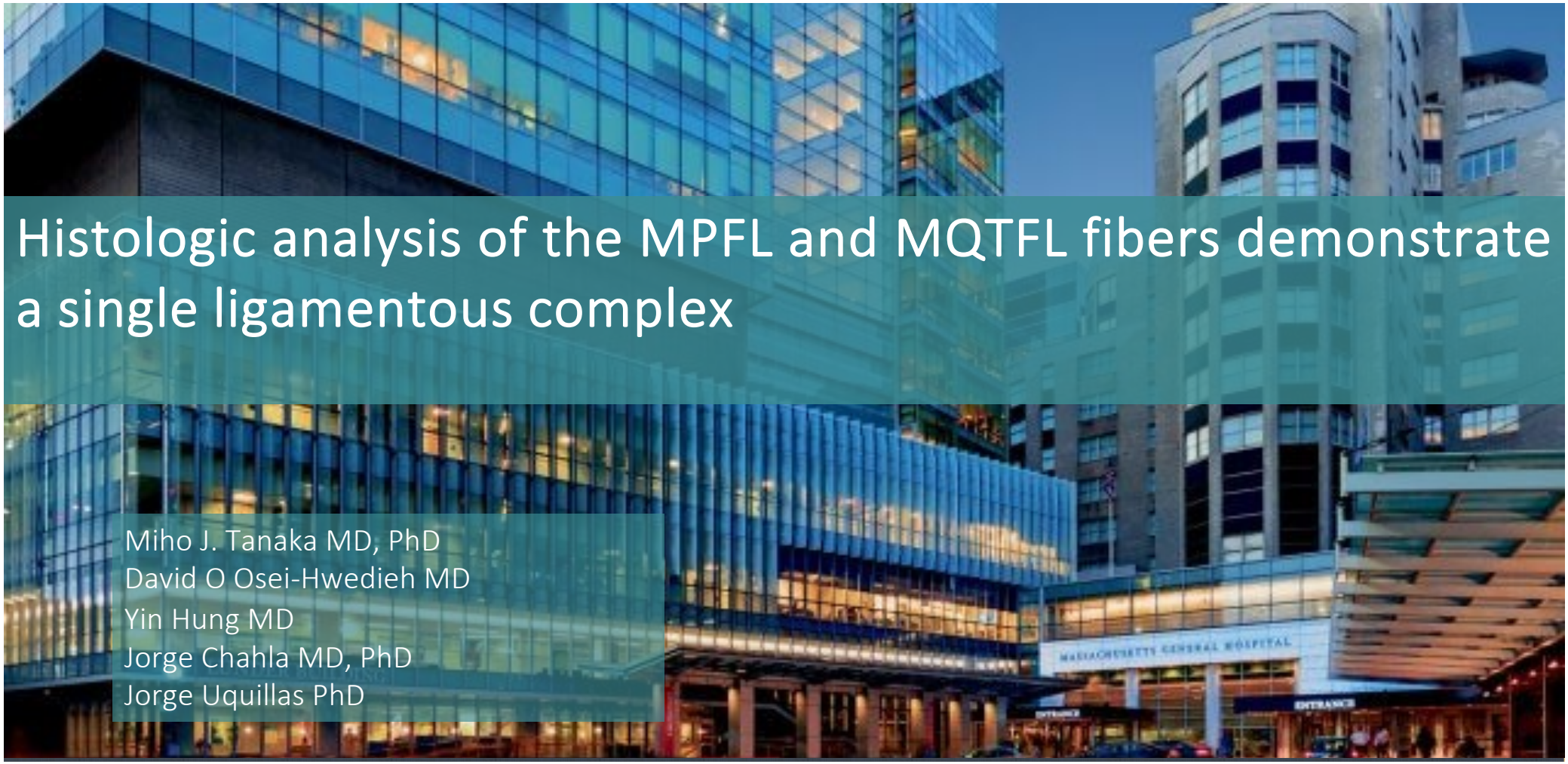

Histologic analysis of the MPFL and MQTFL fibers demonstrate a single ligamentous complex

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Disclosures

Tanaka

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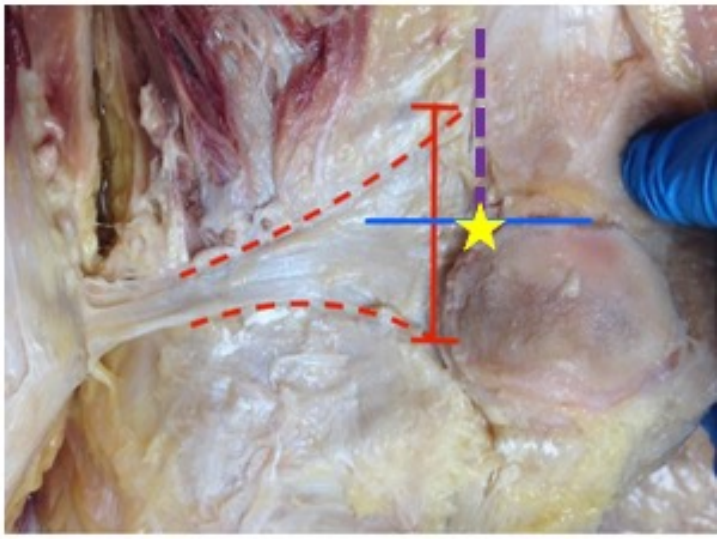
Background

- The medial patellofemoral complex (MPFC) is known as the primary static restraint to lateral patellar translation
- Previously referred to as the medial patellofemoral ligament (MPFL), more recent studies have highlighted the proximal attachment of the ligament to the quadriceps tendon, termed the medial quadriceps tendon femoral ligament (MQTFL) fibers
- Despite the common origin of the ligaments on the femur, no studies have demonstrated the histologic relationships between the MPFL and MQTFL fibers



Tanaka JBJS 2016

Objective

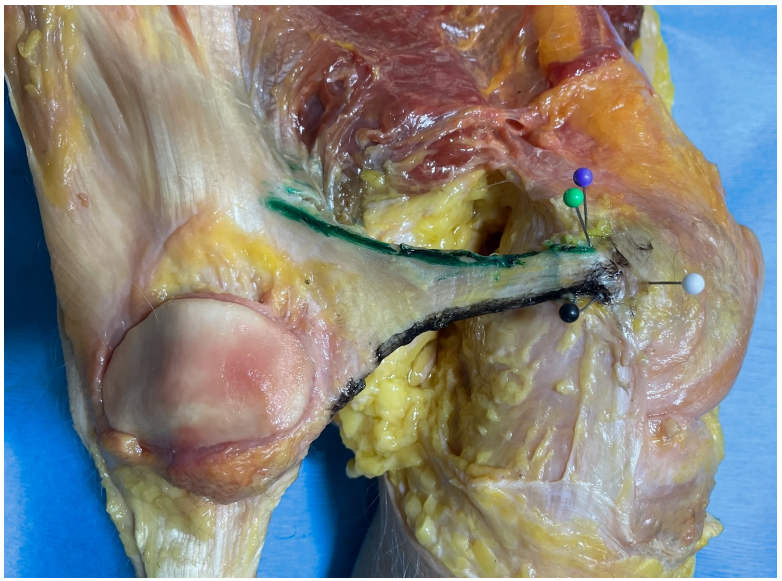
- The purpose of this study was to describe and compare the histologic appearance of the MPFL and MQTFL fibers.

Methods

- 5 cadaveric knees were dissected for this study
- Using a lateral parapatellar approach, the extensor mechanism was reflected to reveal an articular sided view of the medial patellofemoral joint
- The synovium (Layer 3) was removed to reveal the MPFC fibers
- The MFPC fibers were identified, the femoral and extensor mechanism attachments were measured using calipers, and the percentage of fibers attaching to the patella (MPFL) was calculated

Methods

- The proximal and distal margins of the MPFC were marked with ink
- The midsection of the ligament was removed en bloc and prepared in formalin solution and a paraffin block
- Masson trichrome stains were used for determination of tissue micromorphology

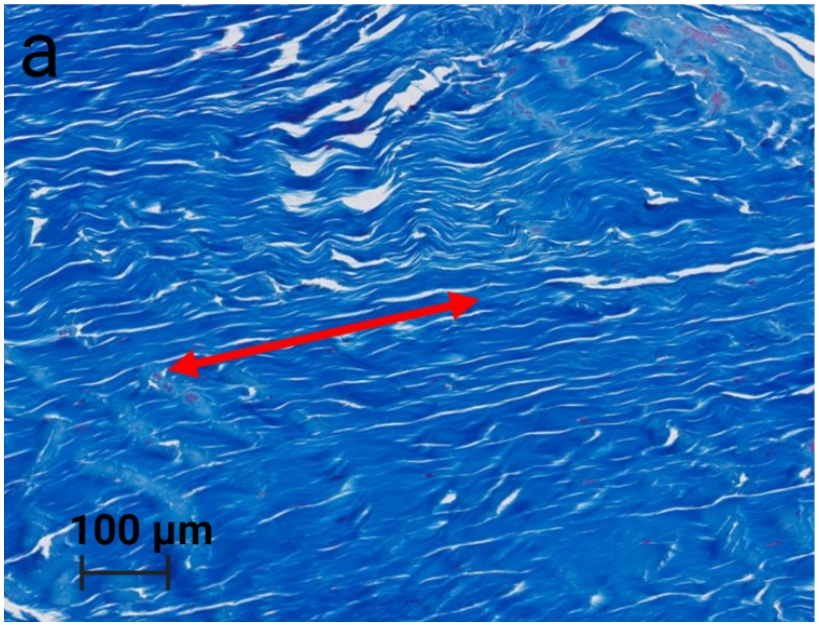


Results

- The mean age of the cadaveric specimen was 72±12 years
- The femoral attachment was 15.1±4.1mm in length
- All knees were found to have attachments of the MPFC to both the patella and quadriceps tendon, with a total attachment of 41.5±10.3mm
  - 45.0±22.4% of fibers attached to the patella
  - The remainder attached to the quadriceps tendon

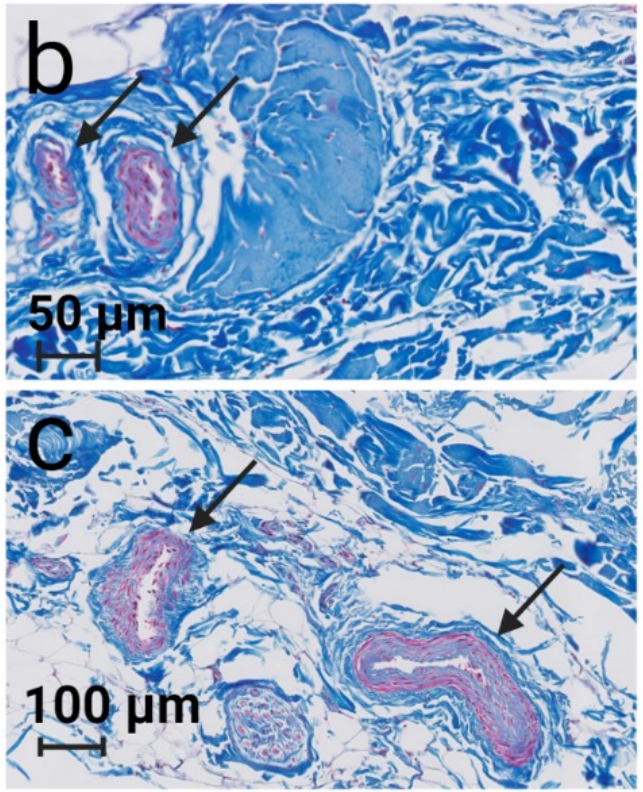
Results

- Along the entire length of the ligament continuous, parallel and densely packed collagen bundles were identified that spanned the entire ligament (figure **1a**)
- No major raphe or septa was noted between the bundles, indicating that this was a single ligamentous structure



Results

- Throughout the ligament, a substantial presence of blood vessels was identified (figures **1b** and **1c**)
- When assessing the proximal fibers (MQTFL) vs distal fibers (MPFL), no gross differences in the distribution or morphology of the collagen fibers was noted
- No appreciable differences between the distribution or morphology of the vascular structures were identified.



Conclusions

- This study demonstrated that the MPFC is one ligamentous complex, without structural separation or histologic variation between the MPFL and MQTFL fibers

- Nerve endings and vascular structures were identified throughout the complex

Conclusions

- Further studies are needed to understand the role of differentiating between the MPFL and MQTFL fibers from a biomechanical and clinical perspective to optimize reconstruction techniques in the surgical treatment of patellar instability

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Thank you

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