

MSK Ultrasound Clinical Case Study

Distal biceps tear



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Introduction

This case study follows a 52-year-old firefighter who presented to his doctor with pain in his left elbow upon pronation and supination. There was no acute injury reported by the patient. Possible distal biceps tendinosis was thought to be the cause of his symptoms.

Case Study

An ultrasound examination was conducted using the Canon Aplio i800 / Prism Edition with an 18 MHz (PLI-1205BX) matrix linear transducer. The scan revealed a high-grade partial tear of the distal biceps at its insertion, predominantly involving the long head of biceps. Some vascularity in the distal biceps was also demonstrated with Superb Microvascular Imaging (SMI). Post diagnosis, it was recommended that the patient return for a Platelet Rich Plasma (PRP) injection into the area to help with tendon repair and alleviate symptoms.



Figure 1 Transverse imaging of the short and long head of biceps. Uniform imaging can be appreciated from the near field to the far field on Full Focus mode, without the need for a specific focal zone in this image.



Figure 2 The biceps can be seen at its distal insertion onto the radial tuberosity. The deep portion of the tendon is seen to be heterogenous over an area of 21 mm thought to be consistent with a partial tear of this tendon.



Figure 3 SMI shows some increased hyperemia in the region of interest.

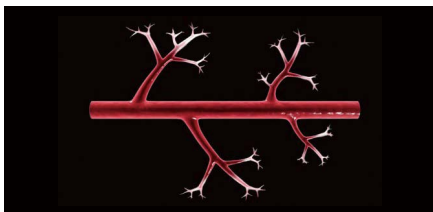
Discussion

Partial tear findings of the long head of biceps are an important diagnosis to help prevent the possibility of further full thickness tearing. The deep section of the distal insertion of biceps can be difficult to image. A good imaging technique and excellent image quality and penetration are therefore essential.

iBeam+ technology on the new Aplio i-series / Prism Edition emits, receives and processes ultrasound with up to 4 times faster image processing* to provide sharper images and improved penetration while maintaining superior spatial and contrast resolution. In this case the examination was performed with 16 MHz using differential tissue harmonic

imaging throughout the examination. Using the Full Focus mode high temporal resolution was maintained without the need to adjust frequency or focal zones.

Demonstrating vascularity is important in the diagnosis of tendinosis and the improved SMI capability of the Aplio i-series / Prism Edition was used to assess for an increase in blood flow, in what can usually be a difficult region to image. SMI is designed to detect subtle flow by effectively separating very slow flow from overlaying tissue motion and preserving the low-flow components – making it the most sensitive tool for MSK imaging. With the new iBeam+ architecture, the SMI capability on the Prism Edition is further enhanced to provide a higher frame rate, leading to better visualization and less clutter.



Ultra-low flow imaging
Say hello to a new generation of SMI that significantly expands the range of visible blood flow from extremely low to high flow with low noise and good sensitivity.



Ultra-high resolution
Aplio's new iBeam+ architecture enables advanced B-mode image quality with higher frame rate for better visualization of the underlying anatomy.



Free breathing capability
With SMI Generation 4, users can experience fine flow even in difficult situations with less clutter and fewer motion artifacts.

*compared to the previous versions of Aplio i-series.

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Model number: TUS-AI800
MCSUS0017EAA 2022-06 CMSC/Produced in Japan

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Results may vary due to clinical setting, patient presentation and other factors.

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