

PHILIPS

Ultrasound

Clinical case study

The eL18-4 PureWave linear array with MicroFlow Imaging (MFI) in diagnosis of muscles, tendons, ligaments, nerves, soft issue, and interventional procedures

eL18-4 PureWave linear array transducer

Category

Musculoskeletal Ultrasound

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The Philips eL18-4 PureWave linear array transducer is our first high-performance transducer featuring ultra-broadband PureWave crystal technology with multi-row array configuration, allowing for fine-elevation focusing capability.

Results from case studies are not predictive of results in other cases. Results in other cases may vary.

Overview

Diagnostic ultrasound has become an increasingly important, low-cost modality for imaging of the musculoskeletal system. MSK abnormalities are often found when evaluating for other expected abnormalities such as venous thrombosis. Ultrasound is complementary to plain film, CT scan, and MRI.¹

Patient history

The patient was a 51-year-old female presenting with left arm pain and focal swelling. The patient had been hospitalized with an IV placed in the left antecubital fossa. There was leakage and discoloration of the skin from the IV, which was removed. The swelling decreased yet was still significant, however, the pain increased. The patient was referred for evaluation of possible DVT.

Protocol

Longitudinal and transverse images are obtained of the area of pain as indicated by the patient after assessing for DVT. Color flow imaging and MFI are utilized as necessary.

Findings

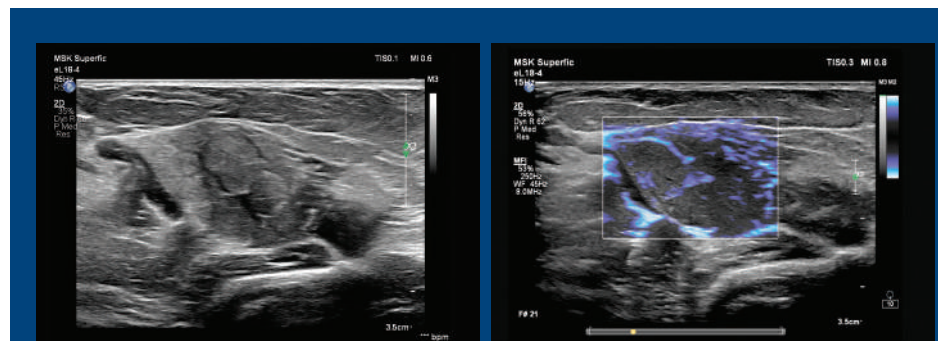
The mass was complex with a small amount of fluid within, best seen with the eL18-4 transducer. MFI revealed significant vascular flow within, not appreciated with color flow imaging. The diagnosis of a benign healing mass secondary to infiltration/hemorrhage within the mass was made. The patient was treated conservatively.

Conclusion

The eL18-4 transducer with MFI showed no DVT, however, a mass which was not suspected was identified. MFI revealed vascular flow not readily seen with color flow imaging. A diagnosis of resolving hematoma from soft tissue infiltration was made. MFI is very sensitive to low vascular flow states and will prove valuable in future assessments.

Reference

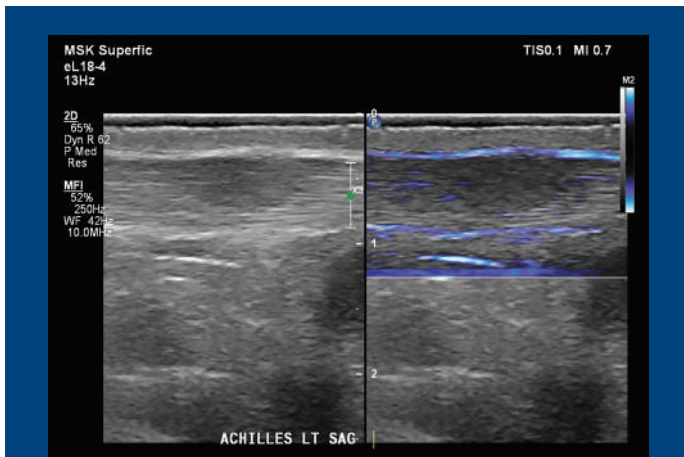
- 1 Jacobson JA. Fundamentals of Musculoskeletal Ultrasound, 2nd Edition. Nov 2012. Theonlinelearningcenter.com, Philips US-MSUS.



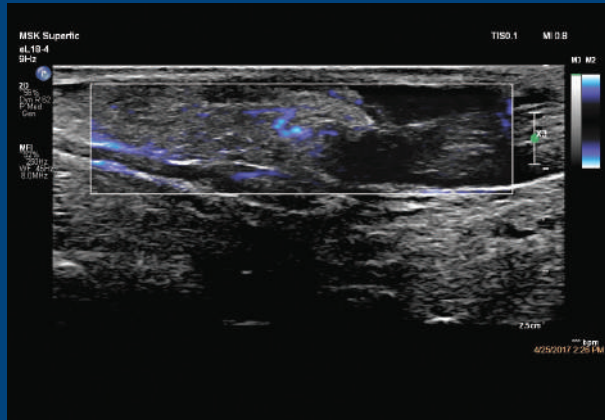
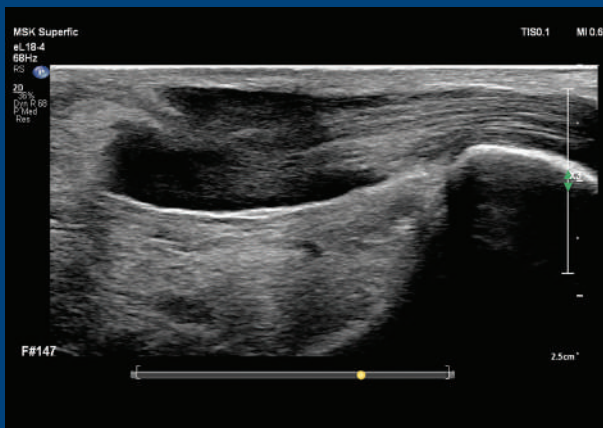
Imaging with the eL18-4 transducer revealed a heterogeneous mass within the anterior biceps muscle. There was no DVT.

MicroFlow Imaging was performed and revealed subtle vascular flow.

The eL18-4 PureWave linear array with MicroFlow Imaging (MFI) in diagnosis of muscles, tendons, ligaments, nerves, soft issue, and interventional procedures



Longitudinal image revealed thickening of Achilles tendon. MFI showed no increased vascular flow.



Contrasting example of an Achilles tendon tear with the eL18-4 demonstrated a complete tear showing increased blood flow with MicroFlow Imaging.

Overview

Diagnostic ultrasound has become an increasingly important, low-cost modality for imaging of the musculo-skeletal system and interventional procedures and treatment. It is complementary to plain film, CT scan, and MRI.¹

Patient history

The patient was a 23-year-old female with a history of cerebral palsy, complaining of left Achilles focal pain. There was no history of trauma. The patient was unable to walk, with clinical concern for a tear versus tendinosis.

Protocol

Longitudinal and transverse images were obtained of the area of pain as indicated by the patient. Color flow imaging and MFI were utilized as necessary.

Findings

Longitudinal image of the Achilles tendon revealed diffused hypoechogenicity and thickening of the tendon. The linear fibers were intact with no calcification. Longitudinal image of the Achilles tendon with MFI showed no increased vascular flow pattern which would suggest acute tendonitis.

The images were consistent with tendinosis and there was no evidence of tendon tear or tendonitis.

Conclusion

The eL18-4 transducer confirms the great precision that ultrasound imaging can provide for suspected tendon abnormalities. This may lead to less reliance on MRI and potentially lower the cost of healthcare.

Reference

- 1 Jacobson JA. Fundamentals of Musculoskeletal Ultrasound, 2nd Edition. Nov 2012. Theonlinelearningcenter.com, Philips US-MSUS.

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