

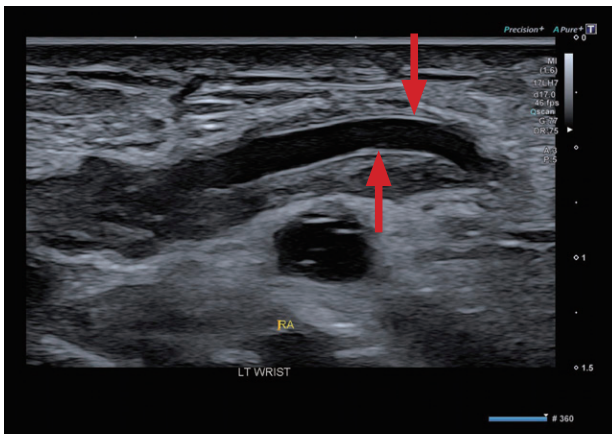
## MSK Ultrasound Clinical Case Study

# Atheroma or Ganglion?

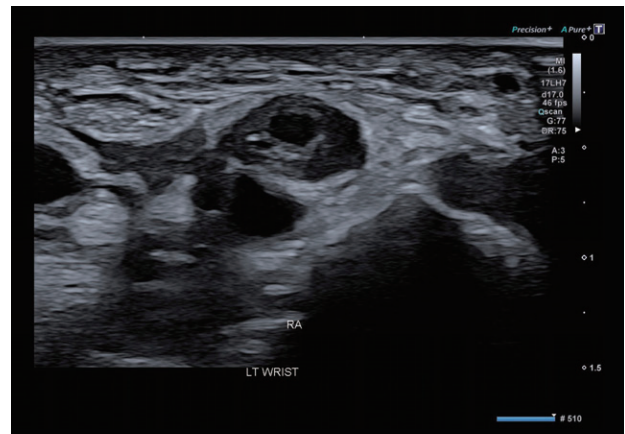
### Introduction

This case follows a 73-year-old patient who presented to the department with swelling over the right wrist. The area of concern was not painful however a recent increase in size was noticed. The patient had already had an ultrasound and MRI which reported a ganglion on the ventral aspect of the wrist arising from the carpal joints. The patient also has known osteoarthritis.

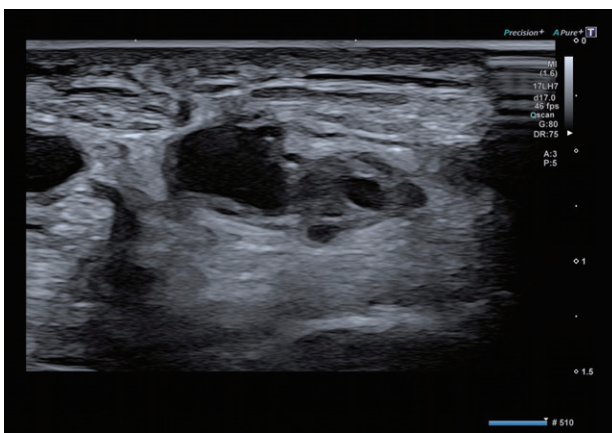
Using the Canon Aplio a450, an ultrasound was performed over the region of interest using the 17 MHz "Hockey Stick" transducer (PLT-1202BT). The ultrasound images showed the presence of the known ganglion arising from the carpal joints and tracking alongside the Radial artery. Interrogation with standard color Doppler imaging and Advanced Dynamic Flow (ADF), showed no increase in vascularity of this area.



**Figure 1** Longitudinal image of ventral right wrist. The walls of the Radial artery are well defined and seen separate to the surrounding ganglion.



**Figure 2** Cross sectional imaging of the same area. Again ultrasound imaging shows the radial artery positioned centrally in relation to the ganglion.



**Figure 3** Ultrasound imaging showing communication between the ganglion and potential space surrounding the radial artery.

## Discussion

The dorsal aspect of the wrist contains complex anatomy involving nerves, tendons and blood vessels in a confined space. In the above case it was important to display a high degree of detail to ascertain the relationship between the small structures within the wrist. Ultrasound is an ideal modality to examine the wrist because it has the potential to generate high resolution and real time images, allowing dynamic assessment.

The use of high frequency transducers with small footprints is also very important to maximize the utility of the ultrasound scan. In this case a 17 MHz "Hockey Stick" transducer was used providing exquisite detail of the anatomical structures and contrast between adjacent tissues.

The Canon Aplio a450 incorporates powerful beamforming technologies which produce a clear ultrasound beam that provides a strong signal to noise ratio for crisper images. Taking on the iSense (improved workflow and ergonomics) of the Aplio i-series, the Aplio a450 sets another benchmark in ease of use and ergonomics.

This case highlights the importance of high resolution imaging. Differential diagnosis for this patient could be atheroma within the radial artery or arteritis of the radial artery. By being able to decipher the radial artery wall from the surrounding ganglion, the sonographer and radiologist could more confidently confirm the diagnosis of a ganglion arising from the wrist joint. It was also imperative to decipher the ganglion in relation to surrounding anatomy when planning for possible surgical intervention.

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

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