

A Study of the Clinical Utility and Cost-effectiveness of using Temporal Artery Ultrasound to diagnose Giant Cell Arteritis

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Introduction

Color Doppler Sonography (CDS) is a reliable, non-invasive and cost-effective means of diagnosing Giant Cell Arteritis (GCA). Limited access to this imaging modality with adequately trained technicians means it is underutilized. Here, we describe our pilot study in using CDS for this purpose in a tertiary hospital Acute Medical Assessment Unit (AMAU).

Methods

- We prospectively studied all patients referred from our AMAU with possible GCA over a 12-month period.
- We classified them based on clinical assessment into 'unlikely' and 'probable' in terms of likelihood of having GCA.
- In the 'unlikely' group, a normal TA US resulted in no further investigations pursuing a diagnosis of GCA.
- In the 'probable' group, a positive TAUS was deemed diagnostic while a normal TAUS prompted onward referral for temporal artery biopsy (TAB).
- Positive findings included a 'halo' sign (Fig. 1) and a non-compressible artery (Fig. 2).
- Cut-off values for normal Intima-Media Thickness were as follows: common superficial TA 0.42mm, parietal branch 0.29mm, frontal branch 0.34mm and axillary artery 1.00mm.

Results

- Of 37 patients referred, 24 were deemed to have probable GCA.
- 15/24 patients had a confirmatory US, with no TAB required.
- 2/24 had indeterminate US scans with subtle signs of vasculitis and subsequently underwent a TAB confirming GCA.
- 7/24 patients were referred onward for TAB following normal scans.
- All 13 patients deemed unlikely to have GCA had normal US imaging.
- US obviated the need for TAB in 15/24 patients.
- Estimated cost-saving was €7000.
- US was performed within 24 hours in all 37 patients.

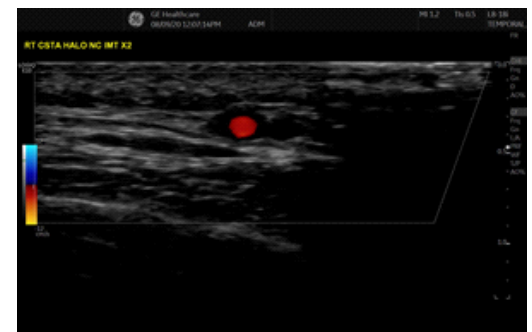


Figure 1: Temporal artery 'Halo'.

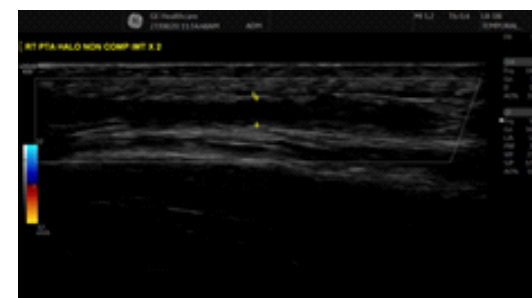


Figure 2: 'Non-compressible' temporal artery.

Sensitivity	62.5%
Specificity	100%
Positive Predictive Value	100%
Negative Predictive Value	59%

Table 1: Diagnostic performance of TAUS.

Conclusion

US is a timely, non-invasive and cost-effective means of accurately diagnosing GCA in an Acute Medical Assessment Unit.

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