Role of Temporal artery biopsy in a sequential Giant Cell Arteritis fast-track pathway

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Background

A number of centres are now running fast track pathways (FTP) for diagnosis and management of Giant Cell Arteritis with Temporal artery Ultrasound (U/S) as the first investigational tool for diagnosis[1].
Temporal artery biopsy (TAB) have become a second line of investigation in these fast track pathways, but it is unclear how useful it is in these sequential FTPs.
The British Society of Rheumatology (BSR) guidelines state a TAB specimen size must be ≥10mm and performed by trained surgeons with experience[2].

Methods

A prospective study of all patients with suspected GCA referred for TAB was carried out as part of sequential FTP from May 2014 to June 2019. Data regarding referral information, diagnosis based on clinical, histological and ultrasound findings, treatment and date of commencing steroids was collected.

Results

1,149 patients referred May 2014 – June 2019

- 109 referred for TAB, 104 met BSR standards
- 57 were diagnosed with GCA
  - TAB positive in 27

Sensitivity (%)	47.3
Specificity (%)	100

TAB in patients with Negative or inconclusive U/S:

- 15 excluded (8 had no U/S, 7 had +ve U/S)
- N = 89

Sensitivity (%)	39
Specificity (%)	100

Conclusions

This is the first study to look at the role of TAB in a sequential GCA fast track pathway and specifically at the role of TAB in negative or inconclusive U/S. Our study found that TAB remains a useful investigation when temporal artery U/S does not provide conclusive evidence. The sensitivity of TAB improved when the specimen size was ≥15mm and when performed within 10 days of initiating corticosteroid, ideally by experienced team. Our study supports the current practise of performing TABs within 2 weeks. We also found that since introduction of the Coventry sequential GCA FTP, we reduced the need for TAB in less than 10% of patients referred for suspected GCA.

References

1. Dubey S, Pinnell J, Tiivas C, Mehta P, Coventry Fast Track Pathway for Managing Giant Cell Arteritis. *International Journal of Clinical Rheumatology.* 2020. 15(2), 21-25
2. Dasgupta B, Borg FA, Hassan N, Alexander L, Barraclough K, Bourke B, et al. BSR and BHPR Guidelines for the management of giant cell arteritis, *Rheumatology (Oxford),* 2010, Aug;49(8): 1594-7.

Aims

PRIMARY:
Role of TAB in a sequential GCA FTP where specimen met BSR standards
Utility of TAB in patients with negative/inconclusive ultrasound
SECONDARY:
How does **Temporal artery biopsy (TAB) specimen size** affects its sensitivity and specificity?
How does **duration of steroids** affect the sensitivity and specificity of TAB?

Coventry multidisciplinary sequential GCA FTP[1]

- Positive U/S + clinical findings + positive blood tests: **Treated** with corticosteroids
- Negative U/S + low clinical suspicion: **Discharged** same day
- Negative or inconclusive U/S + moderate to high clinical suspicion for GCA: **Treated** with corticosteroid and **referred** for a TAB (usually performed within 2 weeks from initiating steroids)

Specimen size:

impact on sensitivity and specificity within this sequential GCA FTP

Biopsy Length (mm)	N= 104	GCA	Sensitivity (%)	Specificity (%)
<15mm	11	7	14	100
≥15mm	93	50	51	100

Duration of steroid:

impact on sensitivity and specificity (weekly breakdown) (p=0.16):

NB: comparing the first 14 days with more than 14 days showed no statistically significant difference (p=0.14)

Duration of steroids (days)	N = 104	Sensitivity (%)	Specificity (%)
0-7	30	60	100
8-14	45	52	100
15-21	22	38.5	100
>21	7	0	100

Key Points:

- **As part of a sequential GCA fast track pathway, TAB should ideally be performed within 14 days of commencing corticosteroids when sensitivity is higher. This is in keeping with current clinical practice, which allows adequate time for an experienced team to perform the biopsy.**
- **This study finds that sensitivity of TAB is much improved when arterial specimen size is above 15mm and continues to play a significant role in diagnosis of GCA in fast track pathways, when US is negative or inconclusive.**