

Giant Cell Arteritis – Who to Refer to?

LT Lim¹, EY Ah-kee², A Strang¹, A Ferguson¹

ABSTRACT

Giant cell arteritis is a systemic immune-mediated vasculitis affecting the medium and large arteries. Typical symptoms include new headache, jaw claudication, tender temporal artery, polymyalgia rheumatica, fever and anorexia. Visual loss resulting from giant cell arteritis is an ophthalmic emergency and requires immediate assessment and referral to the ophthalmologist for prompt treatment with steroids. This article provides a systematic approach to the diagnosis and management of giant cell arteritis.

Keywords: Diagnosis, giant cell arteritis, management

Arteritis de células gigantes. ¿A quién consultar?

LT Lim¹, EY Ah-kee², A Strang¹, A Ferguson¹

RESUMEN

La arteritis de células gigantes es una vasculitis sistémica inmunomediada que afecta a las arterias medianas y grandes. Los síntomas típicos incluyen nuevo dolor de cabeza, claudicación de la mandíbula, arteria temporal sensible, polimialgia reumática, fiebre y anorexia. La pérdida visual causada por arteritis de células gigantes es una emergencia oftalmológica y requiere evaluación inmediata y remisión al oftalmólogo para el tratamiento con esteroides. Este artículo proporciona un método sistemático para el diagnóstico y tratamiento de la arteritis de células gigantes.

Palabras claves: diagnóstico, arteritis de células gigantes, tratamiento

West Indian Med J 2016; 65 (2): 300

INTRODUCTION

Giant cell arteritis (GCA) is a systemic immune-mediated vasculitis affecting the medium and large arteries. It typically presents in the elderly population, affecting up to 10/100 000/year of those over 50 years. With the expansion of the ageing population, it is very important for clinicians to be familiar with the condition and its broad spectrum of possible presenting symptoms. The classic picture of an elderly patient presenting with a new headache, jaw claudication, tender temporal artery, polymyalgia rheumatica, fever and anorexia constitutes only half to two-thirds of the patients with GCA. Moreover, visual loss resulting from GCA is an ophthalmic emergency and requires immediate assessment and referral to the ophthalmologist for prompt treatment with steroids. Delayed treatment can potentially lead to irreversible visual loss.

From: ¹Forth Valley Hospital (NHS Forth Valley), Stirling Road, Larbert, FK5 4WR and ²Monklands Hospital, Monkscourt Ave, Airdrie, North Lanarkshire ML6 0JS, United Kingdom

Correspondence: Dr EY Ah-kee, Monklands Hospital, Monkscourt Ave, Airdrie, North Lanarkshire ML6 0JS, United Kingdom. E-mail: elliottahkee@gmail.com

Therefore, it is also essential for the clinician to be able to promptly recognize and refer these patients with visual symptoms.

What are the features to look for in a patient with suspected giant cell arteritis?

A thorough history obtained from the patient is the first step in the assessment. The clinician should enquire about the following:

Headache – Specifically, new onset of headache or new type of localized headache is the most common symptom in GCA. Patients will usually describe the headache as head pain different from any previous headache. The location of the headache is usually the temporal region but frontal, parietal or occipital regions may also be involved. Moreover, the headache may be constant or intermittent throughout the day, can disturb sleep, and does not fully respond to analgesic medications. It can sometimes mimic migraine, cluster or tension headache, hence the importance of being aware of atypical presentations. It should also be noted that absence of headache does not preclude GCA, as the latter can present without headache (1, 2). Patients with arteritis of neck vessels often do not

present with headache.

Jaw claudication – This is the most specific symptom of GCA and refers to ischaemic related masseter pain aggravated by speech or mastication and relieved by rest (3, 4). Patients usually report pain that is brought on after a period of chewing tough food such as bread or meat. Furthermore, it is important for the clinician to distinguish between jaw claudication and jaw pain, as the latter is common in GCA as well as in other conditions that can mimic GCA. For instance, jaw claudication should not be mistaken for temporomandibular joint dysfunction, which arises on mouth opening. Reduction in jaw opening can be a feature of GCA and should also be differentiated from jaw claudication (5). It should also be noted that although jaw claudication is a very specific symptom of GCA, it is not pathognomonic (6). Other oral symptoms previously reported by patients with GCA which clinicians should be aware of include dysphagia, dysarthria, chin numbness, glossitis, tongue necrosis and facial swelling (7, 8).

Scalp tenderness – Headache is often associated with scalp tenderness, aggravated by combing or brushing the hair and by laying the head on a pillow at night.

Systemic symptoms – Most patients will report fever, malaise, anorexia, weight loss and myalgia. The temperature should be well documented, as although fever is usually low grade in GCA, it may reach up to 40 °C and can sometimes be the sole presenting symptom of GCA (9, 10). Myalgia typically affects large proximal muscles. Thus, a history of myalgia can be elicited by asking the patient about aches or fatigue when raising arms to reach upper shelves or struggling to get out of a car.

Visual symptoms – These are common in patients with suspected GCA and can present without any other symptoms. They should be immediately referred to the ophthalmologist.

Ischaemic related visual disturbance may present as a wide spectrum of visual symptoms, such as diplopia, blurred vision, visual field loss, visual hallucinations, amaurosis fugax, flashing lights and ocular pain (3). Patients should be asked directly about each of these symptoms that can present individually in GCA. Visual ischaemic complications are observed at least in 25% of patients with GCA.

According to a study (11), the most common causes of visual symptoms in GCA were posterior ciliary artery occlusion causing arteritic anterior ischaemic optic neuropathy [AAION] (81%), central retinal artery occlusion (14%), cilioretinal artery occlusion (22%) and posterior ischaemic optic neuropathy (7%). Arteritic anterior ischaemic optic neuropathy is the most common ophthalmic symptom of GCA and cause of irreversible visual loss (12).

The ischaemic process is presumably due to luminal stenosis from hyperplasia, initiated and promoted by various inflammatory and pro-angiogenic factors (13). It usually presents as a sudden onset of painless unilateral or bilateral loss of vision.

If visual symptoms are reported, a basic ophthalmic examination should then be performed, including the following

components:

Check visual acuity – Visual acuity should always be checked in all patients reporting visual symptoms. This can be done using a Snellen chart to measure unaided vision, and those recorded with less than 6/9 vision should be tested with a pinhole occluder (to establish if reduced vision is due to a refractive element). In the context of AAION, a visual acuity of less than 6/60 is expected in 76% of cases (14).

Fundoscopy – The typical appearance of AAION on fundoscopy is a pale swollen optic disc, which may be accompanied by peripapillary haemorrhages and cotton wool spots. Isolated cotton wool spots can be an early finding in GCA and precede severe, irreversible loss of vision. Prompt detection is essential because it allows the ophthalmologist to establish immediate treatment and preserve vision (15).

Furthermore, AAION can be associated with central retinal artery occlusion, branch retinal artery occlusion or cilioretinal artery occlusion.

Colour vision – This can be done with the Ishihara colour vision booklet. Reduced colour vision can be a feature of AAION due to optic nerve neuropathy.

Check for relative afferent pupillary defect (RAPD) – The presence of RAPD suggests optic neuropathy and highly supports a diagnosis of AAION.

Confrontational visual fields – Visual fields may be constricted in AAION.

Ocular motility – Diplopia can be a finding in AAION and results from ischaemia of extraocular muscles or ocular motor nerves. The oculomotor nerve is the most commonly affected, although trochlear and abducens nerve palsies can also occur.

DIAGNOSIS

A vital step in the management of GCA is to make a firm, well-documented diagnosis, as once systemic corticosteroids are started they can mask symptoms of other diseases (16). There is no single investigation or symptom that is positive in all patients with GCA. A temporal artery biopsy is considered gold standard for the diagnosis of GCA. However, it is still prone to false negative results due to skip lesions or insufficient sample of affected artery (17). The main pathological finding is panarteritis consisting of lymphocytes and macrophages. In terms of laboratory investigations, both an elevated erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) can help to confirm a diagnosis of GCA. The sensitivities of ESR and CRP have both been reported to be above 90% for biopsy proven GCA. Moreover, elevated platelet count is also a common finding in GCA. In a previous review of laboratory results in 240 patients with biopsy proven GCA, 48.8% had thrombocytosis at presentation. It has also been shown that thrombocytosis is correlated with higher ESR and CRP and lower haemoglobin and albumin (18).

In 1990, the American College of Rheumatology (ACR) devised a set of criteria to diagnose GCA as shown below. The presence of three or more of five of the criteria below has a GCA diagnostic sensitivity of 93.5% and specificity of

91.2% (19).

- Age of onset greater than 50 years
- New onset of headache
- Temporal artery tenderness or reduced pulsation
- ESR greater than 50 mm/h
- Arterial biopsy with necrotizing arteritis with predominant mononuclear cell infiltrates or granulomatous inflammation

However, clinicians should be careful when using the ACR criteria, as the latter was initially developed to differentiate GCA from other forms of vasculitis. Patients with GCA can present with a broad spectrum of atypical symptoms, many of which are outwith the suggested criteria. It is advisable for clinicians to rely on clinical judgement to formulate a diagnosis. Imaging modalities are being increasingly used to help in the diagnosis of GCA, namely ultrasound, magnetic resonance imaging (MRI) and single photon emission tomography [SPECT] (20).

How do I prescribe steroids?

Systemic corticosteroids are the mainstay in the treatment of GCA. To date, there is still no consensus on the dosage, route of administration and duration of steroid treatment. Multiple studies have compared oral *versus* intravenous steroids but no definitive conclusions were reached (11, 21, 22). However, despite controversy surrounding the most effective route of administration, there is a general consensus that the initial treatment for GCA patients with visual symptoms should consist of prompt administration of high-dose steroid. It has been proven that the predictor of irreversible visual impairment in GCA is timeliness of starting steroids (23). This further emphasizes the importance of prompt diagnosis and treatment in GCA.

When starting treatment with steroids, two things should be considered: does the patient have visual/neurological symptoms or not? If the patient presents without visual symptoms, oral prednisolone is usually administered (usually 40–60 mg daily or 1 mg/kg/day). In contrast, patients with visual symptoms should be started promptly on a regimen of higher doses (usually prednisolone 80 mg or more daily or 1–2 mg/kg/day).

If hospital admission is considered for intravenous steroids, patients are usually started on a three- to five-day course of methylprednisolone 250 mg every six hours, followed by an oral course of prednisolone maintained for at least four to six weeks until symptoms have improved (as per ESR and CRP levels). Following maintenance dose, the steroid regimen should be tapered at a rate of 5–10 mg/month to a dose of 20–30 mg per day. Subsequent reductions in dosage should then be of 2.5–5 mg/month. When the daily dose reaches 10–15 mg, tapering may be by 1 mg/month.

CONCLUSION

One of key messages of this article is that treatment should not be delayed in patients with suspected GCA. Furthermore, visual symptoms in patients with suspected GCA is a red flag for

ophthalmology referral. In contrast, patients without visual symptoms should be appropriately discussed and subsequently referred to rheumatology with a view to organize an urgent biopsy. In conclusion, we hope that this communication will provide colleagues, especially non-ophthalmologists, with a better approach to assess GCA, which can be a challenging diagnosis.

Learning points:

- Visual symptoms in the context of giant cell arthritis should be immediately referred to ophthalmology
- Patients without visual symptoms should be appropriately referred to rheumatology
- Clinicians should be familiar with the broad spectrum of atypical presentations of GCA in order to make a prompt and accurate diagnosis

ACKNOWLEDGEMENT

The authors declare no conflict of interest.

REFERENCES

1. Chew SS, Kerr NM, Danesh-Meyer HV. Giant cell arteritis. *J Clin Neurosci* 2009; **16**: 1263–8.
2. Tehrani R, Ostrowski RA, Hariman R, Jay WM. Giant cell arteritis. *Semin Ophthalmol* 2008; **23**: 99–110.
3. Carroll SC, Gaskin BJ, Danesh-Meyer HV. Giant cell arteritis. *Clin Experiment Ophthalmol* 2006; **34**: 159–73.
4. Wang X, Hu ZP, Lu W, Tang XQ, Yang HP, Zeng LW et al. Giant cell arteritis. *Rheumatol Int* 2008; **29**: 1–7.
5. Kraemer M, Metz A, Herold M, Venker C, Berlit P. Reduction in jaw opening: a neglected symptom of giant cell arteritis. *Rheumatol Int* 2011; **31**: 1521–3.
6. Salvarani C, Gabriel SE, Gertz MA, Bjornsson J, Li CY, Hunder GG. Primary systemic amyloidosis presenting as giant cell arteritis and polymyalgia rheumatica. *Arthritis Rheum* 1994; **37**: 1621–6.
7. Rockey JG, Anand R. Tongue necrosis secondary to temporal arteritis: a case report and literature review. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2002; **94**: 471–3.
8. Paraskevas KI, Boumpas DT, Vrentzos GE, Mikhailidis DP. Oral and ocular/orbital manifestations of temporal arteritis: a disease with deceptive clinical symptoms and devastating consequences. *Clin Rheumatol* 2007; **26**: 1044–8.
9. Calamia KT, Hunder GG. Giant cell arteritis (temporal arteritis) presenting as fever of undetermined origin. *Arthritis Rheum* 1981; **24**: 1414–8.
10. Gonzalez-Gay MA, Garcia-Porrúa C, Amor-Dorado JC, Llorca J. Fever in biopsy-proven giant cell arteritis: clinical implications in a defined population. *Arthritis Rheum* 2004; **51**: 652–5.
11. Hayreh SS, Zimmerman B, Kardon RH. Visual improvement with corticosteroid therapy in giant cell arteritis. Report of a large study and review of literature. *Acta Ophthalmol Scand* 2002; **80**: 355–67.
12. Coffin-Pichonnet S, Bienvenu B, Mouriaux F. Ophthalmological complications of giant cell arteritis. *J Fr Ophtalmol* 2013; **36**: 178–83.
13. Mitchell EB, Cestari DM. Giant cell arteritis and angiogenesis: a review. *Semin Ophthalmol* 2009; **24**: 190–3.
14. Hayreh SS, Podhajsky PA, Raman R, Zimmerman B. Giant cell arteritis: validity and reliability of various diagnostic criteria. *Am J Ophthalmol* 1997; **123**: 285–96.
15. Daudin JB, Bluwol E, Chaine G, Rohart C. Cotton-wool spots as first ocular manifestation of giant cell arteritis. *J Fr Ophtalmol* 2006; **29**: e28.
16. Mackie SL, Pease CT. Diagnosis and management of giant cell arteritis and polymyalgia rheumatica: challenges, controversies and practical tips. *Postgrad Med J* 2013; **89**: 284–92.
17. Hall JK. Giant-cell arteritis. *Curr Opin Ophthalmol* 2008; **19**: 454–60.
18. González-Gay MA, Blanco R, Rodríguez-Valverde V, Martínez-Taboas

- da VM, Delgado-Rodriguez M, Figueroa M et al. Permanent visual loss and cerebrovascular accidents in giant cell arteritis: predictors and response to treatment. *Arthritis Rheum* 1998; **41**: 1497–504.
19. Hunder GG, Bloch DA, Michel BA, Stevens MB, Arend WP, Calabrese LH et al. The American College of Rheumatology 1990 criteria for the classification of giant cell arteritis. *Arthritis Rheum* 1990; **33**: 1122–8.
 20. Kawasaki A, Purvin V. Giant cell arteritis: an updated review. *Acta Ophthalmol* 2009; **87**: 13–32.
 21. Chan CC, Paine M, O'day J. Predictors of recurrent ischemic optic neuropathy in giant cell arteritis. *J Neuroophthalmol* 2005; **25**: 14–7.
 22. Liu GT, Glaser JS, Schatz NJ, Smith JL. Visual morbidity in giant cell arteritis. Clinical characteristics and prognosis for vision. *Ophthalmology* 1994; **101**: 1779–85.
 23. Nordborg E, Nordborg C. Giant cell arteritis: strategies in diagnosis and treatment. *Curr Opin Rheumatol* 2004; **16**: 25–30.