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CASE REPORT

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Giant Cell Arteritis Case with Low Inflammatory Markers: A Case Report

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Abstract

Giant cell arteritis (GCA), or temporal arteritis, is a common disease of senior age. GCA requires an early diagnosis to avoid serious disability and morbidity in the elderly population. Laboratory findings include elevated ESR and C-reactive protein. However, ESR may be normal in some biopsy-proven cases of GCA. Herein, we report the case of a 57-year-old woman with diabetes mellitus and hypertension who presented with a two-month history of progressive, painless visual loss in the right eye, associated with headache, shoulder girdle pain, and mild morning stiffness. Ophthalmologic evaluation raised concern for arteritic anterior ischemic optic neuropathy (AAION). Despite strong clinical suspicion, laboratory investigations revealed normal ESR and CRP levels prior to glucocorticoid exposure. Temporal artery ultrasound demonstrated subtle wall thickening with a perivascular halo sign involving the right temporal artery, consistent with temporal arteritis. The patient declined a temporal artery biopsy. Empirical high-dose oral glucocorticoid therapy was initiated due to the imminent risk of permanent visual loss, resulting in significant clinical improvement of vision. Given concerns regarding long-term steroid toxicity, particularly poor glycemic control, steroid-sparing therapy with tocilizumab was considered.

This case highlights that GCA may present with normal inflammatory markers and emphasizes the importance of maintaining a high index of clinical suspicion. Normal ESR and CRP values should not delay treatment in patients with compatible clinical and imaging findings, as prompt intervention is critical to prevent irreversible complications.(**International Journal of Biomedicine. 2026;16(2):266-269.**)

Keywords: giant cell arteritis • temporal arteritis • inflammatory markers • diagnosis • vasculitis

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Abbreviations

AAION, arteritic anterior ischemic optic neuropathy; **CRP**, C-reactive protein; **ESR**, erythrocyte sedimentation rate; **GCA**, giant cell arteritis; **PMR**, polymyalgia rheumatica; **TAB**, temporal artery biopsy.

Introduction

Temporal arteritis, or giant cell arteritis (GCA), is the most common vasculitis in older adults. The prevalence of the disease is around 0.2% in patients over the age of 50. It is an important cause of morbidity. Irreversible visual loss is the most feared complication of GCA, affecting approximately 20% of cases. The clinical presentation is diverse, and the signs and symptoms are typically caused by ischemia in the territory of the superficial temporal artery (STA) or any of its branches. GCA's neurological manifestations include neuropathies, strokes, and neuro-rheumatological manifestations such as hearing loss and vertigo. Abnormal laboratory findings, such as elevated ESR and C-reactive protein, are quite common. Nonetheless, inflammatory markers may be normal in some biopsy-proven cases of GCA.[1-5]

Polymyalgia rheumatica (PMR) is another rheumatological disease marked by joint arthralgias, morning stiffness, elevated ESR, and a dramatic response to low-dose steroids. These two conditions are associated. PMR affects approximately 60% of GCA cases.[1,6]

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Herein, we describe one case of GCA with positive clinical and radiological findings but normal inflammatory markers.

Case Presentation

A 57-year-old woman with diabetes and hypertension takes oral medications but does not adhere to the treatment regimen.She presented with a two-month history of gradual but progressive painless loss of vision in her right eye associated with pain in the shoulder joints and headache. She had mild early morning stiffness with an undocumented fever but no associated weight loss. She was seen by her ophthalmologist, who noted pallor and swelling of the optic nerves, and expressed concern for arteritic anterior ischemic optic neuropathy (AAION) associated with temporal arteritis.

The patient's visual acuity was counting fingers (CF). She was referred to neurology and rheumatology clinics, and after careful clinical evaluation, giant cell arteritis was suspected, and Laboratory tests were sent. Additionally, a vascular ultrasound was ordered to evaluate the temporal artery. The possibility of polymyalgia rheumatica (PMR) was also considered. Meanwhile, oral prednisolone at a dose of 40 mg was initiated because of high clinical suspicion and the risk to her vision. Interestingly, laboratory results showed normal ESR and CRP levels despite the patient not having started any steroid or immunosuppressive treatment yet. That raised a concern about the accuracy of the diagnosis, and the patient was sent back to the ophthalmologist to assess for other diagnoses like glaucoma and diabetic neuropathy. The right temporal artery ultrasound performed by an experienced radiologist showed subtle wall thickening with a mild perivascular halo sign at the distal aspect of the right temporal artery. The lumen appears narrowed but patent. Peak systolic velocity was 28 cm/second. The temporal artery diameter measures 1.9 mm, and the wall thickness measures 0.7 mm. Features are suggestive of right temporal arteritis (Figure 1).

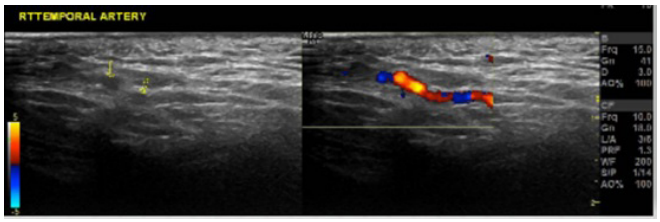

Figure 1. *Color Doppler (right panel). Color flow is present within the lumen, confirming the structure is an artery. The lumen appears narrowed but patent, which is typical in GCA. Flow may look irregular due to luminal compression by the inflamed wall. Halo sign is the circumferential, homogeneous hypoechoic (dark) thickening of the arterial wall. This image shows a right temporal artery ultrasound with a positive halo sign, consistent with active giant cell arteritis (temporal arteritis).*

The patient declined to undergo a temporal artery biopsy (TAB). Diagnosis of GCA was very likely, and the decision was made to continue oral steroids with careful, slow tapering. The patient responded to oral steroids, and her vision improved after a few weeks. Follow-up ophthalmology examination showed visual acuity 20/200. She was given a follow-up appointment. Other alternative treatments, like tocilizumab, were considered to avoid unwanted long-term steroid side effects like high blood sugar readings. The patient was referred to another hospital, where she is eligible for biologic treatment, and further follow-up will be more convenient for her.

Discussion

Giant cell arteritis, also known as temporal arteritis, is the most common vasculitis in older adults, and its incidence increases proportionally with age. The 2022 American College of Rheumatology (ACR)/European Alliance of Associations for Rheumatology (EULAR) classification criteria for Giant Cell Arteritis (GCA) require patients to be at least 50 years old at the time of diagnosis as an absolute requirement. The criteria is based on scoring system items and weights were as follows: positive temporal artery biopsy or temporal artery halo sign on ultrasound (+5); erythrocyte sedimentation rate ≥50 mm/hour or C reactive protein ≥10 mg/L (+3); sudden visual loss (+3); morning stiffness in shoulders or neck, jaw or tongue claudication, new temporal headache, scalp tenderness, temporal artery abnormality on vascular examination, bilateral axillary involvement on imaging and fluorodeoxyglucose positron emission tomography (FDG-PET))activity throughout the aorta (+2 each).

A patient could be classified as a GCA case if the cumulative score is ≥6 points. Complications of this illness include AAION, ischemic damage to the visual axis, and stroke. Aortic dissection and aneurysms might require emergency interventions.[1,7] The exact etiology of the disease is unknown, but multiple genetic and environmental factors are associated with the disease. Inflammation of medium- and large-sized arteries arising from the aortic arch is the primary pathogenic characteristic of GCA. Both innate and adaptive immune system cells are important in the pathophysiology of GCA because they contribute to the formation of granulomas that may include giant cells, a hallmark of the disease. Activation of vascular dendritic cells and T lymphocytes plays an essential role in disease pathogenesis. A positive biopsy gives the doctor the confidence to carry on with the aggressive steroid therapy that is necessary in this case. Histopathological sampling and study must be done diligently. A positive TAB is the gold standard for diagnosing GCA, but its sensitivity ranges from ~70% to >90%. A negative biopsy does not rule out GCA, as false-negative results of TAB may occur due to Skip lesions. GCA typically responds to steroids at a daily dose of 40-60 mg, and treatment should begin as soon as the diagnosis is suspected. There is no justification for delaying treatment pending biopsy because histopathology shows no significant change within the first two weeks of steroid administration. Tocilizumab demonstrated clinical efficacy as a glucocorticoid-sparing medication and was helpful for patients prone to developing complications from glucocorticoids. Other options are methotrexate and abatacept.[1,7-9]

Giant cell arteritis with a normal ESR and/or normal CRP level is rare but has been described in many cases of

this disease (Table 1). A study by Kermani et al. included 764 patients (65% women) who underwent TAB. Biopsy was consistent with GCA in 177 patients (23%). Seven patients (4%) with a positive TAB for GCA had a normal ESR and CRP at diagnosis. It showed that the sensitivity of CRP is 86.9% and of ESR is 84.1%. Compared with GCA patients with elevated markers of inflammation, a greater proportion of these patients had polymyalgia rheumatica symptoms, whereas constitutional symptoms, anemia, and thrombocytosis, are less often. Neither the ESR nor the CRP is a specific biomarker for GCA, and they might be normal in GCA. Normal values do not exclude the diagnosis in an appropriate clinical setting, nor do marked elevations certify that a diagnosis of GCA is correct.[10-12]

Recent work in Egyptian cohorts underscores the spectrum of GCA and its overlap with polymyalgia rheumatica, including the utility of imaging in early detection and monitoring of disease activity in diverse clinical settings. Routine screening and comprehensive assessment are recommended to reduce the risk of delayed diagnosis and complications.[13,14]

Table 1 compares three similar cases with low ESR and CRP values and presents the results of the present case in comparison with them.[15-17]

Table 1.

Three GCA cases with low ESR and CRP values.

Case	Age/Sex	ESR / CRP	Key Features	Reference
Case 1	75/Female	Normal ESR & CRP	Occult GCA, cranial symptoms, biopsy-proven	Poole et al., Eye (Lond). 2003 [15]
Case 2	72/Female	Normal ESR & CRP	Biopsy- and ultrasound-proven GCA, AION	Martins et al., Clin Rheumatol. 2020 [16]
Case 3	68/Male	ESR 15mm/hr, near-normal CRP	Atypical presentation, biopsy-proven GCA	Singh R et al. BMJ Case Rep. 2018 [17]
Current case	60/female	Normal ESR &CRP	Positive halo sign on temporal artery ultrasound	Present case

Conclusion

Giant cell arteritis must be diagnosed early to prevent serious disability and morbidity in the elderly population. While TAB remains the gold standard for diagnosing GCA, it is an invasive procedure with associated risks and limited reliability due to sampling variability. Normal ESR and CRP values should not delay treatment in patients with compatible clinical and imaging findings, as prompt intervention is critical to prevent irreversible complications.

Author Contribution Statement

Abdulrahman Ali M. Khormi confirms sole responsibility for all aspects of the research.

Conflict of Interest

The author declares that he has no known competing interests.

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