ABSTRACT

Educational Objective: At the conclusion of this presentation, the participants should be able to identify the most common presenting signs and symptoms associated with patients undergoing a temporal artery biopsy.

Objectives: Giant cell arteritis (GCA) is systemic, inflammatory, vascular syndrome that predominantly affects the temporal arteries. The temporal artery biopsy is a common procedure used to aid in the diagnosis of this condition. The goal of this study was to identify analytical and clinical variables that may improve the effectiveness of the temporal artery biopsy.

Study Design: Retrospective chart review.

Methods: This retrospective study examined all temporal artery biopsies done in our institution in the past five years. Variables including demographic information, erythrocyte sedimentation rate (ESR), and biopsy data including the length and side of the biopsy were recorded. Clinical variables such as the presenting symptoms, timing of symptoms, and treatment with corticosteroids were collected.

Results: One hundred and five biopsies were completed in the study period. Four of these were positive for GCA, 71% were female, and the average age was 72. The most common presenting symptom was headache (80%), followed by visual symptoms (28%), and jaw claudication (1%). The physical exam finding of temporal artery tenderness was uncommon (16%). Seventy-three percent had an ESR greater than 50. The majority of the patients were treated with corticosteroids before the biopsy (74%). Seventeen percent of patients were continued on long-term prednisone treatment for GCA despite a negative biopsy.

Conclusions: This study examined clinical and laboratory variables associated with a temporal artery biopsy. Headaches and visual symptoms were common and did not predict a positive biopsy. Steroid treatment prior to the biopsy is common and may contribute to the low numbers of positive results. Many patients were continued on treatment despite a negative biopsy. The clinical utility of a temporal artery biopsy at our institution is questionable. Changes in patient selection may be necessary to increase the percentage of positive results for this test.

Introduction

Giant cell arteritis (GCA), also known as temporal arteritis is a systemic, inflammatory, vascular syndrome that predominantly affects the temporal arteries. Giant cell arteritis is commonly associated with polymyalgia rheumatica (PMR). Patients with giant cell arteritis frequently report malaise and fatigue. They are often mildly febrile and joint and muscle pains are common. GCA is a vasculitis involving branches of the external carotid artery. Headache and scalp pain are common. Jaw claudication (predominantly in the masseter muscles with chewing) is a specific symptom of GCA. Rarely scalp or tongue necrosis can occur. In patients with GCA, decreased vision secondary to arteritis is the most common serious consequence. In 1990 the American College of Rheumatology (ACR) set out diagnostic criteria for GCA that is still in use today. They are: age 50 years or older, newly onset localized headache, temporal artery tenderness or decreased vision, and an abnormal temporal artery biopsy specimen characterized by mononuclear infiltration or granulomatous inflammation. The presence of ≥3 yields a diagnostic sensitivity of 93% and specificity of 91%.

In the literature, there is a wide range reported for the percentage of positive biopsies. In 2004, Young et al. at the Mayo Clinic performed the largest review of temporal artery biopsies in the literature. 1113 biopsies were reviewed, 33.5% of biopsies were noted to be positive for GCA. They stratified clinical variables associated with GCA and found that jaw claudication had the highest odds ratio followed by tenderness at the temporal region and headache. ESR was noted to have the lowest predictive value of the variables measured. There is considerable controversy regarding the relationship of the temporal artery biopsy to the timing of starting corticosteroids for the treatment of GCA. Early evidence by Allison in 1984 suggested that even a week of steroids can affect the biopsy results. However, recent evidence suggests that the immunological process of GCA is poorly controlled with a short steroid burst. Ray-Chaudhuri et al looked at 11 patients with suspected GCA and randomized them to biopsy 1 week, 2 weeks, and 4 weeks after steroid treatment was started. They found the biopsy will remain positive for at least 2 weeks and even consistently up to 4 weeks. Narvaez et al confirmed these findings in a retrospective review of 78 positive temporal artery biopsies. Case reports have even suggested biopsy results will remain positive for up to 6 months after starting treatment. The goal of this study is to identify analytical and clinical variables that may improve the effectiveness of temporal artery biopsy for the diagnosis of giant cell arteritis. From this analysis we hope to develop recommendations for patient selection for TA biopsy.

Methods

This was a retrospective study. The inclusion criteria for this study were simple. They included all temporal artery studies done in the past five years at the Kaiser Oakland and Kaiser Richmond medical centers. The patients were identified from the pathology computer logs. A completed chart was needed to be included in this study. We recorded a range of variables including demographic information, laboratory information (namely the most elevated ESR in the three weeks prior to the biopsy), biopsy information including the length and side of the biopsy, steroid treatment information, and presenting signs/symptoms. The signs and symptoms we recorded are the presence or absence of jaw claudication, headache, temporal artery tenderness/thickening, visual symptoms (vision loss/eye pain), concurrent diagnosis with PMR, and FUD.

Results

109 biopsies were performed by head and neck surgery, general surgery, vascular surgery. 105 were included in the study, 4 were excluded. The average age was 72, there were 30 males and 75 females. 44% of our biopsies were greater then or equal to 2cm, 54% were <2cm, 2% did not have the length recorded by pathology. There were four positive biopsies for GCA. Looking at the four positive biopsies. The average age was 83, 2 of the 4 were female, 4 presented with headache and an elevated ESR. 76% of patients were treated with prednisone before the biopsy, 18% percent were never treated with prednisone, and 4% were treated with prednisone after the biopsy (Figure 1). Of the patients started on prednisone before the biopsy. The majority of patients, or 75%, were started within the first week of performing the biopsy. 18% were done within 2 weeks, and the remaining 7 percent were done after two weeks (Figure 2).

In regards to the ACR guidelines, 68% of patients had at least 3 of the ACR criteria for GCA before the biopsy (Figure 3). Looking at this long term treatment for GCA, 17% of patients were given long term steroid treatment for GCA despite a negative biopsy. 86% of these patients already had at least 3 ACR criteria for GCA prior to the biopsy.

Discussion

The positive yield rate for temporal artery biopsies at our institution is low. There are several possible contributing factors. First, more than half of the biopsies were less than the minimally required length of 2cm. However, this data may be skewed as these recordings are by the pathologist after tissue contraction and fixation. But, it does raise the possibility that our immunological process of GCA is poorly controlled with a short steroid burst. Ray-Chaudhuri et al looked at 11 patients with suspected GCA and randomized them to biopsy 1 week, 2 weeks, and 4 weeks after steroid treatment was started. They found the biopsy will remain positive for at least 2 weeks and even consistently up to 4 weeks. Narvaez et al confirmed these findings in a retrospective review of 78 positive temporal artery biopsies. Case reports have even suggested biopsy results will remain positive for up to 6 months after starting treatment. The goal of this study is to identify analytical and clinical variables that may improve the effectiveness of temporal artery biopsy for the diagnosis of giant cell arteritis. From this analysis we hope to develop recommendations for patient selection for TA biopsy.

References


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Evaluating the Usefulness and Timing of the Temporal Artery Biopsy for the Diagnosis of Giant Cell Arteritis

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Figure 1

Figure 2

Figure 3

American College of Rheumatology Guidelines

<3 criteria (72%)

≥3 criteria (58%)

>3 criteria (68%)

<criteria (32%)

40 Patients Receiving Prednisone Treatment (%)