

THE YIELD OF TEMPORAL ARTERY BIOPSY AT RHEUMATOLOGY DEPARTMENT AT KING HUSSEIN MEDICAL CENTER

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Abstract

Keywords:

Temporal arteritis, artery biopsy.

Background: Temporal arteritis is the frequent pattern of primary vasculitis. Clinical presentation is different, and its diagnosis is sometimes difficult. Surgeons are commonly requested to do a temporal artery biopsy, as the histological yield affects therapy, when the diagnosis is uncertain.

Aim: To evaluate the need of temporal artery biopsy in Jordanian patients clinically diagnosed with temporal arteritis.

Patients and methods: Our retrospective study included 17 patients, of both sexes and with a mean age of 67 years who visited the Rheumatology Clinic at King Hussein Medical Center, Amman, Jordan, during the period 2010-2015.

Participants were scheduled for temporal artery biopsy with a diagnosis of temporal arteritis. The clinical and histopathological pictures were assessed.

Results: Female to male ratio was 1.8:1, with a mean age of 67 years. Out of these, 10 patients (58.8%) demonstrated typical histopathological temporal arteritis.

Conclusion: The biopsy outcome results after temporal arteritis suspicion is increased with few hazards after surgery. The histopathological diagnosis is helpful in deciding whether to proceed or to stop treatment.

Introduction

Temporal arteritis is an inflammatory vasculopathy and is the most frequent primary systemic vasculitis of unknown causes among females above the age of 50 years (1). This disease has more frequency in the Northern part of Europe. The incidence is 0.002% and affects arteries of medium to large size, mainly the cranial branches of the arteries that come from the aortic arch (2). It affects usually arteries of the extra-cranial circulation but can involve other sites such as coronary arteries, common and internal carotid arteries and aorta.

The wide range of clinical symptoms and deficiency of laboratory or imaging investigations results in difficult clinical diagnosis. This condition may present with non-specific symptoms such as blurred vision, headache, myalgia, fever, malaise and lethargy along with specific symptoms such as jaw claudication, scalp tenderness and necrosis. The American College of Rheumatology has initiated a five point clinical scoring classification system for more decisive diagnosis in 1990: (I) Age above 50 years, (II) Westergren ESR more than 50 mm during the first hour, (III) Superficial temporal artery tenderness or reduced pulsation, (IV) Temporal new onset localized headache and (V) Positive histopathology of temporal artery biopsy. A score of three or more is increasingly decisive with high sensitivity and specificity: 91-94% (3). A positive temporal biopsy has a 100% specificity while the histopathological features go with clinical aspects of intensity and the sensitivity of temporal artery biopsy is at 15-40%. The false negative temporal artery biopsy is affected by the length of the biopsy, missed lesions, pathological sections and the length of corticosteroid treatment before the biopsy. A normal biopsy couldn't rule out the disease and some patients are

diagnosed with temporal arteritis in spite of a normal biopsy. Temporal artery biopsy is not without hazards, discomfort and inconvenience to the patient.

Visual loss may happen early during the the disease and is mostly reversible and avoidable with high dose steroid management (4). Ophthalmic symptoms vary from diplopia to visual loss. Eye manifestations are caused by ischemic oculomotor neuropathy, ischemic optic neuropathy, retinal arterial occlusion and ischemic cerebrovascular disease affecting the visual pathways. If this disease is not managed immediately, it can cause irreversible visual loss, stroke and death. Temporal artery biopsy is the gold corner investigation for deciding a diagnosis with 100% specificity (5). Temporal artery biopsy is done in suspected patients of having temporal arteritis for final diagnosis or to rule it out if the suspicion index is reduced. Missed lesions may make this test inconclusive. Histopathological demonstration of granulomatous inflammation in a biopsy confirms the diagnosis.

The aim of our study was to evaluate the prognostic state of temporal artery biopsy in Jordanian patients clinically diagnosed with temporal arteritis.

Materials and Methods

Our retrospective study included 17 patients, of both sexes and with a mean age of 67 years who visited the Rheumatology clinic at King Hussein Medical Center, Amman, Jordan, during the period 2010-2015.

Participants were selected for temporal artery biopsy with suspected diagnosis of temporal arteritis. The clinical and histopathological pictures were assessed.

Biopsy was performed under local anesthesia as outpatient day case. The biopsy location was left to the decision of the surgeon. The temporal artery was examined in multiple sections and the biopsy size was 10-20 mm in length.

Results and Discussions

Six (35.3%) patients were males and 11 (64.7%) patients were females with a ratio of 1: 1.8. Their age ranged between 60 and 75 years with a mean age of 67 years. A positive temporal artery biopsy was recorded in 58.8% of patients. Table I. The percentage of yielding a positive temporal artery biopsy was 100% in the age group 70-75 years reducing to 37.5% in the age group 60-65 years.

Clinical symptoms were different as demonstrated in Table II. Visual problems were recorded in 9 patients, of whom 66.7% had positive temporal artery biopsy. Blindness was the featuring symptom in one patient with positive temporal artery biopsy in 100% of patients. Jaw claudication was found in 14 patients with positive temporal artery biopsy in 64.3% of patients. Abnormal temporal artery was registered in 10 patients with a positive temporal artery biopsy in 100% of patients and polymyalgia rheumatica was found in 9 patients with positive temporal artery biopsy in 44.4% of patients.

Positive temporal artery biopsy yields were more than other investigations where the sensitivity was recorded between 15-40% (6). This outcome was related to: (1) the reality that all patients were examined by a rheumatologist for temporal artery biopsy reflecting an increased probability of temporal arteritis and (2) surgeon's choosing the right location and a long segment of artery.

Resolution of the inflammatory infiltrate takes several weeks to months after therapy (7). Temporal artery biopsy done during the first week of examination while on corticosteroid treatment couldn't influence the outcome of temporal artery biopsy (8). All patients experienced unilateral temporal artery biopsy.

A negative temporal artery biopsy does not rule out the diagnosis of temporal arteritis but a positive biopsy is specific and prognostic (9). This technique has a few complications including scalp necrosis, hematoma formation and destruction to the branches of the facial nerve (10). In our investigation there were no complications.

Breuer et al, found that temporal artery biopsy in the biopsy positive patients was significantly longer than in biopsy negative patients. They found that the rate of positive biopsies was 19% with temporal artery biopsy length of 5 mm

or less, but increased to 71-79% with temporal artery biopsy length of 6-20 mm and to 89% when temporal artery biopsy length was more than 20 mm. They recommended that a biopsy of more than 5mm is taken (11).

Most patients suspected of having temporal arteritis are started on steroid treatment before surgery which can affect histological findings, with false negative biopsies. The rate of obtaining a positive temporal artery biopsy is not decreased immediately after initiating steroid treatment than before. It is less in the second week of corticosteroid therapy in comparison with the first week. High dose steroid treatment must be started when clinical diagnosis is suspected.

Kermani et al, recorded that temporal artery biopsy findings were consistent with temporal arteritis in 22% of patients(12) while Mahr et al, demonstrated that 15% experienced histological features of temporal arteritis(13). Typical clinical presentation may predict the successful result of the temporal artery biopsy in patients suspected to have temporal arteritis (14). Bilateral temporal artery biopsy has only 1-5% extra diagnostic result(15). A clinical confirmation of temporal arteritis doesn't need a positive biopsy. A negative biopsy may go with clinical confirmation of temporal arteritis. The decreased pick up rate by biopsy may strengthen the importance of patient's history in deciding diagnosis. The sensitivity of biopsy depends on the patient population.

Complications of temporal artery biopsy include bleeding, hematoma, and insult to the branches of the facial nerve, failure to identify the artery and scalp necrosis. Unnecessary biopsy must be abandoned.

Table I. Age and temporal artery biopsy.

Age(year)	Number of biopsies	Positive biopsies
60-65	8	3(37.5%)
66-70	7	5(71.4%)
71-75	2	2(100%)
Total	17	10(58.8%)

Table II. Positive biopsy and clinical symptoms.

Clinical symptom	Number of patients	Positive biopsy
Visual problems	9	6(66.7%)
Blindness	1	1(100%)
Jaw claudication	14	9(64.3%)
Abnormal artery	10	10(100%)
Polymyalgia rheumatic	9	4(44.4%)

Conclusion

Temporal arteritis is a rheumatological emergency. Temporal artery biopsy can help making a diagnosis of temporal arteritis. The technique is safe and without complications. Positive biopsy confirms the administration of increased dose corticosteroids and disease modifying antirheumatic treatment. It shows the prognosis and outcomes of temporal arteritis. The patient history is the most important issue in making diagnosis and management.

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