

Stenosis Presenting as Elbow Pain in a 16-Year-Old Soccer Player: A Case Report

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ABSTRACT

Chronic vascular occlusion in the upper extremity can result from repetitive trauma, atherosclerosis, proximal embolic events, hypercoagulable states, and systemic diseases such as collagen vascular disease and vasculitis. Considerable functional impairment can result from these maladies; however, sometimes the condition develops slowly with minimal effect on the patient. We describe a 16-year-old soccer player with slow-progressing elbow pain and loss of range in motion caused by brachial artery vasculitis and resultant brachial arterial stenosis. Although vascular insults and lesions rarely cause chronic vascular occlusion, physicians should consider this possibility in patients with localized pain or atrophy, especially if the condition develops slowly.

Keywords: Elbow, Vasculitis, Pathologic Constriction, Soccer, Adolescent

INTRODUCTION

Elbow pain in adolescent athletes has a wide differential diagnosis. Common findings include overuse and acute trauma such as tendon sprains, ulnar collateral ligament injuries, osteochondritis dissecans lesions, fractures, and dislocations.¹ However, atypical causes such as tumors, infections, and vascular problems should

not be overlooked. Vascular problems causing elbow pain can include posttraumatic changes, endofibrosis, vasospasm, peripheral vascular disease, vasculitis, arteriovenous malformations, and compression from tumors.

In the current case, our adolescent patient presented with impairment of his brachial artery with considerable stenosis that caused considerable pain with activity. We examined anatomical and pathophysiological factors that led to his symptoms, common complications of the disorder, and available treatment options.

CASE REPORT

A 16-year-old male soccer player presented to the student health sports medicine clinic (SHSMC) of his high school with chronic intermittent pain in his left elbow. He was left-hand dominant and self-identified as Congolese. He reported experiencing this pain during throwing activities (eg, throwing the ball from the touchline), with an intermittent locking sensation. The patient thought the elbow pain may have started after a soccer-related fall “many years ago.” He did not seek care at the time of the fall.

At his initial visit to the SHSMC, the findings of the physical examination revealed no obvious deformity. On palpation, a tender area (7 cm by 4 cm) of fullness was present without distinct margins over the anterior-



Figure 1. Sagittal view of magnetic resonance imaging of left arm, showing stenosis of brachial artery.

medial brachium proximal to the elbow. Elbow extension was limited (10° less than the right side), but pronation and supination had complete range of motion. He had no ligament instability, with atrophy generalized of the left arm and forearm.

Findings of radiographs of the elbow and humerus were normal. Non-contrast magnetic resonance imaging (MRI) revealed a brachial artery stenosis with potential focal vasculitis, with involvement of the median nerve. Laboratory test results revealed that blood count, metabolic panel, antinuclear antibodies, C-reactive protein levels, and erythrocyte sedimentation rate were normal. Afterward, a Doppler ultrasound ordered. The patient was referred to specialists from pediatric surgery and vascular surgery for further upper-extremity evaluation. Findings from the magnetic resonance arthrogram revealed brachial artery stenosis (Figures 1 and 2).

Vascular surgery specialists diagnosed brachial artery vasculitis or trauma with resultant arterial stenosis. The patient developed collateral vessels and had promising blood circulation. At his last clinic visit, we noted diffuse atrophy of the elbow muscles likely owing to inactivity. Because symptoms were minimal, observation was recommended.

DISCUSSION

Our diagnosis suggests vasculitis as a cause of the patient's symptoms; however, social factors may have delayed prompt and efficient evaluation. Some causes of vasculitis include Behçet disease, Buerger disease,



Figure 2. Axial view of magnetic resonance imaging of the arm through the zone of stenosis. A) Normal brachial artery girth proximal to the area of stenosis. B) Stenosed brachial artery.

Churg-Strauss syndrome, cryoglobulinemia, giant cell arteritis, granulomatosis, Henoch-Schonlein purpura, Kawasaki disease, and Takayasu arteritis.²

Although our findings of workup did not reveal active inflammation or vasculitis, several causes may have led to the noted inflammation in the MRI. In 1961, one report described localized blunt trauma to the area with an initiation of the coagulation cascade, which resulted in a local inflammatory reaction leading to intimal stenosis.³ A single-center study of 569 joint and paraarticular fractures found an incidence rate of 1.5% of vascular injuries.⁴ Because our patient had no evidence of a

previous fracture in the area, the noted brachial artery stenosis was probably not caused by trauma.

In the current case, our patient grew up in the Congo region of Africa. Subsequently, another possible mechanism of insult is an insect bite from spiders and scorpions or sting from honeybees and yellow jackets. Multiple reports have described that spider bites can result in cutaneous loxoscelism, initiating sphingomyelinase D and ANCA activation. This can cause vasculitis locally and on a systemic level.⁵

Vasculitis can produce symptoms related to progressive narrowing of the arterial lumen. A diameter reduction of 50% or a cross-sectional area reduction of 70% reveal a notable hemodynamical lesion. These lesions produce a pressure drop across the stenotic area where collateral blood vessels supply the distal arterial bed. Symptoms include exercise-induced fatigue because the demand for blood exceeds the supply.⁶ Providentially, our patient was relatively asymptomatic and developed abundant collateral circulation. However, the development of vasculitis in other arterial locations is feasible; thus, a follow-up visit was recommended.

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