

Buerger's Disease: A Case Study

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Introduction

Buerger's disease is a nonatherosclerotic inflammatory disease. It affects the small and medium sized arteries and veins as well as nerves in the upper and lower extremities. Two or more extremities are affected by the disease.

It is characterized by an inflammatory thrombus in the affected artery. Patients are normally young tobacco smokers that present with distal extremity ischemia, ischemic ulcers or gangrene. Onset of the disease usually occurs before age 40-45.

The etiology of the disease is unknown although smoking is strongly associated with developing Buerger's disease,

Buerger's disease is difficult to diagnose. Other vascular diseases must be ruled out. Arteriogram and biopsy are the only way to make a definitive diagnosis (Gupta, Wahlgren, Azizzadeh, & Gerwertz, 2020; Klein-Weigel, Volz, Zange, & Richter, 2016).



Leo Buerger, MD
(1879 – 1943)

First to describe the clinical and histopathological features of thromboangiitis obliterans.

Published his findings in 1908 in the American Journal of the Medical Sciences in a landmark article entitled, "A Study of the Vascular Lesions Leading to Presenile Spontaneous Gangrene" (Buerger, 1908).

Treatment

Smoking cessation is necessary to delay or prevent disease progression.

Other treatment options are:

- Vascular interventions
- Wound care
- Medications to:
 - decrease inflammation (steroids)
 - promote vasodilation (calcium channel blocker)
 - inhibit platelets (asa, Plavix, effient, brillinta, pletal)

Lumbar and thoracic sympathectomies may be performed to reduce digital pain. Limited evidence exists to support benefit of platelet inhibitors and anticoagulants. Other interventions that may be beneficial are stem cell therapy (promote angiogenesis) and bosentan (promote vasodilation) (Fazeli, Moghadam, & Niroumand, 2018; Liew, Lee, Hanipah, Gee, & Jabar, 2015).

Case Report

C.K., a 52-year-old female, presented to the Emergency Department on with burning on urination, drainage from the stump wound, and cognitive impairment. C.K. is a smoker with multiple comorbidities, including hypertension and atrial fib, and a history of Buerger's disease. Included in her many admissions is a recent hospitalization for finger amputations and a right below the knee amputation (RBKA). Antibiotics were started for the urinary tract infection and infected wound, and a wound vac was applied.

Her mental status vacillated from being oriented to confused. This behavior was attributed to Buerger's disease-induced vascular dementia. It was thought that her continued smoking was worsening her vascular status.

An esophago-gastro-duodenoscopy was done to evaluate GI discomfort and bleeding. In addition to chronic gastritis, erosive esophagitis was found. Protonix was started and she required 3 units of RBCs to restore volume.

C.K. was discharged to a skilled nursing facility after 26 days of hospitalization.

The patient's medication regimen consists of:
Cardizem CD 120mg daily for hypertension, a fib & vasospasm
Eliquis 5mg BID for clotting risk R/T Buerger's and a fib
Prednisone 20mg daily to reduce inflammation R/T Buerger's
Protonix 40 mg IVP BID for esophagitis and gastritis
Carafate 1gm AC and HS for esophagitis and gastritis
Elavil 25mg qHS for Buerger's induced vascular dementia
Zyprexa 5mg qHS for Buerger's induced vascular dementia

Discussion

C.K. is an example of a patient with Buerger's disease that fits the picture of how this disease occurs and progresses, particularly in those who continue to smoke. She has had partial digit and lower extremity amputations and poor wound healing of the RBK stump. Various attempts to stop smoking have not proved sustainable up to this point.

She is currently being treated with medication that may improve circulation and reduce inflammation. Despite this medical therapy, she recently underwent partial finger amputations.

Although uncommon, Buerger's disease may also affect aortic, cerebral, coronary, mesenteric, pulmonary and renal vessels (Gupta, Wahlgren, Azizzadeh, & Gerwertz, 2020).

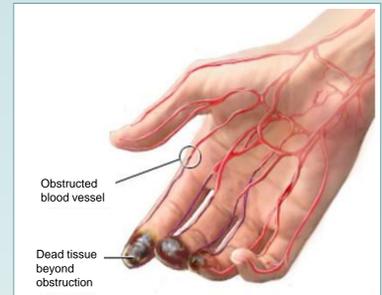
In this patient's case, she began demonstrating behaviors indicative of dementia. It was thought that she is experiencing cerebral vessel changes characteristic of Buerger's disease. Buerger's disease is a serious condition that can have devastating effects on functioning at a relatively young age.

Prognosis

The prognosis for patients with Buerger's disease depends on stopping smoking. Patients who continue smoking have a greater tendency to develop ischemic ulcers and may be more prone to limb amputation. They often require repeated hospitalizations and multiple procedures. Life expectancy is usually normal but many may experience long-term disability (Gupta, Wahlgren, Azizzadeh, & Gerwertz, 2020).

Buerger's Disease

- ✓ Only in smokers
- ✓ Causes poor circulation in hands and feet
- ✓ May lead to tissue death and amputation
- ✓ Gets worse the more you smoke



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