

The diagnostic dilemma of Parkinson's disease as a cause of calf 'claudication'

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INTRODUCTION

A recognised feature of Parkinson's disease is the presence of muscle cramps.^{1,2} These are often attributed to dopaminomimetic medications and are known as early morning dystonia or 'off' dystonia.¹ While these usually affect the truncal and upper limb musculature, patients can occasionally present with cramp-like calf pains which are frequently worse at night.² The symptoms may be confused with those of peripheral vascular disease and these patients may therefore pose a diagnostic dilemma to examining and referring clinicians.

CASE HISTORY

A 70-year-old male (patient 1) presented with bilateral calf pains suggestive of intermittent claudication that commenced at approximately 20–30 yards on the flat and were most severe in his right leg. He also reported continuous tingling in the right calf and popliteal fossa regions. He was an ex-smoker with a history of Parkinson's disease and ischaemic heart disease. He had previously undergone a successful angioplasty of a left common iliac artery stenosis.

On examination, he was noted to have a resting tremor and bradykinesia. Vascular examination revealed a regular radial pulse of 84 per minute, good bilateral femoral pulses and palpable popliteal and pedal pulses. A duplex scan was performed which showed mild disease in the right superficial femoral artery bilaterally but no stenoses were identified. Ankle-brachial pressure indices (ABPI) were determined and found to be >1, both before and following exercise. In view of persisting symptoms, an arteriogram was performed, which, like the duplex scan, demonstrated mild generalised atheroma but no significant stenoses.

The clinical presentation, examination and investigation findings for four other patients (2 to 5) are shown in Table 1. Patient 5 was not known to suffer from Parkinson's disease prior to consultation in the vascular clinic, the diagnosis being made on the basis of clinical findings and confirmed following referral to a neurologist.

DISCUSSION

These five cases represent GP referrals, encountered in the vascular clinic within a period of 18 months. The first four patients (1 to 4) had longstanding Parkinson's disease and were receiving appropriate treatment. Patient 5 had no previous history of Parkinson's disease, but on examination was noted to have resting tremors and cogwheel rigidity.

Pain of various aetiologies is reported in nearly 50% of patients with Parkinson's disease and in some cases it may be more debilitating than the motor deficits.³ Dystonic foot cramps are relatively infrequently documented in the literature as a cause of pain in Parkinson's disease despite first being associated with the condition more than 100 years ago.⁴ In some cases the dystonic pains are omnipresent but in others they are limited to exercise, thus mimicking claudication.⁵ Foot dystonia is often seen as an 'off' phenomenon, especially prior to medication early in the morning.⁶ As such the symptom can be treated by reducing the frequency and duration of the 'off' state through modification of Parkinson's disease medication and increasing dopaminergic therapy.³

A detailed review of the medical literature revealed no reports of an association between peripheral vascular disease/intermittent claudication and Parkinson's disease. As such, the concurrent existence of both conditions in the subjects of this case report probably indicates that both conditions are not uncommon in the aging population.

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Table 1. Clinical features and investigation findings of patients 2 to 5.

Patient	Age in years	Sex	History	Past history	Examination findings	Investigations
2	76	Male	Right calf pain at 100 yards	Diabetes, Parkinson's disease	Resting tremors and rigidity; normal bilateral femoral, popliteal and pedal pulses	Duplex showed normal aorta and lower limb arteries; ABPI >1
3	67	Male	Left calf pain at 50 yards	Myocardial infarction, hypertension, Parkinson's disease	Resting tremors and rigidity; normal bilateral femoral, popliteal and pedal pulses	Duplex showed normal ABPI >1
4	67	Male	Left calf pain at 20 yards, night pain, cold feet	Angina, Parkinson's disease	Resting tremors and rigidity; normal lower limb pulses, except for an absent left pedal pulse	Duplex showed normal aorta and lower limb arteries; ABPI >1
5	72	Male	Left calf pain at 30 yards, night pain	Angina, left SFA stenosis with angioplasty 2 years previously	Resting tremors, rigidity and bradykinesia; normal bilateral femoral and popliteal pulses but no distal pulses	Duplex showed minor stenosis (<50%) in the left mid SFA; ABPI >1

ABPI = ankle-brachial pressure indices. SFA = superficial femoral artery.

All five patients in this report gave a history suggestive of uni- or bilateral intermittent calf pain and all had one or more risk factors for peripheral vascular disease. Indeed, two patients (1 and 5) had a past history of treated peripheral vascular disease. Patients 4 and 5 also reported night pains, another recognised feature of Parkinson's disease. The limitation of mobility as a result of pain was significant, and had the disease been due to peripheral vascular disease then all would have been considered to have severe claudication. However, during standard vascular examination and investigation, no significant peripheral vascular disease was identified.

The importance of this clinical manifestation of Parkinson's disease lies in the fact that it mimics the clinical presentation of peripheral vascular disease. However, knowledge of this clinical scenario can spare patients from overenthusiastic investigation and avoid the need for an arteriogram such as performed for patient 1, as this is an invasive procedure with a well recognised side-effect profile. Indeed, in this series careful examination of pulses with an ABPI in conjunction with a lower limb duplex scan confirmed that there was no significant peripheral vascular disease present.

Consent

Consent was obtained from three patients. We were unable to gain consent from the remaining two patients as they passed away due to unrelated conditions.

Competing interests

None

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