



CASE REPORT

# A prodromal, musculoskeletal presentation of Parkinson's disease: A case report



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## KEYWORDS

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**Abstract** This is the case report of a 79-year-old female patient (Mrs X), referred for assessment and osteopathic treatment of her left shoulder pain and restricted range of motion. Seven months later Mrs X was diagnosed with left hemi Parkinson's disease (PD). The report reflects on whether or not the left shoulder signs and symptoms were prodromal of PD, the diagnostic reasoning and evaluation of this patient prior to the diagnosis of PD, the challenges to musculoskeletal practitioners associated with potential prodromal musculoskeletal presentations of PD and the prospect of increasing numbers of such presentations with the projected rise in PD cases in years to come. © 2014 Elsevier Ltd. All rights reserved.

## Implications for clinical practice

- The report highlights the predicted increase in prevalence of Parkinson's disease in the next two decades.
- The report raises practitioner awareness of Adhesive Capsulitis as a potential indicator of Parkinson's disease.
- The report highlights the uncertainty inherent in diagnosis of shoulder dysfunction in an aging population particularly where known orthopaedic diagnostic tests have limited clinical applicability.

## Introduction

Parkinson's Disease (PD) is a progressive neurodegenerative condition resulting from the death of the dopamine-generating cells of the substantia nigra of the midbrain. Its onset is insidious and sufferers classically present with the symptoms and signs associated with Parkinsonism, namely slowness of movement, rigidity and rest tremor. The mean age of onset of PD is 65 years and it may progress to cause significant disability and handicap with impaired quality of life for the affected person.<sup>1</sup>

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Prevalence estimates for the UK and Europe vary, depending on the study population, between 121 and 200 per 100,000 persons.<sup>2,3</sup> UK and European incidence estimates vary between 12 and 26 per 100,000 persons.<sup>3</sup> PD primarily affects the over 50s. Prevalence and incidence rates increase with age<sup>4</sup> and are highest over the age of 80.<sup>3</sup> In Western Europe's five and the world's ten most populous nations the number of individuals over 50 with PD is projected to double to between 8.7 and 9.3 million by 2030.<sup>5</sup>

Musculoskeletal problems, mainly pain experienced in the legs, back and shoulders,<sup>6</sup> are common in PD groups<sup>7–11</sup> with a significantly higher prevalence compared to matched controls.<sup>12</sup> A significantly higher incidence of a history of shoulder complaints and adhesive capsulitis was found in one PD population.<sup>13</sup> Adhesive capsulitis is one of the most common presenting musculoskeletal conditions associated with PD<sup>7,14</sup> and may be a presenting sign of the disease.<sup>13,15</sup> One study revealed that 19 out of 320 patients with PD were found to have a history consistent with adhesive capsulitis prior to diagnosis of PD,<sup>16</sup> the diagnosis of adhesive capsulitis being made retrospectively using PD sufferer's responses to questions regarding their history of shoulder pain and restricted movement rather than clinically.

Oversight of adhesive capsulitis as an early sign of PD may lead to diagnostic confusion<sup>15</sup> and unnecessary diagnostic procedures whilst delaying the treatment of PD symptoms contributing to poor quality of life.<sup>16</sup> From this viewpoint a patient over 50 with a shoulder problem resembling adhesive capsulitis represents a potential clinical challenge to the osteopathic practitioner. This age group is amongst the most likely to develop adhesive capsulitis.<sup>14</sup> In its early stages adhesive capsulitis can appear clinically similar to a number of other shoulder conditions<sup>14</sup> and the 'adhesive capsulitis' presentation may be a prodromal symptom of another disorder (e.g. PD)<sup>7,13–15</sup> the clinical signs of which have yet to manifest. Typical symptoms of PD can be very subtle, hard to discern and can take up to 2 years to develop.<sup>7,16</sup> Conversely, early treatment of PD is contingent upon early and accurate diagnosis of clinical features and the experience of the practitioner.<sup>4</sup>

In the elderly female population prevalence of shoulder pain is estimated between 18 and 23%,<sup>17</sup> significantly greater than the prevalence of PD, and the GP is likely to be the initial primary care contact when a patient seeks help. The current report presents the case of Mrs X's where there were no clinical signs of PD at the time of presentation. The case history, signs and

symptoms were consistent with a musculoskeletal presentation and her case was managed as such pending any emergent evidence to the contrary whilst in my care.

## The osteopathic evaluation

Mrs X was referred with a preliminary diagnosis of left adhesive capsulitis. An X-ray report from March 2011 noted minor osteoarthritic changes to the left acromioclavicular joint (ACJ) and degenerative changes in the lower cervical spine (C4–C7). Mrs X is right handed. Her left shoulder symptoms are presented in [Table 1](#).

At 79 years of age, Mrs X was outside the expected age range for adhesive capsulitis<sup>14,18</sup> although her symptoms were not unlike those of an inflamed joint capsule. "Minor" osteoarthritic changes in the left ACJ could have explained Mrs X's symptoms but radiographic findings are not considered reliable as predictors of pain since many patients with observable radiographic changes may be symptom free.<sup>19,20</sup> Mrs X may have had partial or full thickness tears of the rotator cuff tendons since prevalence of tendinopathy increases from 40 years onwards to as much as 50% by the age of 60 years.<sup>21,22</sup> Several of Mrs X's symptoms were consistent with those of rotator cuff tendinopathy.<sup>23</sup>

The degenerative changes in the cervical spine could also explain the shoulder symptoms as degenerative cervical spondylosis is the most common cause of cervical myelopathy.<sup>24</sup> Symptoms of cervical myelopathy include shoulder and arm pain associated with muscle weakness, numbness and paraesthesia depending on the nerve(s) affected.<sup>24</sup> However, in Mrs X's case there were no neurological symptoms.

The ageing effects on Mrs X's musculature also required consideration. Sarcopenia increases with age<sup>25</sup> and can affect over 50% of persons over 80 years of age.<sup>26</sup> The main symptoms of sarcopenia are weakness, leading to disability, lack of stamina and frailty<sup>25</sup> with risk factors being age, chronic inflammation, atrophy of motor neurons secondary to cervical spondylosis and immobility.<sup>27</sup> However, Mrs X remained active domestically, socially and walked the dog regularly perhaps reducing the likelihood of age related sarcopenia. At this point in Mrs X's evaluation I was not considering any neurodegenerative diseases.

## Clinical examination

The clinical examination findings are presented in [Table 2](#).

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