CASE REPORT

An osteoporotic fracture mimicking cervical dystonia in idiopathic Parkinson’s disease

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Abstract

We report on a case of a 65-year-old (CD) woman who sustained an atraumatic neck fracture. A combination of Parkinson’s disease with motor fluctuations, chronic cervical dystonia and osteoporosis provided the basis for this interesting diagnosis. Mrs CD had progressed to complex phase idiopathic Parkinson’s disease within 13 years of diagnosis. During this time she remained independent, only using a wheelchair when her motor fluctuations were bad. In 2011, she developed a sudden onset of neck spasm and occipital neuralgia, initially attributed to severe spasmodic cervical dystonia. Despite a titration regime of analgesics and weaning off of her Parkinson’s disease medications, the pain persisted. An X-ray of her cervical spine showed degenerative discopathies from C4 to C7. Mrs CD underwent a trial of Botox injections to no avail and she was admitted acutely under the spinal team after an MRI of her spine showed abnormal oedema of the odontoid peg. Subsequent CT diagnosed a type II fracture of the odontoid peg on the background of severe osteoporotic bone (spinal T score −3.4 on subsequent DEXA scan) and she underwent a successful occipital cervical fusion of C1–C6. What makes this case interesting is the fact that this lady’s profound powerful neck movements on a background of osteoporosis led to fracture of her neck. Post-operatively, she admitted to non-adherence to her bisphosphonates, prioritising levodopa in the morning with food rather than taking her alendronate on an empty stomach. She is now pain free and receives annual zolendronate infusions.

Keywords: Parkinson’s disease, odontoid, fracture, osteoporosis, older people

We report a case of a 65-year-old (CD) who was diagnosed with Parkinson’s disease in 1997 and progressed to complex phase Parkinson’s disease 13 years of diagnosis. She suffered from motor fluctuations and global dyskinesias. Her medications were Sinemet Plus six times daily, Rotigotine patch 8 mg every 24 h and Entacapone 200 mg t.d.s. During this time she still managed to maintain an independent lifestyle with her husband. She walked with a stick and used a wheelchair when her fluctuations were bad. Her only other past medical history to note was osteoporosis.

In 2011, she developed a sudden onset of neck pain which was attributed to severe spasmodic cervical dystonia. There was no preceding history of falls or any other trauma. The initial working diagnosis was dystonia as part of motor fluctuations relating to dopaminergic excess. Her Parkinson’s disease medications were, therefore, reduced to try and improve this.

At her next review, her dyskinesias had reduced but her off periods had increased without any improvement of her neck pain. She felt that her neck pain was no longer associated with her on/off episodes and had become resistant to several analgesics. The spasmodic nature of the pain was consistent with occipital neuralgia. She underwent an X-ray of her cervical spine which showed narrowing of the C4–C7 disc spaces consistent with degenerative discopathies. It was then decided to try Botox injections to the right and left splenius capitis.

Mrs CD underwent Botox injections to no avail and her pain and distress worsened to such an extent that her husband had to telephone the hospital seeking advice.

Mrs CD underwent an MRI of her cervical spine which showed abnormal oedema of the odontoid peg, consistent with inflammatory changes (Figure 1). A CT cervical spine was then requested which showed a type II odontoid peg fracture.
To investigate the cause of the fracture a bone scan was performed which was unremarkable and a normal blood screen including full blood count, urea and electrolytes, inflammatory markers, vitamin D and bone profile, parathyroid hormone, thyroid function, coeliac screen, autoimmune screen, rheumatoid factor, anti-CCP and myeloma screen.

She also had a CT thorax, abdomen and pelvis which showed no evidence of malignancy.

Her scans were reviewed by the spinal team and she underwent a successful occipital (mid) cervical fusion of C1–C6. Intra-operatively, her cervical vertebrae were found to be significantly osteoporotic. A subsequent bone density scan revealed a spinal T score of −3.4. She made a rapid recovery with immediate resolution of her neck pains.

What makes this case interesting is the fact that this lady’s profound and powerful neck movements on a background of osteoporosis led to a fracture of her neck. Furthermore, it raises the issue of checking for drug compliance. Mrs CD had a pre-existing the diagnosis of osteoporosis and had been prescribed a bisphosphonate. She admitted to non-adherence to this medication due to prioritising sinemet in the mornings, rather than taking her alendronate on an empty stomach. After her operation, she received a zoledronate infusion and will continue with this on a yearly basis.

This case highlights some important learning points relevant to clinical practice. The first is that severe neck pain out of context to dystonia should raise suspicion of alternative pathologies. The second point is that alternative osteoporosis treatments should be considered in this group of patients already burdened with polypharmacy. Finally regular medication reviews regarding compliance are extremely important and should be addressed at every clinic visit.

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