# Functional paraparesis: a challenge for rehabilitation

## **Clinical essay**

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### Introduction

This essay describes S, a patient with functional paraparesis whom I met while on a placement at a tertiary rehabilitation unit in London. I will discuss his clinical assessment and approach to treatment and then compare his case with a similar patient, K, with a functional monoparesis, in order to highlight the challenges of treating functional symptoms.

### Patient S

S is a 26 year old right-handed ex-Royal Engineer who has been diagnosed with a functional paraparesis, from which he has suffered for nearly five years. He was admitted to the rehabilitation unit from home on the 2<sup>nd</sup> September 2010 for a period of inpatient multidisciplinary assessment and rehabilitation.

S reports that his present condition stems from an injury he sustained during a routine military training exercise which he was able to date precisely as 15<sup>th</sup> December 2005 while posted in Yorkshire but on standby to join his colleagues in Afghanistan. At this point he was diagnosed with a stress fracture of his left 5<sup>th</sup> metatarsal which was treated conservatively.

With resolution of the initial injury S developed a complex regional pain type picture of continuing left foot pain, skin temperature changes and discolouration. Over the following six months while posted in Germany, his pain, described as shooting, progressed to affect his right foot, then his knees, calfs and thighs; it was not relieved by Tramadol and Pregabolin. He was experiencing episodes of numbness in the legs lasting a few minutes several times a day. By Christmas 2007, two years after the initial injury, S was reduced to using crutches to mobilise and was now experiencing 'freezing' episodes of his legs when he would be unable to move them at all. Since early 2008, S was confined to the use of a wheelchair and had no feeling in his legs up to a sensory level just below the umbilicus.

Throughout the same period S became incontinent of urine and started to suffer from seizures. Under the care of a consultant urologist, S underwent a period of self-

catheterisation, followed by an indwelling catheter and finally a suprapubic catheter was fitted in December 2009. This was despite no organic cause being found for his incontinence. Urodynamic studies showed some bladder overactivity but a normal filling volume of 600 ml and complete emptying. The urologist theorised that due to his absent sensation around the perineum, S would be at risk of trauma if he was to continue self-catheterisation hence a suprapubic catheter was fitted.

S had several acute admissions to hospital with seizures. These were initially thought to be epileptic in nature but videotelemetry revealed them to be pseudoseizures and S was seen to be moving his legs in his sleep.

From the point of the initial injury to the current day, S has been thoroughly investigated and received both out patient and in patient rehabilitation including several admissions to Headley Court Hospital, the military rehabilitation unit. MRI of the brain and spine, CSF examination, nerve conduction studies, blood tests including autoimmune screen and an echocardiogram have all been normal. He has been seen by a host of health care staff including rheumatology and rehabilitation consultants, neurologists, psychiatrists, urologists, both within the military and National Health Service. All have been reassured that there is no identifiable organic cause for S' symptoms and he was diagnosed with a functional paraparesis.

Currently, he is medically fit, mobilises independently with a wheelchair and has a suprapubic catheter in situ. Examination revealed no wasting, normal tone, absent power throughout the legs up to the trunk, normal reflexes with down-going plantars and absent sensation in all modalities to the umbilicus. Cranial nerves and upper limb examination were normal.

Inconsistencies in function have been noted: S has greater difficulty transferring when he is aware of being observed and active movements of the legs have been observed by several team members.

### Patient K

K is a 20 year old mechanic with a functional monoparesis of his right leg who was an inpatient of the RRU for 5 weeks in June 2010 and underwent a very successful rehabilitation programme.

In contrast to S' long history of disability, K had an acute onset of symptoms that evolved over one day during the month preceding his stay at the RRU. Again, extensive neurological investigations revealed no organic pathology. Examination revealed a

similar picture to S, with a reduction in aspects requiring cooperation. However, K was incompletely affected: he retained 2/5 muscle power proximally although 0/5 distally and was able to walk a few steps indoors using crutches with an atypical gait pattern, in comparison to S who has no active movement in his legs and is completely reliant on a wheelchair. As with S, K had no evidence of muscle atrophy. K retained continence of both his bladder and bowels.

K reported low mood and anxiety for which a psychiatrist had seen him two months prior to the onset of his physical difficulties. He was able to identify that the cause of his disability was probably psychological in nature and engaged well with the unit's psychotherapist.

He responded excellently to a goal orientated step-by-step approach to regain his mobility and within a week of admission was walking again. He was able to dispose of aids and return to full function in the following weeks. He was followed up in the community by a counsellor to continue to develop coping strategies around anxiety.

It was felt that K's success was due to several factors: the short duration of symptoms, identifiable psychological crisis, his receptiveness to psychology and physiotherapy and his motivation to return to his previous function. For K, admission to the unit facilitated a respectable way out of a situation that he was keen to resolve.

### Case comparison and difficulties

Although at first glance, S and K seem like similar case histories in young men, it is clear that they are in fact quite distinct. Compared to K, S has had a much longer duration of disability with less motivation and little insight into the role of psychology. S has had a sequence of several medically unexplained syndromes and has had significant reinforcement of his symptoms: he was medically discharged from the army suggesting medical pathology and he is well equipped for a disabled lifestyle at home. There does not seem to be a simple trigger for S as there was K; avoidance of an operational tour with the army has not resolved his symptoms and it is likely that his psychology is more complex than it first seems.

S has resistant personality factors and an apparent unconcern for his disability, 'la belle indifference'. He has a significant income relating to his disability, which does not assist motivation for recovery. These factors compound the difficulties of helping S return to full function.

## Approach to Rehabilitation

As recommended,<sup>2</sup> S is undergoing a multi-disciplinary team approach to assessment and treatment with physiotherapy, occupational therapy and psychology input working together with frequent meetings to discuss progress, goals and approaches. A consistent team approach is paramount.

Goals are focussed around functional activities, but S has had difficulty in initiating goal-setting and plays a passive role requiring significant help to form goals such as being able to reach for objects on high shelves or cupboards at home. Concrete thinking is evident; he is unable to formulate short-term goals, rather he can only express 'I want to walk'. This is an aspect that the psychotherapist is keen to explore using cognitive behavioural therapy to empower a sense of responsibility. It is important to assess his motivation to change.<sup>2</sup>

Occupational therapists have explored S' work possibilities, both if he were to remain in a wheelchair or to be able to walk again. S has shown a level of resistance here and found difficulty in forming new ideas for jobs.

Physiotherapists have concentrated on engaging muscle activity in the lower limbs by use of the parallel bars and Rota Stand, improving core stability and using hydrotherapy to assist mobilisation and provide a stimulating environment. Therapy is 'hands-off' allowing S to be as independent as possible. Positive feedback is important: praising 'good' performance and ignoring 'hysterical' or 'bad' movements. Video feedback has also been employed in the hope of demonstrating progress.

The team has reinforced that S has a good prognosis to walk because his brain, nerves & muscles are not diseased and improvement is a matter of gaining conscious control of the movement again. The analogy of a telephone exchange has been used to explain his functional diagnosis in that the telephone and cables (muscles and nerves) are able to operate but the connections in the exchange are not wired up correctly.

Action to improve his bladder function has included the use of a flip-flow valve, encouraging bladder training to withstand the stimulus to pass water for longer periods of time and the use of output charts.

It was hoped that S would quickly make significant functional gains but after two weeks of inpatient treatment there has been little improvement. This is in stark contrast to K's fast progress.

### **Discussion**

## **Medically unexplained symptoms**

Medically unexplained symptoms can be seen on a spectrum from complete hysteria (no insight into the psychological aspect of symptoms) to malingering (intentional maintenance of symptoms for secondary gain), with varying degrees in between.<sup>2</sup> Although severe cases are rare, patients are remarkably common with 40-50% of hospital outpatients having medically unexplained symptoms.<sup>3</sup>

Classifying physical complaints not attributable to organic disease causes much confusion. Terms such as functional somatic syndromes, somatoform disorders, conversion and dissociation disorders are used interchangeably by many when in fact they are distinct entities. The term 'bodily distress syndrome' has been proposed to encompass these disorders, providing common ground for their understanding. However, there is an ongoing debate between 'lumpers', who see all functional syndromes as a single disorder, and 'splitters', who argue that despite similarities, the differences cannot be ignored.

Several models have been described to explain the development of medically unexplained symptoms. Cognitive aspects, including health beliefs, heath anxiety, behaviour and personality, particularly alexithymia, all influence the development of symptoms. In 1990, Barsky and Wyshak modelled hypochondriasis as a vicious cycle of amplification of benign somatic sensations. This was improved by integrating social and forensic aspects by Kirmayer in 1997 who described that help seeking and social responses may themselves be sources of maintaining factors. In 2004, Brown introduced the idea that unexplained symptoms constituted an alteration in body image known as 'rogue representations' thus linking the perceptions and memory aspects that cause symptoms.

### Rationing of health resources

This case introduces the ethical dilemma of resource allocation. There are limited resources available and long waiting lists for inpatient rehabilitation. The use of funds for people with non-organic pathology is difficult for some areas of society, and even medicine, to accept.

Published evidence to support inpatient rehabilitation for patients with functional symptoms is limited. There are no high quality randomised controlled trials because severe somatoform disorders are rare, the units that treat them rarer still and the patient

population is heterogeneous.

However, it is clear that patients like S and K are disabled and have a poor quality of life. They endlessly use health resources inappropriately without specialist treatment. An audit at King's College Hospital in 2001 revealed that investigation of a non-organic patient cost about three times as much as an organic patient.

There are many factors that can account for non-organic presentations including psychiatric disorders, psychosocial triggers and maintaining factors. There is often some organic pathology, although it is insufficient to account for the extent of symptoms.<sup>2</sup> Discovering these factors, engaging the patient to see their problems as anything more than physical and commencing treatment is complicated and not always successful as an outpatient where the maintaining social factors are not removed.<sup>2</sup> Inpatient rehabilitation allows a fully coordinated and intense multidisciplinary approach.

There may be conflict between a patient's best interest, requesting rehabilitation, and society's best interest, providing maximum benefit to the maximum number in a cost-effective manner.<sup>12</sup> Particularly for patients with little motivation to improve, expensive rehabilitation programmes are not in society's best interest. This is why assessment periods are implemented.

When considering the case of S, he is acting in a disabled role. Therefore, he is disabled. It can be argued that he is owed the same service from society as any other disabled person, including rehabilitation opportunities and financial support. The consequentialist might argue that a single individual using public funds this way makes little difference to overall finances although it may be seen as 'opening the flood gates'. The deontologist, believing that a situation is intrinsically right or wrong regardless of the consequences, might argue that financing such an individual is unacceptable. It is a matter of continued debate.

### Conclusion

The case of S serves to highlight the impact of functional symptoms on health services and the difficulties involved in treating patients of this kind, which are particularly influenced by individual patient characteristics. The evidence base for treatment of functional symptoms is limited, with intrinsic difficulties in researching a heterogeneous small population. However, anecdotal evidence and the case of K presented here serve to provide accounts of excellent recovery to full function after inpatient rehabilitation for functional symptoms. The importance of a coordinated

multidisciplinary approach with an initial assessment period to determine the likely usefulness of a period of treatment should be stressed. In contrasting these two cases, it seems that a patient's acceptance of ownership of his rehabilitation and receptiveness to psychological input are associated with a better prognosis.

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