REHABILITATION OF CONVERSION PARALYSIS

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Three patients referred for rehabilitation of brachial plexus lesions and two referred with leg weakness associated with sciatica were found to have conversion paralysis. The diagnosis was made by demonstrating normal motor nerve conduction to the clinically weak muscles. The weakness was treated by intensive physical rehabilitation with complete and sustained recovery in all cases.

Adequate and accurate assessment is a prerequisite to good rehabilitation. This particularly applies to people with complicated disabilities. Most of the patients presenting to the rehabilitation unit at the Royal National Orthopaedic Hospital with such problems are admitted for a multi-disciplinary assessment, with contributions from the doctor, physiotherapist, occupational therapist, clinical psychologist, social worker, and nurse. From this comprehensive reappraisal of both the problem and the diagnosis, a programme of rehabilitation is planned, based on the findings of each discipline. We report five patients who had been referred with organic paralysis, but whose diagnosis was changed to conversion paralysis after inpatient assessment. We describe our methods of management and the results obtained.

In all five patients the clinical picture was characterised by weakness or paralysis of a limb with no muscle wasting, inappropriate physical signs, and normal electrophysiological findings. In each case the patient was shown that the weak or paralysed muscles contracted strongly when the appropriate motor nerves were stimulated. The patients were encouraged to contract these muscles with the current, which sometimes elicited movement in a muscle "paralysed" for years; such a finding was greeted with much enthusiasm by the operator. The patients were reassured that there was continuity between the brain and the muscles, and it was then suggested that, for some reason, there was a block in transmission and that treatment was designed to overcome this block. This was achieved by graduated physiotherapy, biofeedback technique and occupational therapy designed to regain a pattern of movement.

Patients were told that, although full recovery was expected, limited objectives would be set at the start and no sudden breakthrough attempted. Thus, where there was complete involvement of the upper limb, shoulder control was expected first; then, after some weeks, elbow control; and finally, wrist and finger control. Each gain in function was greeted with delight and praised by the doctors and therapists. Progress was recorded carefully using regular muscle charting and video recording, allowing the patient to see what progress was being made. Their symptoms were treated as if their weakness were organic and no attempt was made to treat them by the usual psychotherapeutic techniques.

Case 1. A 33-year-old drug addict, after taking an overdose, woke up with a weak right arm. Her neck was initially painful and stiff, but this settled spontaneously. The weakness of her arm persisted for a year, after which she was referred to rehabilitation with a diagnosis of a right brachial plexus lesion. On examination there was no muscle wasting or sensory loss; muscle power (MRC scale) was as follows: shoulder girdle Grade 2-3, biceps 5, triceps 5, wrist and finger flexion and extension 2; there was no activity in the intrinsic muscles even though hand movements had been noted during normal activities. Electromyography (EMG) showed no evidence of denervation, and stimulation of the motor nerves to the clinically weak muscles produced a strong contraction: this latter finding is characteristic of conversion paralysis. She was treated as an inpatient for six months, and at discharge had almost full power in her arm and was using it well. When seen three months later, full power had been regained and two years later this normal state had been maintained.

Case 2. A 27-year-old teacher was referred for rehabilitation with a diagnosis of right brachial plexus lesion. Sixteen months previously she had caught her right arm in a lift and had been suspended by the arm for several minutes. After this incident she lost all sensation in her arm, and it became flaccid. A myelogram was normal

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and she had been treated with cervical traction, manipulation, heat and splintage to the arm without any improvement. She also complained of severe neck pain. On examination there was no wasting and the muscle power was as follows: shoulder girdle Grade 2-3; biceps 2; triceps 2; supinator, pronator teres and other distal muscles 1. Motor nerve stimulation showed strong contraction of all muscles and there were normal sensory action potentials (SAPs). She was treated with transcutaneous nerve stimulation (TNS) which relieved her neck pain and, within two months, intensive physiotherapy had built up her muscle power to Grade 3-4 in all groups. She was then using her limb well and was discharged from hospital. Two months after discharge, full power and function had returned. Three years later she began training as a physiotherapist with no recurrence of her symptoms.

Case 3. Two years before she was referred for rehabilitation with a diagnosis of right brachial plexus lesion, this 33-year-old woman had been thrown forward while in the back of a taxi which stopped suddenly. Her son had almost fallen out of the door and she was attempting to pull him back when she felt a click in her neck. The next day she found that she could not use her right arm fully and she also noticed pain in the neck radiating to the same arm. A cervical myelogram was normal. She had been treated with various physical modalities to help her neck pain, but without success. On examination of the right arm there was no muscle wasting, all muscle groups were Grade 2-3, and there was subjective sensory loss on the ulnar border of the hand. EMG motor and sensory studies showed no abnormalities and motor nerve stimulation produced strong contraction in the clinically weak muscles. She was treated as an inpatient for five weeks with TNS for pain as well as intensive physiotherapy and biofeedback to improve muscle power. At discharge she had normal power except for extension of the index finger, was using her arm well, and had lost her neck pain. Nine months later her arm was normal.

Case 4. A 30-year-old housewife gave a history of a fall six years previously; this had led to low back pain and subsequent weakness of the left leg. Her lower lumbar spine was explored surgically but no evidence of nerve root pressure was found. Subsequent physiotherapy was of no help and two years later she became wheelchair-dependent. One year before referral to our unit, she had undergone a further exploratory operation on the lumbar spine; again no evidence of nerve root pressure was found. However, after this procedure her back pain improved. She was referred for rehabilitation of her weak left leg. On examination she walked hesitantly for a few paces, dragging her left foot. There was no muscle wasting, but there was no voluntary movement of the left lower limb when she was lying on a bed. These incom-

patible findings were associated with normal EMG studies and strong contraction of the weak muscles when the motor nerve was stimulated. She was treated for six weeks with intensive exercises and biofeedback. Her back pain worsened when her activities were increased but this pain was treated successfully with TNS. At the time of discharge there was Grade 4 power in all muscle groups. At follow-up three months later she was walking with full power and she remained entirely normal six months after that.

Case 5. This 42-year-old housewife had complained of low back pain for 20 years. Five years after the onset of the pain she had undergone laminectomy of L4/5 and L5/S1, following which she was pain-free for one year. Her back pain returned after the birth of her fourth child and was associated with pain and weakness in the left leg. These symptoms had led to considerable disability and she was not able to carry out her day-to-day household tasks. On examination, straight leg raising was 40° on both sides, there was no muscle wasting, no sensation below the knee, and all movements of the ankle and toes were Grade 2-3. EMG showed normal motor and sensory findings, and motor nerve stimulation produced strong contraction of the weak muscles. She was treated with intensive exercises, biofeedback, and TNS for her back pain, after which there was a dramatic decrease in her back and leg pain. The power in her leg returned to normal by the time she was discharged four weeks later, and this improvement was maintained at six months.

DISCUSSION

The diagnosis of conversion syndrome largely depends on the exclusion of organic disease (Lazare 1981). Care is needed in making such a diagnosis as long-term studies have shown that in 20% to 30% of cases the diagnosis was wrong. (Raskin, Talbott and Meyerson 1966; Stefansson, Messina and Meyerowitz 1976; Slater and Glitheroe 1965). We felt confident of our diagnosis in our five cases because of the typical clinical picture and the conclusive demonstration of normal motor and sensory nerve function. The response of these patients to our therapeutic regimen would support a behavioural theory rather than a psychodynamic or biological theory as the genesis of their symptoms (Lazare 1973; Engel 1980). The behavioural theory suggests that conversion reactions represent a learned behavioural excess or deficit which follows a particular event and may then be reinforced by subsequent events and by the supportive reactions of people close to the patient (Lazare 1973; Engel 1980). Prior emotional stress has been considered as one of the psychological criteria for this condition (Raskin *et al.* 1966), and indeed all our patients had a stressful event associated with the onset of their weakness. Only one of our patients had, among other possible underlying psychological factors (Lazare 1981), a demonstrable psychopathology, namely drug addiction, while none

had a previous history of conversion reaction or experience of such symptoms in a relative or friend (Raskin *et al.* 1966). The diversity of conversion symptoms makes prognostication difficult (Carter 1949; Hafeiz 1980). Our patients had some features considered to be associated with a good prognosis; that is, good health before trauma and, in four, absence of major psychiatric syndromes (Lazare 1981), although the chronicity of their symptoms might have suggested a poor prognosis (Lazare 1981). In treating conversion syndrome, confronting the patient with the information that the symptom is psychological is rarely helpful and may adversely affect the relationship with the therapeutic team.

We feel that the important features in managing these cases were the definitive electrodiagnosis, demonstration of these normal findings to the patient, and the intensive, optimistic approach to physical rehabilitation.

The gratifying response may encourage others to pursue a similar approach to conversion paralysis.

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