A Case of Neurosis Associated with Brachial Plexitis

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Abstract

A comparatively rare case of brachial plexitis in a 24-year-old woman was initially treated with nerve blocks. Although the nerve block therapy was effective for a time, her symptoms recurred and the course was somewhat different from that of ordinary brachial plexitis. Further investigations indicated that this patient had developed neurosis following mild brachial plexitis. Following counselling, the symptoms improved and the patient was able to return to her previous occupation.

Key Words: arm motor and sensory disorders, brachial plexitis, neurosis, nerve block

INTRODUCTION

Neurosis is a mental disorder and its development is closely related to the patient's personality.

The onset of neurosis and the symptoms that develop can generally be understood on the basis of the patient's past history and daily living experiences, and the symptoms can generally be alleviated if the underlying cause is eliminated.

We report a case of neurosis occurring after the patient had suffered from brachial plexitis, which is considered to be a comparatively rare association.

CASE REPORT

The patient was a 24-year-old female nurse whose chief complaints were reduction of muscle power, loss of sensation, and pain in the right arm. She had undergone surgery for an ovarian cyst at 18 years of age.

Four days before the onset of her right arm symptoms, she suddenly vomited (no fever or other symptoms) on the morning of November 10, 1989, and this episode was alleviated by an intravenous infusion.

On the evening of November 14, while on night duty, she noticed numbness of the right leg
and also a loss of sensation in the 4th and 5th fingers of the right hand.

By the next day, the numbness in the leg had disappeared, but the reduced sensation in the right hand had spread to involve the palm, the dorsum of the hand, and the wrist (ulnar side > radial side). She was examined at the Department of Neurology.

Her grip power was 32 kg on both sides, the tendon reflexes were normal and no pathological reflexes were seen.

Thereafter, the sensory disorder spread rapidly and a marked drop was seen in her muscle power, with the grip becoming 15 kg on the right and 25 kg on the left.

At the same time, severe spontaneous pain appeared in the neck and shoulder region interfering with sleep. First admission, she was hospitalized on November 21.

On admission, she complained of Spontaneous pain in the right neck and shoulder. Examination showed a decrease in muscle power in the right arm of 4 to 5, a reduction in pain/temperature and touch sensation in the C3 to T4 dermatomes, and a grip power of 5 kg on the right and 29 kg on the left. Electromyography (EMG) indicated that the brachial plexus was probably affected. Viral studies showed the following: the parainfluenza 3 (HI) titer was 128-fold (normal: <32), the EB. VCA (IgG) titer was 80-fold (<10) and the EB. EBNA was 40-fold (<10). Roentgenograms of the neck and MRI were normal, as was the cerebrospinal fluid. Tendon reflexes remained normal, no pathological reflexes were detected, and no other systemic findings were noted.

Course

Brachial plexitis was diagnosed from these findings. Oral administration of prednisolone was started at 40 mg/day, and the dose was gradually reduced by 5 mg every 3 days thereafter.

As a result, there was a rapid recovery of sensation, but the recovery of muscle power and grip power tended to be delayed. The pain also persisted.

On December 2, she was discharged and returned to work after 2 weeks, but during this period the pain gradually became worse.

The pain and numbness of the neck, right shoulder, and right arm were aggravated (grip power was 15 kg on the right and 36 kg on the left). A stellate ganglion block was performed on January 27, 1990, and prednisolone was also administered again.

The stellate ganglion block was repeated 12 times, but the pain decreased only slightly, and the grip power dropped to 7 kg on the right.

From March 22, a continuous cervical epidural block was instituted using a disposable -type continuous microinfuser. This resulted in a marked improvement in the symptoms, the pain decreased and the muscle power recovered (grip power: 18 kg on the right) (Fig. 1).

Thereafter, her condition remained good for about 4 months, but from around August, severe symptoms including sensory loss and weakness reappeared. On September 3, the grip power was 10 kg on the right, and the continuous cervical epidural block was reinstalled.

This time, there was no improvement except for a temporary reduction in pain due to the epidural block, and her sensory loss and muscle weakness progressed. Since it appeared that the brachial plexitis had recurred, she was readmitted for detailed studies.

Second admission

This time she also complained of pain and numbness in the right side of the neck, the right shoulder, and right arm. Muscle power was 4 to 4 in the right arm and distal weakness was more marked. Pain/temperature and touch sensation were reduced in the C3 to T4 dermatomes (more severe loss distally), and the grip power was 5 kg.
on the right and 30 kg on the left. EMG was basically normal and no characteristic neurogenic pattern was shown by needle EMG. Repeat viral studies showed: parainfluenza 3 (HI), 256-fold; EB. VCA (IgG), 160-fold; and EB. VCA (IgM), 10. The cerebrospinal fluid, MRI studies, and plain X-ray films were again normal. Reflexes were normal, no muscular atrophy was noted, and no other systemic findings were present.

Course

These investigations ruled out recurrence of the brachial plexitis as well as other diseases in the cervical region, such as a herniated intervertebral disk or tumor.

In addition, there was almost total disagreement between the symptoms of which the patient complained and her associated speech and behavior.

Therefore, it appeared that these symptoms were psychogenic rather than organic, and her speech and behavior, working environment, and living conditions were investigated.

Anti-inflammatory agents were administered as symptomatic treatment for her complaints of pain and numbness.

The patient was then counselled regarding problems in her workplace and private life, and measures to solve these problems were suggested whenever possible.

As a result, although the symptoms persisted to some extent, was able to return to work and a normal social life.

DISCUSSION

Brachial plexitis starts with sudden severe pain extending from shoulder to arm, either unilaterally or bilaterally. Simultaneously with the pain or several days to several weeks later, flaccid paralysis occurs due to damage to the lower motor neurons supplying the muscles which are controlled by the brachial plexus, and
finally muscular atrophy develops\textsuperscript{2,4).}

The cause is unknown, but an allergic mechanism is assumed to be involved, since about 25% of the patients have prior upper respiratory infections, and the disease usually occurs in the recovery period from infection, operation or trauma, as well as after vaccination\textsuperscript{2~4).}

The pain is sharp and continuous, but there is no radial pain. This continuous pain lasts from several hours to several days and sometimes for about 2 weeks. In very rare cases, pain can continue for more than a month. It disappears with the onset of weakness and muscular atrophy\textsuperscript{2~4).}

The deltoid, serratus anterior, and infraspinatus and supraspinatus muscles are frequently affected, but the wrist or hand are rarely involved. Reduction in or disappearance of the tendon reflexes also occurs\textsuperscript{2~4).}

Sensory disturbances are basically limited to abnormalities of surface sensation\textsuperscript{3,4). EMG} shows denervation phenomena, such as a drop in the motor unit potential, fibrillations, and positive spike waves, but fasciculation is rare\textsuperscript{3,4).}

The prognosis is generally good and 90% of the patients recover within 3 years. About two thirds of the patients start to recover muscle power within one month after the appearance of pain, and show almost complete recovery within 6 months.

In the remaining one third of patients, recovery is delayed by complete paralysis with atrophy. Improvement gradually appears after several months, but the course extends 2 years or longer in some cases\textsuperscript{2~4).}

Patients who fail to recover have occasionally been reported, and there has also been a report indicating that the prognosis is not as good as previously assumed\textsuperscript{3).} Recurrences occur, although they are rare\textsuperscript{2~4).}

There is no specific treatment, and anti-inflammatory agents, antihistamines, and vasodilators are used symptomatically.

In some cases, pain is alleviated by administration of steroids in the initial period, but they do not shorten the duration of the disease and their effects are questionable.

Physiotherapy is performed to prevent contracture of the shoulder joint, but it has almost no effect on the prognosis\textsuperscript{2~4).}

In the present case, brachial plexitis was diagnosed from the results of the various tests performed at the first admission.

However, when her course was carefully reviewed after the initial admission, the following points were noted which did not match the characteristics of this disease: (1) The duration of continuous pain was about 4 months, which is too long. (2) A slight drop in muscle power was seen over the entire arm, but only the grip power showed a sharp reduction, so the distal disorder was more prominent. (3) Sensory disorders were marked, and were more prominent distally. (4) Variations were seen in the course of recovery of the grip power and this did not proceed smoothly (in brachial plexitis, all symptoms usually show a gradual and simultaneous recovery with no setbacks).

Therefore, psychogenic factors were possibly already involved in this case at the time of the first admission.

The results of detailed investigation during the second admission showed that the recurrence of symptoms was not due to an organic cause, and it was assumed to be psychogenic for the following reasons. Recurrence of brachial plexitis is very rare and in this case there were few objective findings despite the subjective symptoms, the degree of muscle weakness was slight when compared with the sensory disorder, and the symptoms were not improved by a nerve block although this had been effective previously. Also, during the muscle power test the patient showed unusual behavior, such as correction by
leaning towards the technician.

It was subsequently found that the patient had various problems with interpersonal relations in the workplace, and had attracted attention at work because of absences without notice and other such behavior.

To treat this neurosis, discussions were first held with the patient concerning interpersonal relations at work, which were considered to have caused this psychogenic response, and efforts were made to understand her problems.

Then, she was promised assistance in solving her problems, such as a change of position within the hospital or transfer to another hospital.

The symptoms which the patient complained of were also treated symptomatically.

As a result, the patient seemed to become aware that her problems were the same as those faced by all medical employees. She returned to work, and presently only has some occasional vague complaints such as stiff shoulders.

References


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