CLINICAL NOTE

ACUTE CERVICAL HYDRARTHROSIS

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IT IS COMMON FOR AN ARTHRITIC JOINT anywhere in the body to react to sudden excessive use or to trauma by filling up with a serous effusion into the joint cavity. The joints principally affected by osteoarthritis are those of the hip, knee, and the intervertebral joints of the spine. An effusion into the extensive synovial cavity of the knee joint is readily diagnosed and the fluid can be aspirated easily. The intervertebral joints, however, lie deeply within the body so that an effusion into them cannot be demonstrated clinically or radiologically, and can only be inferred.

Although " fluid retention of the spine " is recognized there appears to be no previous reference to acute hydrarthrosis of the cervical synovial joints as a possible cause of acute painful and stiff necks. This is not, I believe, because the condition is non-existent but because it would slowly improve if treated with analgesics alone, and is therefore usually diagnosed as strained muscles or ' fibrositis '. The case histories described in this paper suggest that it is a clinical entity and may be diagnosed in cases of acute painful neck where there is a history of mild trauma or overuse of the neck joints, usually in an arthritic neck, and where the pain and stiffness is rapidly relieved by promoting a profuse diuresis.

In six years in this practice five cases have been seen in which unaccustomed over-use or shaking of the neck joints has resulted in acute pain and stiffness. In none was the trauma severe enough to cause any soft tissue lesion or bony injury, and in the three cases where diuretic therapy was used recovery was much more rapid than would normally be expected, as was shown by the progress of the other two. The first two cases described were treated with analgesics and infra-red heat only, and are included because their symptoms were typical of the condition and they illustrate the time taken to recover without the use of diuretics. A diuretic was first used in case 3 as an experiment and the rapid recovery of this patient after a slow progress on other treatment demonstrates the efficacy of producing diuresis in this condition.

In all cases there was some spasm of the cervical muscles which would be expected round an inflamed joint, but the muscles themselves were not obviously tender on firm palpation.

Diuretic therapy has no noticeable effect in dispersing effusions elsewhere in the body, probably because the volume of an effusion into a knee joint or the pleural cavity is too great to be removed by diffusion back

through the membrane. However, the intervertebral synovial joints involved in this condition are so small that the small volume of effusion produced can apparently be reabsorbed by dehydrating the body.

In addition to the synovial plane joints between the articular processes of the vertebrae, Gray's *Anatomy*, 29th edition (1946) states that, in some individuals, there are additional small synovial joints, in the upper cervical region only, between the bevelled lateral part of the under surface of the vertebral body and the lipped lateral margin of the upper surface of the body below. This anatomical information is omitted in later editions, so possibly the authors considered that these joints were insufficiently important to be included in a textbook of general anatomy. Since these joints only occur in the upper cervical vertebrae a traumatic synovitis involving them might well explain the extreme limitation of rotation of the head which is seen in sufferers from this condition.

Diagnosis

Certain characteristics help in the diagnosis of acute cervical hydrarthrosis. First, the probable presence of cervical osteoarthritis. Most people, over the age of 50, begin to show symptoms or radiological evidence of degeneration of the intervertebral joints. This normally produces no symptoms in middle-aged people, except occasional attacks of backache, stiff neck, or mild symptoms of nerve-root irritation. Vigorous over-use of the spinal joints can lead, in the lumbar spine, to an attack of ' lumbago ', or in the cervical spine to an attack of acute hydrarthrosis. Most cases have a history of unaccustomed over-use of the neck joints and the practice of doing " keep fit " exercises in the bedroom seems particularly prone to lead to trouble.

Patients usually wake up on the morning following the traumatic incident with severe pain in the upper cervical region and radiating up into the occiput and vertex. Limitation of movements of the head, both active and passive, is severe and rotation is impossible, the patient having to turn his whole body.

The diagnosis is confirmed by the response to oral or intramuscular diuretics and it is most important that these should be given in a high enough dosage to cause a profuse diuresis. For this reason an intramuscular diuretic is preferable.

Case 1. A widow, aged 77, travelled from the north of England to a place near London in a single day in the back of an old car with poor springs. The following morning she awoke with a severe occipital headache and was unable to move her head in any direction. On examination, the site of the lesion was obviously the upper cervical vertebrae and I considered the pain and stiffness to be an acute reaction, in a presumed arthritic neck, to the spinal jarring resulting from the prolonged and bumpy journey the previous day. Not being aware, at that time, of acute hydrarthrosis as a possible diagnosis, I treated her with bed rest, analgesics, and long-wave, infra-red heat to the back of the neck. She improved slowly and after a week the pain was less and movements were possible, though still limited and accompanied by crepitation. No x-ray was taken and she returned to her home—by train.

Case 2. A company director, aged 66, decided to keep himself fit by doing vigorous exercises in his bedroom before dressing in the morning. One of these

consisted in rotating his head in a wide arc for half a minute, in which time he did about sixteen revolutions. After the second morning of this unaccustomed abuse his neck reacted by becoming acutely painful and stiff. All movements of the head on the neck were limited and rotation was impossible. He was treated initially with long-wave, infra-red heat to the back of the neck and with a proprietary brand of analgesic and sedative (tercin, two tablets t.d.s.) to control the pain and his considerable agitation. After four days the pain subsided but some residual stiffness remained and this was eventually relieved by physiotherapy. An x-ray of the cervical spine taken ten days after the onset showed slight decalcification of the bones, reduction of the space between C.4 and C.5, but only minimal lipping of the vertebral margins.

Case 3. A married woman, aged 46, had no previous history of injury to the head or neck, or of cervical pain.

The necessity for spectators at Wimbledon Tennis Championships to turn their heads from side to side in following the ball from one side of the court to the other is a popular subject for jokes by comedians and cartoonists. Yet this is exactly what this woman did. For about 4½ hours she sat near the centre of the court and close to its edge so that to follow the games she had to turn her head through an angle greater than 90° about 20 times every minute (on average). The following morning she awoke with an extremely painful neck, the pain radiating up to the occiput and with movements, particularly rotation, very limited.

An x-ray of the cervical spine taken during the acute stage revealed only osteophytosis and a narrowed disc space between C.6 and C.7, suggesting early osteoarthritis. She was treated with a preparation containing prednisone and phenylbutazone and with soluble aspirin to relieve the pain. As the pain and stiffness were still present after three days she was given, as an experiment, hydrochlorothiazide, 50 mg. t.d.s. On this treatment she rapidly improved and after three more days her neck movements were free and only slightly painful at the extreme limits of movement. She has not had a recurrence.

Case 4. A young married woman, aged 24, had for months complained of headache and irritability for seven days before each menstrual period. She usually had a mild diuresis at the start of each period which suggested the diagnosis of premenstrual tension, but treatment with progestins, oral diuretics and phenylbutazone had been disappointing and she had reverted to analgesics and sedatives during the premenstrual week. About three days before one period was expected she woke up with severe pain in the neck radiating up to the occiput and vertex. All movements of the head were limited and very painful. Again there was a history of unaccustomed movements of the head, as the previous day she had helped her husband to hang wallpaper. This required looking and reaching upward for a long period and in a neck already primed by premenstrual fluid retention may have been the trigger which set off the acute reaction. No x-ray was taken as it was considered unlikely to show any definite lesion at her age.

There was no tenderness of the cervical muscles on firm palpation although some muscle spasm was present. In view of the previous lack of response to oral diuretics she was given an injection of 2 ml. of mersalyl at 10.30 a.m., when first seen, and soluble codeine compound tablets to ease the pain. The injection of mersalyl was repeated at 4.00 p.m. The following morning her neck was less painful and she was given a further injection of mersalyl, 2 ml. By the third morning her neck movements were free and almost painless.

Case 5. A retired tailor's cutter, aged 72, who, like case 2, suddenly started "keep fit" exercises after years of physical inactivity. One of these also consisted or rotating his head in a wide arc for several revolutions in each direction.

For the first four evenings these exercises were performed very gently but on the fifth evening he decided that gentle exercises were of no value and put more vigour and energy into them. As a result he woke the following morning with severe headache and pain in the neck. When first seen the head was fixed, and although some limited flexion and extension was possible, lateral movements and rotation were quite impossible. Firm palpation and percussion of the spines of all cervical vertebrae produced pain.

These symptoms were typical of an acute cervical spinal hydrarthrosis and he was given an immediate injection of mersalyl (2 ml.). This was followed by the oral administration of hydroflumethiazide, 50 mg. t.d.s., and soluble codeine compound tablets to relieve the pain. A profuse diuresis during the afternoon resulted in a reduction of pain by the following morning, when movements of the head were possible but still very limited. After two further days on the oral diuretic an almost full range of movement of the head had returned although he still complained of dizziness and pain in the occipital and vertical regions of the skull. After a further week on analgesics alone the pain had gone.

An x-ray of the cervical spine taken eight days after the onset showed narrowing of disc spaces in the lower cervical spine with marginal lipping of the bodies of all cervical vertebrae; a picture considered by a radiologist to be typical of spinal osteoarthritis.

Summary

Five cases are described of patients in whom acute, severe pain in the neck with fixation of the upper cervical vertebral joints followed either unaccustomed over-use of the head and neck joints or jarring of an osteoarthritic spine. The speed of response to treatment of three cases treated with diuretics, compared with two treated with analgesics and infra-red heat alone, suggests that the cause of the symptoms was a retention of fluid in the spine. From the nature of the trauma to the cervical spine and the symptoms produced it is considered that effusions into the synovial joints of the cervical vertebrae took place.

The efficacy of treating this condition with diuretics in high enough dosage to produce a profuse diuresis is shown.

REFERENCE

Gray's *Anatomy*, 29th edition, (1946). p. 451.