CERVICAL SYMPATHETIC BLOCK IN PERIARTHROSIS
OF THE SHOULDER JOINT WITH SECONDARY
REFLEX DYSTROPHY

BY

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Periarthritis humeroscapularis with restricted
mobility of the shoulder joint is in some cases
accompanied by changes in the hand on the same
side (shoulder-hand syndrome). In advanced cases
the hand is slightly cyanotic and damp, and there
is stiffness and swelling of the fingers and hand,
mostly in the morning; there may be pain and
varying degrees of perspiration; the skin of fingers
and palms may be drawn tight so that the lines
of the hand are effaced. The appearance is very
much like that of post-traumatic reflex dystrophy,
both in the violence of the pain and in the capricious
way in which some persons are attacked by reflex
dystrophy, others not. Still later in the disease
fibrous nodes or strings may appear in the sub-
cutaneous tissue in the palm of the hand or in the
interstices, and osteo-arthritis may in rare cases
appear in the interphalangeal joints.

The fibrous changes may virtually diminish in
most cases, even though there may still be some
nodes or tightness hindering the full spreading
of the fingers and causing lasting disablement. The
changes in the soft tissues of the hand and fingers
are of the same hard character as the changes in
the soft tissues around the affected shoulder joint.

The aspect of the hand, the resemblance to the
post-traumatic reflex dystrophy, and the course
of the disease, makes one suspect that the symp-
thetic nervous system is involved; both
Kahlmeier (1936) and others have had the same idea,
and as post-traumatic reflex dystrophy can be
improved or cured by sympathectomy, it seems that
it is worth paying attention to the sympathetic
nervous system in cases of periarthritis humero-
scapularis simulating reflex dystrophy. One might
hope (1) to avoid further development of restricted
mobility of the shoulder joint; (2) to avoid further
development of stiffness of hand and fingers;
(3) to soften the leathery, dry hand in old cases of
reflex dystrophy; and (4) to eliminate pain.

Treatment

In 1944 two patients with periarthritis humero-
scapularis were treated under my direction by
stellate ganglion block. One of them had about
ten blocks without any definite effect. The other
one had one single block which was completely
without effect. The technique used at the time
seemed to me so difficult that I found it impracticable
to perform it to any greater extent on ambulant
patients.

At the rheumatological congress in Copenhagen
in 1947, Otto Steinbrocker from New York pre-
sented a report on six cases of periarthritis humero-
scapularis with secondary reflex dystrophy treated by
stellate ganglion block and block of the brachial
plexus. Dr. C. Gillmor, Kansas City, was kind
enough to demonstrate to me the technique applied,
and he informed me at the same time that Dr.
Steinbrocker and he in most cases only used stellate
ganglion block, and that one injection was, in their
opinion, often sufficient.

Method.—The injection is made in the following
manner. The patient lies on his back with a pillow
under his neck and the upper part of the back, so that
the head is bent backwards. The cricoid cartilage
is palpated, and its lower edge and the medial border of the
m. sternocleidomastoid are marked with iodine cotton.
The needle (Rowika 80 × 100) is introduced along the
lower edge of the cricoid cartilage just between the medial
border of the sternocleidomastoid and the centre line
of the neck, so that the introduction is made between the
trachea and the carotid artery, directly above the glandula
thyroidea. The needle is introduced until it touches the
periosteum on the cervical vertebra, and 10 c.cm. of
0·5 per cent. solution of procaine without adrenaline
is slowly injected. Before the injection the piston is
pulled a little back; so that one is sure of not injecting
into the carotid artery. (I always have evipan on hand
in case the parathyroid gland should be affected.)
The patient is warned not to make any swallowing
movement while the needle is introduced and during

220
CERVICAL SYMPATHETIC BLOCK

the injection. Steinbrocker calls the injection a stellate block, which in most cases it is, but even if the needle comes into contact with the sympathetic above the ganglion the same result is achieved, because part of the liquid presses down on the ganglion.

To some of the patients the injection is so disagreeable, on account of the region in which the injection takes place, and also because they are not permitted to do any swallowing, that one has to stop before the intended quantity has been injected. In other cases there has been such a pronounced relief from pain and stiffness that the patient himself has expressed the desire to continue.

Results

Since last year I have treated about fifty patients with this form of sympathetic block. I have analysed the results in the first twenty-four patients. The shoulder-hand syndrome was the main indication for operation, and these patients made up sixteen of the twenty-four. The remaining eight were patients without this symptom but with, for example, pains in the shoulder and arm only, but of such violence that I found it worth while to try the block with the sole object of relieving the pain. I have also treated two patients with helodermi (fibrous pads on the dorsal aspect of the middle joints of the fingers), and a few others. Altogether these twenty-four patients have had eighty-six blocks (see Table).

Most patients had consulted me privately, with the result that routine tests, especially measuring of the skin temperature and the perspiration test, were not undertaken. The selection of patients and assessment of the result of injection was purely clinical. Unless otherwise stated, the ordinary medical and neurological examination showed nothing abnormal.

Some of the patients were women at the climacteric and with climacteric characteristics; that is to say, they were as a whole rather fat and with puffy subcutaneous tissues. All the patients have formerly been given physical treatment with no satisfactory result.

Horner’s symptom presented itself after approximately 40 per cent. of the injections, but the result seemed independent of the occurrence of Horner’s symptom. As can be seen from the Table, in the group with periarthritis humero-scapularis about 60 per cent. of the cases improved and there was no effect in 40 per cent. In no case did the block aggravate the condition or produce lasting discomfort.

The improvement has mostly been in diminution of pain and also of swelling and stiffness of the fingers and hands. The relief has often come immediately after the injection. In one patient the effect was excellent: after an attack of reflex dystrophy four years before, two fibrous nodules appeared in the first interstitials, and fibrous tension in the thenar, analogous to Dupuytren’s contraction. The nodules were much softer after two injections; one of them disappeared completely, and the hand became more supple and soft. In the case of a patient with helodermi the nodules became softer after the first injection; she was able to put on her rings, which she had been unable to do for five or six years, but the good effect disappeared during the following two months, and no improvement followed a series of injections a few months later. In another patient with helodermi the operation was without result.

The cause of the result of the treatment is

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<thead>
<tr>
<th>Table</th>
<th>ANALYSIS OF RESULTS OF STELLATE GANGLION BLOCK</th>
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<tbody>
<tr>
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<td>Other cases</td>
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* Excluding a single case of four years’ duration.
uncertain: various explanations exist. As the ailment is supposed to be due to a dysfunction of the sympathetic one can assume that the effect of the block depends on a paralysis of the sympathetic, which is part of the reflex curve that keeps the disturbance of circulation going. The soothing effect may be due to the fact that the pain is purely "sympathetic" (Shaw, 1933). Mason (1948) refers to a case of shoulder-hand syndrome treated with the same technique.

Conclusions

After the injection in the stellate ganglion with 10 c.cm. of 0.5 per cent. procaine solution, improvement was obtained in 60 per cent. of patients with periarthritis humeroscapularis with secondary reflex dystrophic disturbances of the hand; 40 per cent. remained unchanged. The injection technique is difficult and the injection is a little disagreeable for most patients, but hardly dangerous.

In acute cases there may be improvement of pains and swelling of fingers and hand, and in chronic cases improvement in the stiffness of hand and fingers may take place, and fibrous nodules may disappear.

It is true that this series is small and, as the symptoms of the disease were not clearly defined, the indications for the treatment rested on a rather vague clinical judgment, the patients not having been submitted to laboratory investigations and no perspiration test or skin-temperature measurements having been done. Nevertheless, I have reported the results because periarthritis humeroscapularis with secondary reflex dystrophy is a long drawn out and painful ailment, and if the hand is also included one is even less certain about the duration and prognosis. I consider therefore that any sensible therapeutic measure should be taken to shorten or relieve the disease.

References

Gillmor, C. (Personal communication.)

Bloc Sympathique Cervical dans la Périarthrose de l’Articulation de l’Epaule avec Dystrophie Secondaire Réflexe

Une injection de 10 mm.c. de solution de procaine à 0.5 pour cent dans le ganglion étoilé fut suivie d’une amélioration dans 60 pour cent des cas de periarthrose huméro-scapulaire avec des troubles dystrophiques réflexes secondaires de la main; 40 pour cent demeurèrent inchangés. La technique de l’injection est difficile et l’injection est un peu désagréable pour la plupart des malades, mais elle n’est guère dangereuse.

Dans des cas aigus il peut y avoir une amélioration des douleurs et de l’enflacement des doigts et de la main, et dans des cas chroniques une amélioration de la rigidité de la main et des doigts peut se produire; les nodules fibreux peuvent disparaître.

Il est vrai que cette série est petite et, comme les symptômes de la maladie n’étaient pas clairement définis, les indications du traitement se basaient sur un jugement clinique plutôt vague; les malades ne furent pas soumis à l’examen de laboratoire, l’épreuve sudorale ne fut pas faite et la température de la peau ne fut pas déterminée. Malgré cela j’ai rapporté sur ces résultats parce que la périarthrose huméro-scapulaire avec dystrophie réflexe secondaire est une maladie pertinace et douloureuse, et lorsque la main se trouve également atteinte, on est encore moins certain de la durée et du pronostic. Je pense donc que n’importe quelle mesure thérapeutique judicieuse doit être prise afin d’abréger la maladie ou de soulager le malade.
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