DIAGNOSTIC DILEMMAS

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SUMMARY

Myofascial Pain Syndrome (MPS) can mimic many other systemic diseases and pose a real challenge for the pain therapist. Successful diagnosis and managements of three cases of MPS is here below presented.

Keywords: Myofascial pain, Musculo skeletal pain.

It is not uncommon to encounter puzzling cases of chronic pain in established pain clinics. Myofascial Pain Syndromes (MPS) are among the most common under recognised and inadequately managed causes of musculoskeletal pain. We report here the chronic, enigmatic cases that were a diagnostic dilemma.

Case 1

35 year old working multigravida was referred with left lower back pain, and difficulty in breathing, associated with, burning sensation and hyperalgesia in the lower abdomen of four months duration. She had difficulty to walk, and lie on the left side. The pain disturbed her sleep pattern. The back pain was dull aching, aggravated by movement. There was no history of trauma.

The pain of gradual onset, had worsened over a two-month period. Initially she could work at house and office. As the pain increased, her ability to sit and work diminished, and she often absented from work place. After two months of onset of pain a tingling sensation was noticed in the lower abdomen on the left side below the umbilicus extending to external genitalia. This progressed into constant dull aching pain and burning sensation. Her own clothes or normal touch would elicit severe pain (alldynia) over the lower abdomen.

She often found severe pain and sweating in the left side of chest wall, with difficulty in breathing, 2-3 times a day lasting 5-10 minutes and receding spontaneously.

She had been investigated for biochemical, haematological, radiological (CT scan, ultra sound and MRI) and neurological abnormalities without benefit. She was on oral NSAIDS and opiates for pain, with anti-convulsants for her burning sensation and alldynia with no benefit.

On examination she had adopted a right sided bent posture, with the right leg bearing her weight while walking. She had alldynia to fine touch over the left sub-costral, lumbar and left hypo-gastric region. The right side was normal. She had tender trigger points over the left external oblique, transverse abdominis, serrates posterior, quadratus lumborum, iliocostalis, gluteus minimus, sartorius, adductor magnus, medial and lateral head of gastrocnemius and soleus. She also had trigger points over the right soleus and medial head of gastrocnemius.

A diagnosis of Myofascial Pain Syndrome was made on the accepted clinical criteria. 2

Treatment

A subcutaneous injection over the area of alldynia (hypogastric region) and a trigger point injection (TP injections) over quadratus lumborum were administered on alternate days with 0.25% bupivacaine. This was followed by trigger point injections twice weekly with 0.25% bupivacaine over the rest of the trigger points, described above with passive stretch exercise of the back and legs.

Observation

There was a seventy five percent reduction in alldynia after the second injection with complete relief after four injections (i.e. over 96 hours). The TP injections, administered twice at weekly intervals provided fifty percent reduction in pain at three weeks and complete relief at six weeks.

The severe pain and sweating in the left side of chest wall, with difficulty in breathing disappeared 72 hours of start of therapy. Patient was able to lie on the same side after 96 hours of start of treatment. There was no disturbance in sleep pattern after 96 hours of start of treatment. Active exercise was initiated at four weeks. She was back at work after eight weeks of start of therapy. She was advised to continue the active physiotherapy. Follow up at one, three, and six months had no recurrence.
Discussion

The pain of gradual onset on the left side was initiated by micro injury in the left calf muscle secondary to the constant use of narrow platform foot wear. The repetitive injury initiated the development of trigger points over the soleus, medial and lateral head of gastrocnemius causing persistent pain. The neglected pain in the left leg caused a strain over the adductor magnus, gluteal and the lower back muscles to maintain stability of the hip joint, pelvis and spine, resulting in Trigger Points over lower girdle muscles, stiff back and the low back pain.

The trigger point over the quadratus lumborum and external oblique entraps the ilioinguinal and ilio-hypogastric nerves causing paraesthesia. As the pain and the spasm increases due to the persistent presence of trigger point, the initial paraesthesia gets converted to allodynia - a sympathetic mediated pain.

The breathing difficulty in this case was secondary to the development of satellite trigger point over the serrates posterior, rectus and transverse abdominis secondary to the trigger point over external oblique and quadratus lumborum. The trigger point injection over quadratus lumborum, serrates posterior and external oblique relieved the breathing difficulty.

Case 2

38 year old professional lady was referred with pain in the left side of chest, and paraesthesia over the left shoulder of 6 months duration. The pain started a fortnight after abdominal hysterectomy. The pain was dull aching, constant and affected her profession as a computer analyst. She was empirically on analgesics, with no improvement. She joined work after three months of medical rest (after surgery) which aggravated the pain. She was on anti-psychotic drugs for depression.

She had undergone incision and drainage surgery on two occasions for acute suppurative hydradenitis at the left axillary region followed by active physiotherapy treatment in the past.

On examination she had trigger points over pectoralis major and minor muscles, triceps, trapezius, infraspinatus and latissimus dorsi on the left side. The range of movement of shoulder girdle and the neck were restricted and painful.

A diagnosis of Myofascial Pain Syndrome was made on the accepted clinical criteria.

Treatment

She received TP injection at twice a week interval for two months along with passive physiotherapy. The range of movement (ROM) increased with no pain. She was discharged with the advise of postural modification at work.

Discussion

The post surgical pain, developed during surgery because of possible over-extension of abducted arm under GA with muscle relaxants. Abduction at the shoulder without support at the elbow while typing and using the computer mouse further aggravated the pain at work. This lead to repetitive injury syndrome of the extensions of the wrist, the flexors of elbow (biceps and brachioradialis), triceps, trapezius and infraspinatus. Follow up at 3 and 6 months had no recurrence.

Case 3

A middle aged working lady with left sided continuous headache of eight months duration was referred to the pain clinic. The lancinating pain was intense, extending from vertex to supraorbital, and temporal regions radiating to left half of face. The pain was associated with drooping of the left eyelid, irritability, depression, sleep and emotional disturbance. She had no history of psychological disturbance. She had undergone microvascular decompression surgery earlier for left sided trigeminal neuralgia. She was on tab carbamazepine without relief. The present pain was continuous and had increased after the second surgery. The character of the pain was different from the pain of trigeminal neuralgia.

On examination she had multiple trigger points over the trapezius and suboccipital, sternocleidomastoid muscles. A diagnosis of Myofascial Pain Syndrome was made on the accepted clinical criteria.

Treatment

She had multiple trigger points injections distributed over a month at twice weekly intervals. After two weeks of start of trigger point injection, TENS was started for 40 minutes duration three times a day, for two weeks. She had 90% improvement after two weeks of TENS therapy. She had stopped tablet carbamazepine. Follow up at 3 and 6 months had no recurrence.

Discussion

Lack of adequate support in odd postures results in passive overstretch of the muscles. Suboccipital and sternocleidomastoid muscles develop trigger points during sustained extension while looking upward when the muscles are fatigued. This results in over-contraction of the suboccipital muscles and trapezius. It lead to overstretching of sternocleidomastoid muscle precipitating the development of the trigger point contributing to the
painful movement of the neck\textsuperscript{6} and the symptom of the headache.\textsuperscript{4}

Pain from trigger points of suboccipital and sternocleidomastoid muscles extend forward unilaterally to the occiput, to the eye and the forehead.\textsuperscript{5} The trigger point in upper trapezius distributes severe constant posterolateral neck pain associated with temporal headache on the same side.\textsuperscript{7} This distribution of pain had been mistaken for the trigeminal neuralgic pain which she suffered earlier and was on carbamazepine medication without relief.

\section*{General discussion}

MYOFASCIAL PAIN SYNDROME (MPS) has been empirically defined as musculoskeletal pain arising from one or several hyperirritable spots within the belly of muscles and/or its associated fascia.\textsuperscript{7} The hyperirritable spot called the trigger point (TP) has the propensity to cause referred pain in a distinctive distribution when stimulated. Mechanical stresses that overload muscles produce and perpetuate trigger point activity in persistent MPS. They are associated with abnormal muscle sensitivity secondary to high levels of sympathetic excitation.\textsuperscript{7} The cause of pain in Myofascial Pain Syndromes can be cured with restoration of function\textsuperscript{1} if recognised early.

Normally no neurological findings are caused by myofascial (TPs) trigger points unless taut bands produce some neuropraxia due to nerve entrapment which may be sensory and/or motor depending on the nerve.

Pain from deep somatic structures such as muscles, ligaments, joints and periosteum is essentially similar to visceral pain, with referred pain occurring to distant areas within the same segment.\textsuperscript{8,9}

Skeletal muscle, innervated by Group III A delta afferent fibres, are located at muscle tendon junctions\textsuperscript{10,11} and respond to low mechanical sensitivity.\textsuperscript{12,13} Moderate local pressure, stretch and to contractions.\textsuperscript{10,14} Some of the sensitive Group III units through gamma motor neurons trigger the protective claspknife inhibitory reflex.\textsuperscript{15}

It has been demonstrated that the spinothalamic tract cells receiving the nociceptive input from muscle also receives convergent input from skin and muscle afferents.\textsuperscript{16} The afferent inputs from muscular or articular tissues has been shown to excite the cutaneous nociceptive neurons in the spinal dorsal horns of monkeys.\textsuperscript{17-23} Their inputs from muscle appear to involve group III afferents.

The convergence of superficial as well as deep inputs on the same spinothalamic tract cells has been suggested as the mechanism for hyperalgesia as seen in case 1, poor localisation and referral of muscle pain\textsuperscript{24,25} as seen in case 2,3 & 4.

We hypothesise that the trigger point injection with long acting local anaesthetic breaks the pain/spasm/pain cycle by probably blocking the stimulation of the afferent sensitive group III A delta fibre units and preventing the triggering of claspknife inhibitory reflex within the skeletal muscle. It may also prevent the unmyelinated C fibre of group IV afferents from firing during muscle stretch.

The other possibilities hypothesised are (a) Mechanical disruption of the abnormal contractile elements, which may result in the relief of muscle tautness and hyperirritability. (b) Fluid injection may dilute nerve sensitised substances that may be present. (c) Muscle fibre damage may release intracellular potassium causing a depolarisation block of nerve fibres. (d) Interruption of feedback mechanisms between the central nervous system and the trigger point. (e) Focal necrosis caused by the anaesthetic agent which could contribute to the destruction of the trigger point.\textsuperscript{7}

The conventional TENS in case 3 helped to relieve the spasm in the primary TP's of sternocleidomastoid and trapezius and also in other associated muscles (myotatic unit) through its local effect by improving the circulation and removing the algogenic substances, while at the spinal level by closing the gate at substantia gelatinosa acting through A beta fibre stimulation.\textsuperscript{26}

The prevention and treatment of myofascial pain is difficult as it involves an understanding of biomechanics of the individual patient. The precipitating factors are multi-factorial. There is no single formula for the management of myofascial pains. The search for a panacea continues.

These cases highlight that myofascial pains can mimic many systemic diseases. Establishing a correct diagnosis and judicial use of trigger point injection alone can treat myofascial pains although it is a slow process. The combination of trigger point injection and simultaneous application of TENS (case 3) can hasten the recovery. The lack of facility (the Tens unit used in case 3 was bought by the patient) to use the latter therapy in all patients forced us to adopt the single modality of treatment.

\section*{References}


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