

Acquired Talipes Equinovarus Managed with Physiotherapy, Panchakarma and Acupuncture: A Case Report

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ABSTRACT

Acquired Spastic Equinovarus Deformity is a progressive foot deformity most commonly seen in patients following a cerebrovascular accident or traumatic brain injury. Authors wish to present a case of Acquired Spastic Equinovarus having severe deformity and pain which presented to them six months after the initial symptoms and which was treated and recovered absolutely with a novel, unique, integrated and tailored therapy comprising of Physiotherapy, Acupuncture and Ayurvedic Panchakarma.

Keywords: Acquired Talipes Equinovarus, Physiotherapy, Acupuncture, Panchakarma.

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CASE REPORT

A 25 year old lady presented with pain, weakness, stiffness of right lower limb and contracture and deformity of right foot with difficulty in walking since 6 months. Earlier to start with she had transient unconsciousness with right lower limb weakness which progressed to left lower limb and then to right upper limb for which she was treated at a local hospital where her right upper limb and left lower limb recovered but her right lower limb symptoms persisted and increased over a period of time.

On examination she had difficulty with gait and she was unable to walk without a walker, there was stiffness in right lower limb, tightness of hamstrings and an obvious spastic talipes equinovarus deformity in right foot. Her previous reports revealed a normal MRI of Brain with whole spine

screening, a normal EMG and NCV and normal CSF examination. A psychiatry reference was taken at that time to rule out any psychiatry cause and psychiatry examination turned out to be normal.

She was advised surgery for the Talipes Equinovarus deformity at a private hospital and injection Botox for right hamstrings and T.A.[Tendo Achilles] at another hospital which patient and her relatives denied to undergo.

At our hospital she was given Physiotherapy sessions for 30 days with Panchakarma 2 sessions of 7 days each and Acupuncture 2 sessions of 10 days each. After this therapy she recovered totally, her deformity was corrected, pain subsided, muscle tone came back to normal and now she can walk normally and independently without any support.



PHYSIOTHERAPY ASSESMENT

The assessment is done thorough for bony deformity. Several special tests are performed in order to look for structural and functional impairments.

Thus we need to consider following criteria:

Basic Process for Evaluation

1. Establish a precise diagnosis
2. Rule out the spinal complaints
3. Undertake the past and personal/family history.

Perform Myotome Testing

Testing of myotomes, in the form of isometric resisted muscle testing, gives information about the level in the spine where a lesion may be present. During myotome testing, you are looking for muscle weakness of a particular group of muscles.

Manual Muscle Testing: Using OXFORD SCALE

1. Hip (flexion/extension/Abduction/Adduction/Internal rotation/External rotation)
Right - 2 Left - 4+
2. Knee (flexion/extension)
Right - 2 Left- 4+
3. Ankle (Dorsi flexion/Plantar flexion)
Right - 1 Left -4
4. (Eversion/Inversion)
Right- 0 Left- 4

Range of Motion assessment

Range of motion (ROM) means the extent or limit to which a part of the body can be moved around a joint or a fixed point; the totality of movement a joint is capable of doing.

Below mentioned are the values of range of motion assessed pre and post treatment using goniometer ranges. The affected and unaffected limbs were assessed particularly-

JOINT	PRE		POST	
	Right	Left	Right	Left
Knee				
Flexion	0-110	0-150	0-140	0-150
Extension	0	0	0	0
Ankle				
Dorsi flexion	10	0-20	20	0-20
Plantarflexion	20	0-50	40	0-50

PHYSIOTHERAPY TREATMENT

Physical therapy includes certain exercises and treatment protocols i.e. non-invasive to relieve pain, help you move better and strengthen weakened muscles. Physiotherapy

mainly focuses on movement management in people with various conditions like neurological diseases, traumatic injuries, etc.

Physiotherapy approaches to intervention for three total

courses including a tailored exercise program. Initially for stage of course 1 following exercises were given -

Session 1

Exercise Therapy

1. Relaxed passive movements (BIL)
2. Weight bearing exercises on ankle
3. Strengthening exercises both lower limbs
4. Heel exercises (both ankles)
5. Unilateral and Bilateral Bridging
6. Walker assisted exercises

Electro Therapy

1. Electrical muscle stimulation (surged faradic)
- For both lower limbs 20 minutes.

Session 2

Exercise Therapy

1. Relaxed passive movements for both lower limbs 20 minutes
2. Bridging
3. Weight bearing exercises for ankle and talonavicular joint
4. Theraband exercises for strengthening
5. (Both upper and lower limb)
6. Walking with support on parallel bar
7. Stretching exercises including Quadriceps stretch, calf stretch ie HAMS and TA.
8. Ankle pumps
9. Toe raises and Heel raises
10. Mobilization to Talar joint

Electro Therapy

1. TENS (transcutaneous electrical nerve stimulation) for both lower limb, 20 minutes.

Session 3

Exercise Therapy

1. Strengthening exercises:
 - weight cuff training (Both lower limb)
 - Theraband exercises (Straight leg raise)
2. Wall squats
3. Heel exercises (Both LL)
4. Stretching
 - Hip flexor and Quadriceps
 - Hamstrings and TA (calf)

-Gluteal muscles and IT band

5. Ankle pumps
6. Balance exercises on chair i.e- Heel raises and Toe raises (holding chair), One leg standing, Back- kicks.
7. Talar mobilisation
8. Ankle active assisted movements
9. Independent walking with weight cuffs
10. PNF stretching exercises

Electro Therapy

1. TENS for both the lower limbs, 20 minutes.

Session 4

Exercise Therapy

1. General Lower extremity stretches; Self stretching
 - Hamstring stretch with towel
 - Piriformis stretch
 - Figure of 4 stretch
 - Seated hamstring stretch
 - Quad stretch (standing)
 - Standing calf stretch (Gastrocnemius)
 - Half kneel hip flexor stretch
 - Prone quad stretch
2. Lunges/Step-ups
3. Wall squats
4. Buttock stretch
5. High knees
6. Sit to stand
7. Strengthening exercises with weight cuffs on.
8. Independent walking
9. Balance exercises
10. Trampoline

Advice to be followed: Hot pack application for consecutive days of treatment.

AYURVEDIC PANCHAKARMA THERAPY

Ayurveda focuses on maintaining health by balancing the three physiological forces of the body (Doshas)-Vata, Pitta, and Kapha. Panchakarma is a treatment program for the body, mind and consciousness that cleanses and rejuvenates. It is based on Ayurvedic principle that every human being is a unique phenomenon manifested through the five basic elements of Ether, Air, Fire, Water and Earth. Combination of these elements is 3 doshas (Tridosha)-

Vata, Pitta and Kapha, and their balance is unique to each individual. When there is imbalance of doshas, it results in disease or disorders.

Panchakarma is done individually for each person with their specific constitution and specific disorder in mind, thus it requires close observation and supervision. Treatment starts with pre- purification measures of Snehana & Swedan followed by Pradhan Karma according to disorder. In this case she was given Snehana, Nadiswed, Kati basti, shirodhara with Anuwasana basti & Niruh basti for alternate days.

Snehana

Snehana refers to the massage of medicated oil over whole body for a specific period.

Nadiswed

It is steam therapy.

Shirodhara

Shirodhara is a classical and a well-established ayurvedic procedure of slowly and steadily dripping medicated oil or other liquids on the forehead. This procedure induces a relaxed state of awareness that results in a dynamic psycho-somatic balance.

Kati Basti

Kati Basti involves retention of warm thick medicated oil over the lower back

Basti

Basti is the introduction of herbal decoctions and medicated oils into the colon through the rectum.

ACUPUNCTURE THERAPY

It is a traditional Chinese therapy which explains acupuncture as a technique for balancing the flow of energy or life force-Known as Chi or qi (Chee) -believed to flow through pathways (Meridians) in our body. Acupuncture involves the insertion of very thin needles through our skin at strategic points on our body. By inserting needles into specific points along these meridians, our energy flow gets rebalanced, achieves equilibrium of Yin and Yang which ultimately helps in curing disease and restoring health.

In Acupuncture Therapy she was given Acupuncture at following meridian points-

GV 20, LI 4, LI 11, EX 31, EX 32, EX 36, SP 6, SP 9, , GB 30,GB 31, GB 34, GB 41, ST 36, ST 38,

ST 40, ST 41, ST 44, K 3, LIVER 3, GV 3, GV 4, GV 14, UB 25, UB 23, UB11, UB 36, UB 37, UB 40, UB 56, UB 57, UB 60, UB 62

DISCUSSION

Acquired Talipes Equinovarus deformity is caused mainly followed by Cerebrovascular accident (CVA) or Traumatic brain injury (TBI) and is associated with conditions like joint contractures and hyperextension of knee in stance phase

Equinus is secondary to overactivity of the gastrocnemius-soleus complex and Varus is due to relative overactivity of the tibialis anterior, with lesser contributions from the FHL, FDL and tibialis posterior. The patient presents with deformity and difficulty with gait and the most common physical finding is spastic equinovarus deformity, increased tone and hyper reflexia. Diagnosis is made clinically with presence of a spastic equinovarus foot deformity in a patient with a prior CVA or TBI. Standard prevalent treatment is an initial trial of observation with bracing. Surgical management is indicated for fixed contractures that persist after the period of neurologic recovery and which are not braceable.[1]

The first non-operative treatment was proposed by Hippocrates in 400 BC when he recommended gentle manipulation followed by splinting.[2]

Plaster casts were used to treat clubfoot when Guerin introduced the plaster of Paris in 1836. [3] Kite was the first to recommend gentle manipulation and cast immobilization[4]

Management of the persistent, acquired, neurogenic equinovarus foot may be a confounding rehabilitative dilemma. Victims of cerebrovascular accidents and traumatic brain injury commonly develop this neurogenic deformity. The plantarflexed and inverted foot position results from an imbalance of forces about the hindfoot due to exaggerated muscle tone and hyperactive stretch reflexes.[5]

Treatment includes –Non surgical and surgical options. Non surgical treatment comprises of- physical therapy, Botox injection and orthoses as first line of treatment with emphasis on stretching and strengthening, maintenance of joint range of mobility. AFOs are recommended for bed ridden and wheelchair bound patients.

Surgical treatment - Equinus deformity is managed with lengthening of the Achilles tendon and varus deformity is treated with a split anterior tibialis tendon transfer (SPLATT). Osteotomies and fusions are advised in patients with recurrence of deformity despite proper soft tissue procedures

CONCLUSION

A case of Acquired Talipes Equinovarus having severe spasticity and deformity which is known to have not a good

prognosis leaving significant disability and deformity, recovered absolutely with an unique, novel, integrated therapy combining Physiotherapy, Ayurvedic Panchakarma & Acupuncture.

Physiotherapy focusing on movement, tone, strength and mobility of muscles and joint, Panchkarma achieving equilibrium of 'doshas' and detoxifying body, along with Acupuncture therapy regaining the balanced state of 'Yin' and 'Yang' and regulating energy flow in the body, when integrated and practiced simultaneously could achieve promising results in a case of Acquired Talipes Equinovarus.

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