

Acupuncture Stimulation on LR3 Reduced Shoulder Pain Caused by Upper Trapezius Rigidity. A Case Report

Lee Hey-Jin¹ · Lee Nam-Heon¹ · Son Chang-Gue¹ · Cho Jung-Hyo^{1*}

상부 승모근 경직으로 유발된 견비통에 대한 태충혈 자침의 효과 1례

이 혜 진¹ · 이 남 현¹ · 손 창 규¹ · 조 정 효^{1*}

¹대전대학교 한의과대학 내과학교실

이 임상례는 근육 경직으로 인한 견비통에 태충혈이 유효함을 제시하고 있다. 환자의 주관적인 만족도를 평가하기 위해 점수식 평점 척도(Numerical rating scale;NRS)를 측정하였고 어깨 경직의 객관적인 호전 정도를 평가하기 위하여 양측 견정혈의 통증 통각 역치(Pressure pain threshold;PPT)와 어깨 외전력, 어깨관절의 외전시 가동범위(Range of motion;ROM)을 측정하였다.

양측 태충혈에 15분간 유침 후 NRS는 5에서 2로 감소하였다. 치료 전 왼쪽 견정혈의 PPT는 19N이었고 오른쪽은 22N이었다. 치료 후 왼쪽 견정혈의 PPT는 22N이었고 오른쪽은 27N이었다. 치료 전 견관절의 외전력은 왼쪽에서 29N, 오른쪽에서 22N으로 측정되었다. 치료후 견관절의 외전력은 왼쪽에서 33N, 오른쪽에서 22N으로 측정되었다. 견관절 ROM은 치료 전과 후 동일하게 왼쪽 관절 170도, 오른쪽 관절 165도로 나타났다.

결론적으로, 태충혈 자극은 어깨의 경직을 해소하고 어깨 근력을 강화하는 것으로 나타났다. 또한 그것은 상부 승모근의 압통을 감소시킬 수 있다. 이러한 측면에서, 태충혈의 효과에 대해서 보다 추가적인 연구가 필요할 것으로 보인다.

핵심단어 : LR3, 太衝, 태충, 어깨, 근육, 승모근

I. INTRODUCTION

Shoulder pain is one of the most common reason that patient needs medical treatment. Korean healthcare bigdata hub provides that 998,682 patients were examined 'shoulder lesions'(M75) in the outpatient clinic.¹⁾ It took fifth place in the outpatient who had

visited Traditional Korean Medical(TKM) hospital. Furthermore, 'Other disorders of muscle'(M62) and 'Diseases of the musculoskeletal system and connective tissue'(U30) taking 6th and 10th in the same data has subclass about shoulder. So patients suffered from shoulder disorder can be more than this statistics, actually. For this reason, shoulder treatment is very important clinical task.

Many muscles, ligaments, tendons and articular capsules make interaction. This interaction offers stability and movement of

* Corresponding author : Cho Jung-Hyo, Dept. of Internal Medicine, Daejeon Oriental Hospital of Daejeon University 34929, 176-9 Daeheung-ro, Jung-gu, Daejeon, South Korea
E-mail : choajoa@dju.kr Tel : +82-42-229-6806
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shoulder. Especially, Trapezius stigmatically takes charge of shoulder action. Trapezius divides into upper, middle, lower part and each parts makes elevation, restriction, depression of Scapular. In this way, Trapezius participates in total shoulder movement and provides stability of the shoulder girdle.²⁾ Every movement of shoulder joint makes stress of Trapezius. Herein, most patients appealing shoulder pain has Trapezius rigidity.

We present the case report about oppressive pain on Trapezius. Patient was took TKM treatment, especially acupuncture stimulation on LR3(Taichong) which helps to relax muscle and to relieve pain of joint.³⁾

II. CASE REPORT

1. History

Our patients is a 55-year-old female who has suffered from shoulder stitch, since 2010, without any specific reason. When patient moved head backward, the upper Trapezius occurred pain like pulling muscles. Left shoulder discomfort is more than right. Right shoulder had have ROM restriction in abduction, since 2014. Left shoulder had no ROM restriction. There was remarkable oppressive pain in upper Trapezius on both shoulder. Patient got surgical operation for sarcoma measured 7cm diameter, on left lower arm, in 2004. In 2012, got surgical operation for thyroid cancer. Patient took internal medicine treatment about hyperlipidemia and climacterium.

Previous clinical history included occasional nerve root blocks, acupuncture treatment, cupping and osteopathy. Pain was usually endurable, but increasing activity,

like golf, made increasing rigidity. When shoulder rigidity became severe, it occurred tensional headache continuing 3~4 days.

2. Examination

'Muscle strain, shoulder region'(M62.61)

On the basis of the Korea Standard Classification of Disease-7(KCD-7) index.

3. Treatment

1) Duration

2016 June 20 (one day as outpatient)

2) Acupuncture treatment

Sterilized stainless needles (0.3 mm × 40 mm; Dong-Bang Acupuncture Instruments Co. Ltd, Daejeon, South Korea) were used. Acupoints are both LR3. Acupuncture inserted into skin, 2mm depth. Needles maintained 15 minutes before removing.

III. RESULT

After single acupuncture treatment on both LR3, patient's objective pain and subjective figures were improved except abduction range. The Table 1. showed the effect of LR3 stimulation on Trapezius rigidity. NRS was improved 5 into 2. Before treatment, PPT on the left GB21(Jianjing) was 19N, right was 22N. After treatment, PPT on the left GB21 was 22N, right was 27N. PPT was improved on both shoulder, but right shoulder which has ROM restriction got much better effect. Before treatment, power of shoulder abduction on the left was 29N, right was 22N. After treatment, power on

the left was 33N, right was 29N. Power of shoulder joint abduction was improved after treatment. Power of right shoulder joint abduction was better than left, too. But abduction ROM was same as before, left abduction ROM was 170°, right was 165°.

IV. DISCUSSION

To make suitable criteria for examining etiological factor and estimating treatment effect helps to develop suitable therapy. In particular, the shoulder joint is composed of various tissue such as muscles, ligaments, tendons, bones, bursas and articular capsules. This components occasionally cooperate and compete, so finding out the cause of shoulder pain by symptoms is very difficult. Thus, objective diagnostic method to make sure the etiology is essential.

Patients' conscious discomfort of shoulder is often due to upper Trapezius rigidity. Trapezius moves Scapular, stabilizes of shoulder girdle, extends and flexes of neck. Trapezius has various and wide region of attachment, and makes different function according to each part. Among this parts, upper Trapezius does the work for elevating Scapular.²⁾ Accordingly, measuring power of shoulder joint abduction is expected as effective diagnosis tool for measuring function of upper Trapezius.

Upper Trapezius is the outermost shoulder muscle group. Rigidity of upper Trapezius can be easily checked, subjectively and objectively. In the case of shoulder disorder caused by upper Trapezius tension, just a little pressure makes keenly felt pain on shoulder. But if the tension were reduced, the more pressure can not make pain. So

upper Trapezius PPT can objectively present therapeutic efficiency of 'stiff shoulder'. In this respect, using algometer measuring the changes of muscle tension is good way to assess treatment.^{4,5)}

LR3 has a great effect on shoulder pain caused by muscle tension. LR3 is on liver meridian system, which controls liver's and muscle's physiological activities. Especially LR3 helps to relax muscle and to relieve pain of joint.³⁾ LR3 and LR2 stimulation makes therapeutic effect about Iliopsoas muscle disorder.⁶⁾ Acupoint combination with LR3 treated chronic neck pain.⁷⁾ LR3 stimulation also can control somatosensory association cortex of cerebellar posterior lobe, which related movement and pain.^{8,9)}

As a result, to treat shoulder muscles, especially upper Trapezius, LR3 was chosen. Therapeutic effectiveness is estimated by PPT and estimation about power of shoulder abduction.

In this case, patient got various TKM treatment such as acupuncture and cupping about chronic shoulder pain and got satisfactory therapeutic result. But despite all of this treatment, pain not disappeared completely. The pain has returned if the physical stress had been more excessive than daily activity. This is the characteristic of disease closely related with livelihood. This disease on the livelihood was not easy to make complete recovery. So doctor suggests proper state of physical condition by objective measurement. If PPT of upper Trapezius were measured when patient is no strain on everyday life, it is comparable with PPT after treatment. That facilitates diagnosis of complete recovery.

Patient's discomfort improved dramatically

after single treatment. But according to identical patient's activity pattern, PPT and therapeutic effect of LR3 will be compared. And additional study will be needed about LR3 allied more patients who suffered from upper Trapezius rigidity.

V. CONCLUSION

Single stimulation of LR3 is effective in relieving shoulder stiffness caused by upper Trapezius rigidity. This result is confirmed by improving NRS, PPT and power of shoulder abduction.

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VIII. TABLE

Table 1. Effect of LR3 Stimulation on Trapezius Rigidity

NRS ¹⁾	Before LR3 stimulation		After LR3 stimulation	
	5		2	
	left	right	left	right
PPT ²⁾	19N	22N	22N	27N
Power of Shoulder Abduction ³⁾	29N	22N	33N	29N
Abduction ROM ⁴⁾	170°	165°	170°	165°

1) Numerical rating scale(NRS)

Patient pointed NRS before and after treatment.

2) Pressure Pain Threshold(PPT) measurement

Instead of Trigger point of upper Trapezius, both GB21(Jianjing) were used as check points to measure rigidity.¹⁰⁾ To indicate precise points, stickers were attached on both GB21.(Fig 1, A) NK-50 analog force gage (Hand-pi, Yueqing, Zhejiang, China) was used to measure PPT on this points. Without other tip, NK-50 analog force gage put pressure on GB21, at a speed of 3N per second.(Fig 1, B) Pressure was measured when the patients felt pain.(Fig 1, C)

3) Power of shoulder joint abduction measurement

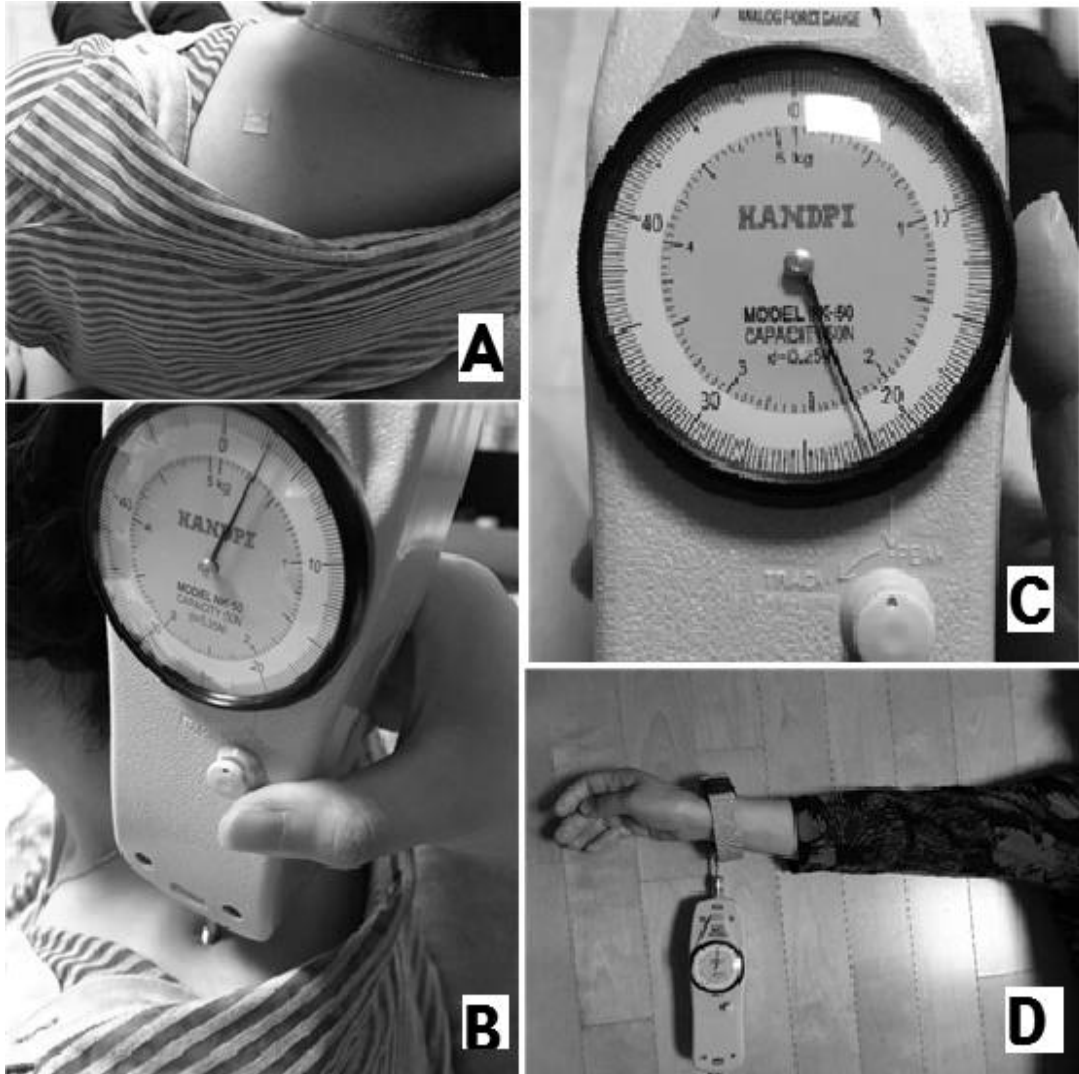
Patient faced up on the floor, stayed shoulder abduction 90 degrees. Tying a non-elastic band on Patient's wrist. Push-pull gage equipped hook tip, and stirlessly set on the floor.(Fig 1, D) Patient applied maximum force to make isometric contraction of shoulder muscle without bending arms in 5 second.

4) Shoulder Abduction measurement

Patient raised shoulder one by one and degrees were checked.

IX. FIGURE

Fig 1. Measurement of Pressure Pain Threshold and Power of Shoulder Abduction



- A. GB21 was marked for measuring
- B. NK-50 analog push-pull force gage was measuring PPT
- C. Measurement outcome
- D. Power of shoulder joint muscle abduction measurement.