

Case Report / 증례

Glossitis treated with Acupuncture: case series

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설염의 침 치료 : 증례 보고

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Abstract

Objectives : The purpose of this study is to report the effectiveness of acupuncture treatment on the patients suffered from glossitis.

Methods : Total five Korean patients suffering from glossitis, 60 and 37 years old male patients, 61, 71 and 49 years old female patients were participated. Each patient received acupuncture treatment(heart hangyeok) twice to five times in same part of the body.

Results : We attained meaningful results which show recovery from pustules, ulcers, redness and swelling in visual symptoms and the relief of acute and chronic pain, recovery from paraesthesia, and dysgeusia in subjective symptoms.

Conclusions : In this study, acupuncture treatment(heart hangyeok) was effectively controlled inflammation status of glossitis.

Key words : glossitis; heart hangyeok; acupuncture

I. Introduction

Glossitis is a kind of stomatitis which is inflammation of mucosal membrane of the tongue. Stomatitis including glossitis causes severe pain and eating disorder, dysphagia, paraesthesia and dysgeusia of the tongue so that can decrease the quality of life¹⁾. So far symptomatic treatment such as steroids and or the like was given to treat glossitis. However, the acupuncture treatment does not be used commonly yet.

It is known that acupuncture makes effects on signal transduction through peripheral nerve and body fluid by meridian pathway stimulating sensory receptor near acupoints²⁾. Saam Acupuncture treatment is one of Korean traditional acupuncture treatment which has been used for 360 years. Needles are applied into four points out of Five Shu points to adjust balance of the body so that can cure the deficiency syndrome, excess syndrome, cold syndrome and heat syndrome³⁾. Acupuncture is commonly used as an useful treatment method for diseases accompanying pain, inflammation of mucous layer or the likes⁴⁾, but treatment of glossitis is a bit unaccustomed and the preceding studies are insufficient.

In this article, five cases which show significant results of acupuncture treatment for the tongue pain, redness, swelling, ulcer, dysgeusia and eating disorder caused by glossitis are described by comparing the visual and subjective symptoms

before with after the treatment.

II. Case series report(Table 1)

The five glossitis cases in this article are resulted by the heat syndrome of heart meridian caused by heat and cold imbalance of body. Therefore, needles were applied at acupoints of heart hangyeok(tonifying points KI10 and HT3, sedating points KI2 and HT8) which control the illness with the heat caused by heart malfunction. Heart hangyeok is composed of acupoints which tonify water points of heart and kidney meridian and sedate fire points of heart and kidney meridian. Acupuncture treatment was performed by doctors of Korean medicine licensed by government. After applying the needle, the needle was manipulated so that can lead tonification and sedation with strong power to feel acupuncture sensation. After that, the needle was in the skin for 15 minutes. There was no electroacupuncture stimulation or any other intervention because patients don't want it. Single-use stainless steel filiform needles were used in the study(Woojin needle, 30×40mm), and the surface of the needle insertion site was wiped enough with alcohol cottons before and after needle insertion so that possibility of infection can be minimized.

1. Patient 1(Fig. 1)

1) Medical history

A 60 years old, medium build(175cm, 72kg) Korean male patient who has Ramsay-Hunt syndrome occurred at May 5, 2015. He had left

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Table 1. Treatment History

Case	Acupuncture Tx.	Treatment date	NRS (Tongue pain)
Patient 1	Heart hangyeok	2015/05/16, 17, 18 (A total of 3 times)	8(1 st Tx.)→5(2 nd Tx.)→0(3 rd Tx.)
Patient 2	Heart hangyeok	2015/04/17, 28 (A total of 2 times)	6(1 st Tx.)→2(2 nd Tx.)
Patient 3	Heart hangyeok	2015/05/04, 05, 11 (A total of 3 times)	8(1 st Tx.)→1(2 nd Tx.)→0(3 rd Tx.)
Patient 4	Heart hangyeok	2015/04/20, 22 (A total of 2 times)	6(1 st Tx, before Tx.)→3(1 st Tx, after Tx.) →1(2 nd Tx.)
Patient 5	Heart hangyeok	2015/08/28, 29, 30 (A total of 3 times)	8(1 st Tx.)→5(2 nd Tx.) →4 (3 rd Tx, before Tx)→2(3 rd Tx, after Tx.)

Table 2. Patient 1 : Progress of Symptom

Date	Changes of Symptoms
2015/05/16 (Before Tx.)	Hard to eat spicy food because of the pain(NRS 8) around lingual apex Yellow coat in the whole tongue Pustules and fissures in apex of the tongue
2015/05/18 (After 2 nd Tx.)	No discomfort to eat spicy food because the pain(NRS 0) is removed Decrease of yellow coat in body of the tongue Disappearance of pustules and decrease of fissures in apex of the tongue

facial nerve palsy, pain in the ear backwards, temporal headache, nasal obstruction, sore throat, fever with chills, vomiting, and feelings having eruptions and pain on the tongue caused by glossitis. Because of the symptoms, he visited a local hospital at May 12, 2015 and fluid and medicines were administered but the symptoms continued. Therefore, he was hospitalized in our hospital at May 16, 2015.

2) Treatment progress(Table 2)

In the first case, there were pustules, fissures

and thick yellow coat in visual symptoms, and pain of the tongue which got worse(NRS 8) when eating spicy food in subjective symptoms at the initial examination. At the third examination, it was found that the pustules of apex of the tongue was disappeared and fissures and thick yellow coat was decreased in visual symptoms. Also it was found that the pain of the tongue which got worse when eating spicy food was disappeared (NRS 0) in subjective symptoms.

2. Patient 2(Fig. 2)

1) Medical history

A 61 years old, plump(160cm, 68kg) female patient who suffered from fissures in middle of the tongue, pain and gustatory sense diminished(tasted toothpaste only) from March 7, 2015. She did not receive any treatment. After the symptoms got worse, she visited our hospital as an outpatient at April 17, 2015.

2) Treatment progress(Table 3)

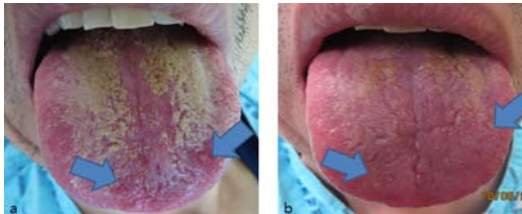
In the second case, there were xerostomia of the whole tongue, fissures in the middle of the tongue and lingual papillae mashed in visual

symptoms and the xerostomia of the tongue and mouth, continuous burning pain(NRS 6), gustatory sense diminished so that cannot taste other than toothpaste in subjective symptoms at the initial examination. At the second examination, it was found that visual symptoms such as xerostomia of the tongue and lingual papillae mashed were improved. In subjective symptoms, xerostomia of the tongue and mouth was improved, continuous burning pain(NRS 2) was reduced and gustatory sense was normalized.

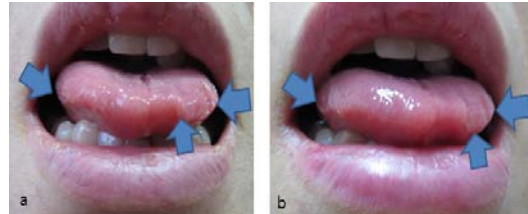
3. Patient 3(Fig. 3)

1) Medical history

A 71 years old, medium build(157cm, 54kg) female patients who suffered from gustatory sense diminished, pain of the tongue and paraesthesia. She did not receive any treatment. As the symptoms continuing, she visited our hospital as outpatient at May 4, 2015.



(a) 2015/05/16 (b) 2015/05/18
Fig. 1. Patient 1 : Progress of glossitis



(a) 2015/04/20 (b) 2015/04/22
Fig. 4. Patient 4 : Progress of glossitis



(a) 2015/04/17 (b) 2015/04/28
Fig. 2. Patient 2 : Progress of glossitis



(a) 2015/08/28 (b) 2015/08/31
Fig. 5. Patient 5 : Progress of glossitis



(a) 2015/05/04 (b) 2015/05/06 (c) 2015/05/11

Fig. 3. Patient 3 : Progress of glossitis

2) Treatment progress(Table 4)

In the third case, there were swelling and redness in the whole tongue in visual symptoms and the pain(NRS 8), paraesthesia such as glowing, burning, tingling, gustatory sense diminished completely in subjective symptoms at the first examination. At second examination, swelling, redness and pain(NRS 1) was decreased visually and paraesthesia was improved and all gustatory sense other than saltness was recovered subjectively. At third examination, swelling and redness was recovered visually. The pain(NRS 0) and paraesthesia such as glowing, burning, tingling was disappeared. Gustatory sense was normalized continuously without saltness which was recovered 20% compared normal gustation subjectively.

4. Patient 4(Fig. 4)

1) Medical history

A 49 years old, medium build(160cm, 63kg), female patient. The pain in apex and border of the tongue was occurred at April 10, 2015 but she did not receive any treatment. As the symptoms continuing, she visited our hospital as outpatient at April 20, 2015.

2) Treatment progress(Table 5)

In the fourth case, there were small pustules and swelling around the apex and border of the tongue in visual symptoms and pain(NRS 6) at swallowing saliva or eating foods in subjective symptoms at the first examination. Right after acupuncture treatment at the first examination,

Table 3. Patient 2 : Progress of Symptom

Date	Changes of symptoms
2015/04/17 (Before Tx.)	Fissures in the middle of the tongue and lingual papillae mashed Xerostomia of the tongue and mouth Continuous burning pain(NRS 6) Gustatory sense diminished(cannot taste other than toothpaste)
2015/04/28 (Before 2 nd Tx.)	Improvement of fissures in the middle of the tongue and lingual papillae mashed Resolve of xerostomia of the tongue and mouth with feeling watering Decrease of burning pain(NRS 2) Disappearance of gustatory sense diminished(can taste foods)

Table 4. Patient 3 : Progress of Symptom

Date	Changes of symptoms
2015/05/04 (Before Tx.)	Swelling and redness with pain(NRS 8) in the whole tongue Complaining paraesthesia(glowing, burning, tingling) Gustatory sense diminished completely
2015/05/06 (Before 2 nd Tx.)	Decrease of swelling and redness with pain(NRS 1) in the whole tongue Alleviation of paraesthesia Recovery of gustatory sense(Normalized other than saltness)
2015/05/11 (Before 3 rd Tx.)	Disappearance of swelling, redness and pain(NRS 0) in the whole tongue Disappearance of paraesthesia Recovery of gustatory sense(normalized other than saltness which recovered 20% compared normal gustation)

the pain of the tongue was reduced immediately to NRS 3 from NRS 6. At the second examination, small pustules and swelling at apex and border of the tongue were decreased in visual symptoms and the pain(NRS 1) at swallowing saliva or eating foods was reduced in subjective symptoms.

5. Patient 5(Fig. 5)

1) Medical history

A 37 years old, medium build(177cm, 79kg) male patient who was hospitalized in our hospital for recovery of the tonsil surgery. He complained trismus, dysphagia and eating disorder because of the pain caused by glossitis suddenly occurred at August 28, 2015.

2) Treatment progress(Table 6)

In the fifth case, there were severe redness, swelling and severe five ulcers around left border in visual symptoms and trismus, eating disorder, dysphagia and dysgeusia caused by severe pain(NRS 8) when he opened the mouth, ate some foods or swallowed saliva in subjective symptoms at the first examination. After three times of acupuncture treatment, redness and swelling is reduced remarkably and the lesions of five severe ulcer around left border of the tongue were also decreased in visual symptoms. The severe pain was reduced(NRS 2) when opening mouth or swallowing food or saliva so that trismus, eating disorder and dysphagia were disappeared in subjective symptoms. Seven minutes after third acupuncture treatment,

Table 5. Patient 4 : Progress of Symptom

Date	Changes of symptoms
2015/04/20 (Before Tx.)	Pain in border around apex of the tongue(NRS 6 before the needle applying → 3 after the needle applying) Discomfort by pain at swallowing saliva or eating foods Small pustules and swelling at border of the tongue
2015/04/22 (Before 2 nd Tx.)	Relieved pain(NRS 1) around apex of the tongue Decrease of small pustules and tooth marks at border of the tongue

Table 6. Patient 5 : Progress of Symptom

Date	Changes of symptoms
2015/08/28 (Before Tx.)	Redness and swelling, and severe lingual papillae mashed in the whole tongue Severe ulcer(five) and tooth marks at left border of the tongue Trismus and eating disorder caused by severe pain(NRS 8) Dysgeusia
2015/08/31 10:51am (Before 3 rd Tx.)	Decrease of redness, swelling, and lingual papillae mashed in the whole tongue Decrease of severe ulcer(five) and tooth marks at left border of the tongue Decrease of the pain(NRS 4) when opening the mouth or eating foods Decrease of dysgeusia
2015/08/31 10:58am (After 3 rd Tx.)	Decrease of the pain(NRS 2) caused by glossitis of apex of the tongue and decrease of redness and purulent lesion of ulcer area compared with the symptoms before the acupuncture treatment.

purulent lesion and redness in the center of the ulcer was reduced in visual symptoms.

III. Discussion

Stomatitis is shown in nonkeratinized mucosal surface such as lateral inferior side of the tongue and oral floor with or without vesicles together with redness accompanying pain. After that, within 24 hours, shallow ulcers accompanying pain occur in mucosal membrane of mobile part of the tongue. The ulcer has clear boundaries surrounded by an erythematous halo and the central part of ulcer looks yellow. As hyperemia occurring in oral mucosa, epithelial cells swell. At last, large amount of liquids are condensing and forming vesicles in epithelial layer. Under epidermis, there are inflammation reactions in connective tissue and epithelium layer of surface of vesicle is necrotized and destroyed because of innutrition. After that, ulcers occur⁵⁾. Although the cause of glossitis is not yet revealed, it is known that a number of factors, such as virus infection, bacterial infection, nutrition disorders, immune disorders, stress, trauma, genetic factors, hormonal disorders, food allergy, systemic disease or the likes are involved in the glossitis alone or in combination. Progress of glossitis consists of four phases, such as prodromal phase, pre-ulcerative phase, ulcerative phase and convalescent phase. Diagnosis is usually performed by clinical findings and treatment is usually performed by the symptomatic therapy to promote treatment and to relieve symptoms. Especially, topically spraying the 10% lidocaine

oral spray, gargling by the tetracycline solution(250mg/5ml, qid) or chlorhexidine(0.12%) gargling liquid, using the topical steroid ointment (betamethasone, fluocinonide) are used. In severe cases, administrating systemic steroids(prednisone, 20~40mg/day) during a short-term, topically injecting injections such as triamcinolone around the ulcer or using Zilactin gel, sucralfate suspension or the like for mucosal protection. There a report which addresses that colchicine and prostaglandin E2 is also effective⁶⁾.

In Korean medicine, an acupuncture treatment has been performed to variety of diseases such as, various pain disorders⁷⁾, inflammation of mucous layer⁴⁾, fatigue⁸⁾, dry eye⁹⁾, psychosis¹⁰⁾ and the likes. The acupuncture treatment is performed by a meridian pathway. Meridian system, which is a core elements of Korean medicine is a natural connection system generated by the tissue area that connects between human organs and the skin¹¹⁾. The acupuncture treatment in this article was performed through Saam Acupuncture treatment that is the Korean traditional acupuncture treatment. The Saam Acupuncture treatment chooses the acupoint included in Five Shu points in Jung-Hyung-Su-Kyung-Hap. Five Shu points is acupuncture points which affect many areas of cortical representation of postcentral sensory gyrus of brain. The Five Shu points have powerful polarity and energetic action. In the course of the Saam Acupuncture treatment, cold syndrome, heat syndrome, deficiency syndrome and excess syndrome were diagnosed and the needle was applied to yulgyeok, hangyeok, junggyeok and seunggyeok, which have opposite characteristic. The process of

saam acupuncture treatment is following: applying a needle; performing the needle manipulation to fill the shortage in a meridian pathway and heat up the cold(tonification), and to eject the excessive or cool the hot(sedation); and putting the needle at a certain amount of time. This article describes five cases of glossitis caused from the heat of heart, Heat and cold, which is one of eight guiding criteria in Korean medicine, refers to blood flow conditions. The functional state of the heat and cold is evaluated by core symptoms such as, a red tongue, tachycardia¹²⁾. In the treatment of the heat syndrome, the water points of the master and Water meridians are selected to tonify the Water, as well as the Fire points of the master and Fire meridians selected to sedate the Fire. In the treatment of the cold syndrome, the Fire points of the master and Fire meridians are selected to tonify the Fire, as well as the Water points of the master and Water meridians selected to sedate coldness.

In Korean medicine, tongue is closely related with heart meridian¹³⁾. Angiectasis and fever in inflammation is related to the heat syndrome, the concept of Korean medicine. It is presumed that anti-inflammation, the concept of Western Medicine is related to clearing away heat, the concept of Korean medicine¹⁴⁾. We regard cause of glossitis as heat syndrome of heart meridian.

So, in this article, Hangyeok of heart meridian was used to treat the heat syndrome of heart meridian. Heart hangyeok consists of four acupoints such as KI10(kidney meridian water point), HT3(heart meridian water point), KI2(kidney meridian fire point), HT8(heart meridian fire point). Water points(KI10, HT3) are

used to tonify coldness and fire points(KI2, HT8) are used to sedate fire. So that the heat of heart meridian can be reduced. Finally, organs and body function can be normalized¹⁵⁾.

The purpose of this article is reporting the validity of the acupuncture treatment in glossitis by comparing the results before and after the acupuncture treatment. According to both doctor's visual findings and patient's subjective findings, after performing the acupuncture treatment, a satisfactory improvement appears in all patients of five cases. In general, acupuncture treatment was implemented by two times to three times. The final examination was in at least two days to eleven days after the first examination. There was a case which showed immediate and continuous results on pain relief even after the first treatment. Also it was found that satisfactory treatment results were shown in the patient who received five times of treatment. However, the patients did not want to continue to treat their glossitis because their subjective discomfort was disappeared. Therefore, additional treatment cannot be progressed anymore.

As a result of follow-up is as follows. Patient 2 was not contacted. Patient 1, 3 were maintained well without recurrence after last treatment. But patient 4 had a second attack of the glossitis in July and naturally recovered within 10 days. Patient 5 has relapsed into glossitis and sore throat in the middle of October and maintained until the middle of November. He didn't treated because of his hard work.

The mechanism of glossitis treatment through the acupuncture treatment can be guessed as follows. First, the acupuncture treatment has an

effect to alleviate the inflammation by activating the cholinergic anti-inflammatory path and by suppressing the pro-inflammatory cytokine¹⁶⁾. Second, the acupuncture treatment can reduce the pain by affecting neurotransmitter that controls the pain, such as met-enkephalin, substance P, or the likes. Third, the acupuncture treatment facilitates the generation of β -endorphin, IFN γ by stimulating a HPA(hypothalamic-pituitary-adrenal) axis, as a result, the expression of NK cells receptors and the release of cytokine of immune cells are facilitated. Thus, the immune system can be increased¹⁷⁾ and it helps the recovery of glossitis.

Problems such as, pain, redness, recovery of swelling and ulcers, paresthesia, dysgeusia or the like caused by inflammation of the tongue can be improved by using the acupuncture treatment which uses Heart hangyeok against glossitis. As such, this article addresses several important facts on the effect of acupuncture on glossitis. First, the acupuncture treatment can effectively reduce the pain caused by glossitis. Second, the acupuncture treatment can help organic recovery by effectively relieving the inflammation. Third, the effects of the acupuncture treatment against glossitis are immediate as well as continuously maintained.

However, some improvements are needed as follows. First, there were only five cases. Second, there was no comparison on the treatment progress between the case of applying needle to other needle spots rather than heart hangyeok and the case of applying needle to heart hangyeok. Third, there was no economic evaluation compared with other treatment. The study on

mechanism to prove the effectiveness of the acupuncture treatment against glossitis is required in the future. Furthermore, ongoing study will be necessary to become the acupuncture treatment an effective treatment in the treatment of glossitis.

IV. Conclusions

In treatment of glossitis patients, acupuncture treatment have effects on recovery of redness, swelling and ulcer, immediate and continuous pain relief and improvement of dysesthesia and dysgeusia through shortening inflammatory phase. Acupuncture treatment can be considered as efficient glossitis treatment tool.

Ethics

All patients gave informed consent prior to entry into the study.

Conflicts of interest

The authors declare no conflicts of interest.

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