

Improper acupuncture causing severe multiple soft tissue damage:a case report

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Abstract

Background Acupuncture therapy is well known. But there is no report that acupuncture in patients with coagulation dysfunction in stroke may lead to severe soft tissue injury. we report a case of acupuncture leading to severe soft tissue injury.

Methods A 63-year-old female patient was hospitalized for stroke rehabilitation. After 2 years of discharge, severe subcutaneous hematoma caused by acupuncture was readmitted to hospital. She received medication and physical rehabilitation. we monitored the international standardized ratio (INR) in plasma and observed the degree of dissipation of subcutaneous hematoma. the changes of patients during treatment were explored by data analysis.

Findings Subcutaneous hematoma (area 20×20 cm) disappeared completely after 3 weeks of physical factor therapy. Small range (area ≤3×3 cm) subcutaneous hematoma can heal itself within 2 weeks. Improper acupuncture is only one of the causes of soft tissue injury. Stroke with coagulation dysfunction is not a contraindication of acupuncture treatment.

Interpretation Our report suggests that previously unanticipated acupuncture treatment for stroke patients with coagulation dysfunction may lead to severe multiple soft tissue injuries. Although coagulation dysfunction is not a contraindication of acupuncture treatment, acupuncture treatment for stroke patients with coagulation dysfunction should be vigilant, strengthen the level of acupuncture operation, and fundamentally eliminate the problem. These cases are validation and supplement of adverse clinical reactions caused by improper acupuncture.

Introduction

Acupuncture therapy is widely used and has good therapeutic effect on various diseases. In the treatment of stroke, acupuncture therapy is listed as a A recommendation in stroke treatment guidelines[1].However, whether coagulation dysfunction is a contraindication of acupuncture has always been different, but there is not enough evidence to show who is correct[2-4]. Therefore, it is not surprising that all complications have not been recorded. At the same time, no one expected that improper acupuncture may lead to multiple soft tissue injuries, seriously affecting daily functional activities. Here, we describe a case of severe multiple soft tissue injury in a stroke patient with coagulation dysfunction after acupuncture treatment.

Patient History

Initial admission□January to July, 2018□

A 63-year-old female patient surnamed _____ lives in _____, China, in January 2018, there was no obvious inducement to the right limb fatigue, accompanied by Vague language. On the same day, the family immediately sent to Ningbo fourth Hospital diagnosed as "cerebral infarction ".Then the patient

was transferred to Ningbo first Hospital, Ningbo first Hospital with "right basal ganglia infarction, rheumatic heart disease valve replacement, hypertension" admitted to hospital, anticoagulant treatment, improve circulation, nutritional nerve, improve urination and other symptomatic treatment, control blood pressure, blood lipids, blood sugar and other stroke risk factors for 10 days, the patient was discharged after stable condition. Due to left right limb motor dysfunction, dysphagia and other symptoms, then came to Xiangshan County Rehabilitation Hospital rehabilitation, outpatient with "cerebral infarction recovery period" admitted to the hospital. Patients have more than 10 years of rheumatic heart disease, valve replacement and other past history, long-term oral "warfarin sodium tablets" anticoagulant treatment, no chest tightness and other discomfort. On her first day in hospital, doctors, nurses, therapists examined and evaluated her and signed informed consent and rehabilitation notification. Admission coagulation function examination showed that the international ratio (INR) of prothrombin was 1.17↑ (reference range 0.82-1.15), and the rest was in normal range. Specialist examination: mind clear, mental state, the wheelchair pushed into the ward. Drinking water cough, tongue extension right, bilateral limb shallow feeling normal. Assessment of unarmored muscle strength (MMT): right upper limb proximal muscle strength 2, distal muscle strength 0; Right lower extremity muscle strength grade 2, muscle tension is normal, passive joint motion range is normal. Brunnstrom stage: right upper limb I, hand I, lower limb II. Sitting balance grade 1, standing balance grade 0, Watian drinking water test level 4, right Babinsky sign (+). Hoffman's (+) on the right. Can complete self-turn over, slightly assisted sitting, can not stand and walk. Barthel index 25 points, daily life ability: heavy dependence. The patients were mainly treated with physical factor therapy, acupuncture therapy, exercise training, occupational therapy and speech training. The patients were discharged after 6 months of systematic rehabilitation. At this time, the patient can independently turn over, stand and walk under assistance, sit balance grade 3, stand balance grade 1, Watian drinking water test level 2, right lower limb muscle strength grade 3. Ask patients to continue family rehabilitation training after discharge, regular review.

Recovery after discharge (July, 2018, to August , 2020)

After discharge from hospital, the patient stayed at home for 2 months and went to other hospitals for rehabilitation. But in the patient description, the treatment of stroke rehabilitation in other hospitals is more acupuncture treatment. At this time, the patient has many small subcutaneous hematoma symptoms, but eventually recovered within 2 weeks.

Multiple soft tissue damage and second admission (August to September, 2020)

2 years after discharge, the patient developed pain in the right hip after receiving acupuncture treatment in other hospitals. At that time can walk, no skin damage, no redness and fever, no subcutaneous ecchymosis, no dizziness and headache, no nausea and vomiting, no numbness and discomfort of both lower limbs, the patient did not pay attention at that time. After 2 days, the pain in the right hip gradually aggravated, with a large area subcutaneous hematoma. The family members massaged and pulled the subcutaneous hematoma and the lateral thigh of the right thigh, and then appeared many cord-like plaques (figure 1). After 15 days, the patient was re-sent to Xiangshan County Rehabilitation Hospital,

diagnosed to "Multiple soft tissue injury in right hip and thigh". Vital sign: pulse 63/ min, body temperature 36.6°C, respiration 18/ min, blood pressure 127/64 mmHg. Admission blood tests showed a decrease in mild red blood cells (2.81) and a decrease in mean hemoglobin content (25.8), admission blood tests showed a decrease in mild red blood cells (2.81) and a decrease in mean hemoglobin content (25.8), slightly elevated erythrocyte distribution width CV(16.5) and hypersensitive C reactive protein (9.20). Because of the massive subcutaneous hematoma in the right hip, D- blood dimer was 4.8↑(reference range <0.9, unit ug/ml), prothrombin time 29↑(reference range 11-15, unit s), activated partial thromboplastin time 42.9↑(reference range 25.4-38.4, unit s), international standardized ratio(INR) 2.48↑(reference range 0.76-1.15), PT activity 19↓(reference range 80-150, unit %). Admission physical examination: clear mind, mental state, on crutches into the ward, large area of right hip (20×20 cm) subcutaneous hematoma, obvious bruising, the swelling is strong. Right lower extremity joint movement is limited. The deep and shallow sensation of the right lower extremity was normal, the muscle strength of the right biceps femoris was grade 2+, the muscle strength of the quadriceps femoris was grade 4+, the muscle strength of the iliopsoas muscle was grade 2+, the muscle strength of the distal right lower extremity induced contraction, and the range of passive joint motion was normal. Sitting balance level 3, standing balance level 2, right Babinsky sign (+), right Hoffman sign (+), can complete independent turn over, a small amount of auxiliary sit up, can not stand and walk. Barthel index 71 points, eating 8 points, bathing 3 points, personal hygiene 3 points, dressing 5 points, Stool control 10 points, urine control 10 points, toilet 8 points, transfer 12 points, walking 12 points, up and down stairs 0 points. Daily life ability: mild dependence.

Methods

Early support and symptomatic treatment

Patients in Xiangshan County Rehabilitation Hospital treatment process, the patient strongly refused acupuncture treatment. After admission to the ward, improve the relevant examinations, such as: blood routine, urine routine, stool routine, coagulation function, biochemistry, routine electrocardiogram and bone mineral density. Then the patients were given their own anticoagulant :1.5 mg warfarin per night. Anti-hypertension:5 mg of amlodipine benzenesulfonic acid tablets daily. Fixed plaque lipid regulation : atto vastatin calcium tablets 20 mg per night. Spasmolysis pain :0.3 g of gabapentin capsules. Then prevent complications, such as pressure sore, lung infection, urinary tract infection, lower extremity venous thrombosis, osteoporosis and so on.

Physical rehabilitation therapy

The diagnosis and etiology of the patients are clear, the main problem is the subcutaneous hematoma formed after multiple soft tissue injury, so we should carry out targeted treatment of detumescence, dispersing knot and removing blood stasis. Before treatment, we signed a rehabilitation notice and informed consent to exercise treatment. We take physical factor therapy for the treatment of multiple soft tissue injuries, including ultrasound alone, if electrical stimulation, infrared, wax therapy and magnetic

therapy. The purpose of using simple ultrasound is to eliminate swelling and pain of subcutaneous soft tissue. The frequency is 1 MHz, the treatment dose is 1.0 W/cm², the treatment time is 8 minutes, twice a day[5], as well as Traditional Chinese massage. The treatment site of intermediate frequency electrical stimulation is right gluteus maximus and piriformis muscle. The prescription of subcutaneous hematoma is selected and the intensity is modulated to the appropriate range (intensity 15-25, time 20 minutes). The purpose is to eliminate subcutaneous hematoma and exercise hip muscle strength[6]. Infrared and wax therapy, as a kind of hyperthermia, also has a good effect of promoting blood circulation and removing blood stasis, eliminating inflammation and dispersing knot, and promoting soft tissue repair. Magnetic therapy can strengthen the immune ability of patients and reduce the reaction of coagulation dysfunction to physical factor therapy[7]. Traditional Chinese massage therapy can remove local pain, promote blood circulation and dredge meridians. During treatment, ask the patient if there is any discomfort, if there are adverse reactions, should stop treatment, and inform the superior doctor.

At present, multiple soft tissue injury caused by improper acupuncture is the main symptom, and the residual dysfunction after stroke is the secondary symptom. Patients were given exercise rehabilitation treatment, including muscle strength training, balance training, walking ability training, once a day, 30 minutes each time, until the patient was discharged. No serious adverse events were found during hospitalization.

Results

On the 7-10 days of hospitalization, the subcutaneous hematoma of the right hip subsided to 10×10 cm (figure 2), But still feel stiff right lower limb, and unable to walk. We consider that the soft tissue injury site is deep, not timely medical treatment. Although the range of subcutaneous hematoma decreased, the patients had fear and anxiety, which was manifested by fear of acupuncture and acupuncture sensation after electric stimulation. The coagulation function showed that: prothrombin time is 18↑ (reference range 11-15, unit s), activated partial thromboplastin time 39.4↑ (reference range 25.4-38.4, unit s), international standardized ratio (INR) 1.52↑ (reference range 0.76-1.15), PT activity 46↓ (reference range 80-150, unit%).

On day 22, the subcutaneous hematoma in the right hip has completely disappeared, but a hard block has been found after touching the site where the patient has been acupuncture. We consider deep soft tissue formation hematoma organization, for deep soft tissue hematoma organization we choose simple ultrasound treatment, frequency 1 MHz, treatment dose 1.8 W/cm², treatment time 8 minutes, twice a day[8]. After the subcutaneous hematoma disappeared, the stiffness of the affected limb disappeared, the right lower extremity limb could carry on the complete range activity under no gravity, and the patient's walking ability was obviously improved. The coagulation function showed that: prothrombin time is 23↑ (reference range 11-15, unit s), activated partial thromboplastin time 46.5↑ (reference range 25.4-38.4, unit s), international standardized ratio (INR) 1.92↑ (reference range 0.76-1.15), PT activity 30↓ (reference range 80-150, unit%).

On day 28, the patient was discharged. Ask the patient to continue family rehabilitation. Take medication on time. Because the patient has rheumatic heart disease, after valve replacement and other basic diseases, need long-term oral warfarin sodium tablets anticoagulant treatment, international standardized ratio (INR) for coagulation function need to be maintained in the range 2.0-3.0[9], this can prevent secondary cerebral infarction safely and effectively. The coagulation function should be reviewed regularly (after three days of discharge, the time of reexamination can be extended properly after stable discharge), blood routine, large biochemistry, D-dimer, electrocardiogram, cardiac B ultrasound, chest film, etc., to closely monitor blood pressure, heart rate, heart rhythm, if any discomfort, timely treatment.

We compared the results of three coagulation tests and observed the dissipation of subcutaneous hematoma. The changes of patients during intervention were discussed by data analysis.

Discussion

Acupuncture therapy has been widely used in the treatment of stroke, and the effect is remarkable. Complications such as subcutaneous hematoma, bruising and capillary rupture, including soft tissue injury, are not uncommon during acupuncture treatment. From the past history and present medical history of this patient and its treatment process, the multiple soft tissue injury caused by acupuncture treatment is representative. However, to our knowledge, acupuncture has rarely been reported to lead to multiple soft tissues, and there is no definitive evidence that coagulation dysfunction patients or stroke patients with coagulation dysfunction can not be treated with acupuncture.

In the present case, the level of the patient's international standardized ratio (INR) has been elevated, which is related to the underlying disease. At the same time, the range of subcutaneous hematoma and the degree of soft tissue injury in the right hip showed that the acupuncture treatment had serious adverse symptoms. We judge that the main parts of multiple soft tissue injuries are gluteus maximus and piriformis, because according to the patient's description, the doctor who gave her acupuncture treatment used 25×75 mm of needles, about 25 mm long needle handle exposed to skin. In this case, it is worth noting that the acupuncturist's technical level (including anatomy and skills), acupuncture position, needle length selection, acupuncture angle, acupuncture technique, needle retention time, needle entry and exit speed[10-11]. At the same time, it takes into account the patients' own factors, such as whether the body moves during acupuncture, whether there is a doctor's order after acupuncture, whether there are adverse reactions between acupuncture and drugs, coagulation dysfunction, basic diseases and other comprehensive factors. In this case, the improper intervention of the family to the patient, massage and pull the muscle, resulting in the spread of congestion to the lateral thigh.

An interesting question is why similar problems have not been reported in thousands of stroke patients or patients with coagulation dysfunction. Perhaps many people think that subcutaneous hematoma is a normal phenomenon in acupuncture treatment, so no one counts the data of multiple soft tissue injury caused by improper acupuncture, and few reported similar events before that. Acupuncture treatment and follow-up in stroke patients with coagulation dysfunction undoubtedly need to be strengthened, with the

possibility of severe soft tissue injury, but no attention and reports. However, there were no severe soft tissue injuries during acupuncture therapy in close study monitoring other stroke patients with coagulation dysfunction, suggesting that they were an unusual event. Most likely, the degree of soft tissue damage is affected by the muscular anatomy of the acupuncture site, such as the muscle is thicker, the acupoint is relatively single part. What we can't ignore is the technical problems of acupuncturists. In the group of acupuncturists over 50 years old in China, the number of people who fully master western medicine anatomy is relatively small. Many acupuncturists only learn the traditional basic theory of traditional Chinese medicine and meridian acupoints, ignoring the relationship between medical anatomy and meridian correspondence. In this case, multiple soft tissue injuries due to improper acupuncture are likely[3].

We treat subcutaneous hematoma and soft tissue damage with physical factors and Chinese massage, the main purpose is to eliminate subcutaneous hematoma and promote soft tissue repair. After repeatedly confirming that the patient did not have contraindications for physical factor therapy, we chose ultrasound alone, if electrical stimulation, infrared, wax therapy and magnetic therapy. During the consecutive 1 month of treatment, we did not find any physical factor therapy to have adverse clinical reactions in patients. Because our patients refused to use acupuncture, we could not assess whether the patient had eliminated the fear of acupuncture, nor could we know whether acupuncture had any effect on the treatment of subcutaneous hematoma and soft tissue injury. Studies have shown that soft tissue injury and subcutaneous hematoma will eventually be cured over time, but there is no specific treatment for stroke with coagulation dysfunction[12]. To sum up, we believe that patients may still have soft tissue injury and subcutaneous hematoma in the future acupuncture treatment, because this is related to the skill level of the acupuncturist, the location of acupuncture, the severity of coagulation dysfunction, and the basic diseases. In the observation of acupuncture treatment of stroke patients with coagulation dysfunction in Xiangshan County Rehabilitation Hospital, small number of patients will also appear subcutaneous hematoma, hematoma range is basically less than 3×3 cm. However, none of this is serious, the location of subcutaneous hematoma is mainly distributed as deltoid muscle, forearm muscle group, calf triceps muscle and gluteus maximus muscle, these parts and acupuncture treatment of stroke commonly used parts have a certain correlation, but it is also predilection site for subcutaneous hematoma. In acupuncture treatment, the formation of subcutaneous hematoma and soft tissue injury is affected by many factors. Different acupuncturists can lead to different results because of different technical levels. Therefore, stroke patients with coagulation dysfunction can not be used as contraindications for acupuncture treatment, but the serious consequences of improper acupuncture can not be ignored.

All medical technical professionals are critical to be vigilant in the treatment of stroke patients with coagulation dysfunction, as we are not yet aware of all clinical diseases that may result. It may be necessary to consider the safety of acupuncture treatment, at the same time be alert to the treatment site and choose the appropriate needle. Our case shows why we should be careful in acupuncture treatment of stroke patients with coagulation dysfunction, do a good job of medical care, strengthen the study of human anatomy, study the corresponding relationship between meridian and anatomy, and prevent

adverse events. It should be a key part of all acupuncturists to prevent improper acupuncture leading to soft tissue injury.

Declarations

The authors certify that they have participated sufficiently in the work to take public responsibility for the appropriateness of the experimental design and method, and the collection, analysis, and interpretation of the data. This manuscript has not been published and is not under consideration for publication elsewhere. We have no conflicts of interest to disclose, all authors have reviewed the final version of the manuscript and approved it for publication. The patient has been discharged, but we discussed the case during the patient's hospitalization and later contacted by telephone. The patient, Ms. Lin, said she agreed to share her case and contribute to our study.

Conflicts of Interest: We have no conflicts of interest to disclose, all authors have reviewed the final version of the manuscript and approved it for publication.

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Figures



Figure 1

Pretherapy, ecchymoma area 20x20 cm



Figure 2

Treatment after 10 days, ecchymoma area 10x10 cm