

# **Clinical Observation on the Treatment of Infectious Bone Defects with Prunella Vulgaris Decoction**

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*Abstract: Objective:* To study the clinical effect of Prunella vulgaris decoction in the treatment of infectious bone defects, and analyze the application methods in clinical treatment. **Methods:** 100 patients with infectious bone defects admitted to our hospital from February 2020 to February 2021 were selected and averagely divided into an experimental group and a control group. The control group was treated with conventional drugs and methods for infectious bone defects, while the experimental group was given Prunella vulgaris decoction along with conventional drugs. The cure rate of inflammation, equal length rate of lower limbs, rate of knee joint stiffness and satisfaction rate of patients in both groups were recorded. **Results:** In the control group, the cure rate of inflammation was 88%, the equal length rate of lower limbs was 92%, the rate of knee joint stiffness was 32%, and the satisfaction rate of patients was 82%. The figures in the experimental group were 100%, 96%, 10%, and 98%, respectively. **Conclusion:** Prunella vulgaris decoction is effective in treating infectious bone defects should be strengthened to improve the therapeutic efficiency and promote the better recovery of patients.

Keywords: Prunella Vulgaris Decoction; Infectious Bone Defects; Clinical Treatment

### Introduction

An infectious bone defect of limbs is a very serious complication, which is difficult to treat, and is of a low radical cure rate. Compared with other infectious diseases of human body, infectious bone defects are quite special. Human bones that are inflamed or necrotic due to bacterial infection cannot absorb enough antibiotics under conventional antibiotic treatment, so it is difficult to kill all bacteria, leading to a poor therapeutic effect of infection, and aggravating the symptoms of infectious bone defects. Infectious bone defects are usually caused by two reasons. The first is serious open fracture, untimely debridement, wound dehiscence, etc., the common point of which is that bones are exposed to bacterial environment, resulting in bones infected by bacteria, and then leading to the emergence of infectious bone defects. Second, soft tissue injury of limbs. Infection of soft tissue leads to the bones being wrapped by infectious substances and gradually infected to form infectious bone defects. Infectious bone defects are one of the most difficult orthopedic diseases because of its incurability. Patients with this disease often suffer from bone pain, stiff limbs and knees, and even different lengths of left and right lower limbs in serious cases, which affects the appearance and normal life of patients. Antibiotics and surgical treatment are usually applied in the conventional treatment, but the treatment effect is far from ideal due to the limited absorption

capacity of antibiotics of bones. Under such circumstances, using Prunella vulgaris decoction to treat infectious bone defects is put forward. Decoction made of Prunella vulgaris is added to the prescription; then, the application effect is observed and studied through clinical materials <sup>[2]</sup>.

#### 1. Clinical materials

#### **1.1 Research materials**

100 orthopedic patients with infectious bone defects admitted to our hospital from February 2020 to February 2021 were selected and randomly divided into an experimental group and a control group, with 50 patients in each group. There were 28 male patients and 22 female patients in the experimental group, with an average age of 45±2.3 years old, while 36 male patients and 14 female patients in the control group, with an average age of 48±1.4 years old. The clinical examination indicated that patients in both groups met the symptoms of infectious bone defects. Patients with mental illness, severe heart, liver and kidney diseases were excluded. All patients involved signed informed consent and agreed to participate in this study. There was no significant difference in general data between the two groups, and comparison between the two groups could be made.

#### 1.2 Clinical methods

Patients in the control group were treated with conventional methods for infectious bone defects, mainly including antibiotic drugs and surgeries. Specific operations are as follows. For closed infectious bone defects, antibiotic treatment combined with surgical debridement can control and eliminate infection; after the infection is eliminated, traditional bone grafting and vascularized bone transplantation are performed according to the condition of bone defects. To treat infectious bone defects with soft tissue defects, it is necessary to apply microsurgeries for soft tissue coverage, and carry out one-stage or two-stage bone grafting; it is also feasible to cut off the diseased bone in whole section, and perform bone transport directly or after shortening the bone <sup>[3]</sup>.

No sign of active infection within three months can be regarded as aseptic nonunion, and one-stage bone grafting and internal or external fixation can be carried out. As for active infection, it is necessary to control or eliminate infection prior to comprehensively analyzing the lesion location and the conditions of soft tissue and bone defects. Surgeries usually need to be performed by stages.

(1) First stage: debridement, removal of infection focuses and stabilization of bones. First of all, remove all necrotic tissues and dead bones. The internal fixation materials should be taken out from those with serious infection, while they can be retained in those with limited infection, and external fixation can be applied for preliminary bone fixation. Sustained-release calcium phosphate cement beads or gels containing antibiotics can be used in patients with mild infection to increase local drug concentration. In addition, infected bone exposed wounds should be given vacuum sealing drainage (VSD) for wound coverage, continuous lavage with antibiotic solution containing gentamicin for 2 to 3 weeks, and sensitive antibiotics for more than 2 to 6 weeks. Repeated debridement is required in some cases.

(2) Second stage: reconstruction of soft tissue and bones. Coverage of soft tissue and elimination of potential dead space should be performed after thorough debridement and infection being initially controlled, followed by bone transplantation, wound sealing and lavage. According to different wounds, postage stamp skin grafting, local skin flap, free skin flap, musculocutaneous flap or vascularized bone flap can be applied, among which skin flap can be used to reconstruct soft tissue, while musculocutaneous flap can fill the dead space and improve the blood supply in infected area. Small bone defects smaller than 6cm can be repaired through muscle flap and cancellous bone grafting, and fixed with internal fixation or external fixation according to different parts. To treat bone defects in a large scale, it is better to adopt vascularized free fibula grafting or iliac bone flap grafting, or bone transport technique, and fix them with external fixation.

(3) Third stage: functional rehabilitation period. Pay attention to regular follow-up after operation, strengthen rehabilitation treatment to prevent complications of long-term treatment. Physical therapy plays an important role in preventing contracture and joint stiffness.

On the basis of the treatment of the control group, patients in the experimental group were additionally given Prunella vulgaris decoction. 250g dried Prunella vulgaris with a proper amount of water is simmered gently until three bowls of water are bowled into one bowl. The decoction made once should be consumed six times in two days. One course of treatment is one month and three consecutive courses are necessary. Antibiotics are used during taking the decoction. In addition, 250g dried Prunella vulgaris with a large amount of water is boiled over strong fire. Cool it down, and clean the infected area with the decoction using clean towels or gauze once every three days, and wrap the wound afterwards <sup>[1]</sup>.

#### **1.3 Observing indicators**

Cure rate of inflammation: infectious bone defects can cause inflammation in patients' joints and bones, which is the main symptom. Hence, the cure of inflammation is an important index reflecting the therapeutic effect.

Equal length rate of lower limbs: infectious bone defects can lead to inconsistent length of left and right lower limbs, so whether the lower limbs of patients are equal-length can reflect the therapeutic effect.

Rate of knee stiffness: infectious bone defects can cause knee stiffness. The more severe the knee stiffness, the worse the therapeutic effect.

#### 1.4 Processing data

SPSS15.0 statistical software was adopted to process data; express the counting data as (%), and perform r2 test. If P < 0.05, it is statistically significant.

#### **1.5 Research results**

**Table 1.** Comparison between the two groups in terms of the cure rate of inflammation, the equal length rate of lower limbs, the rate of knee stiffness and the satisfaction degree of patients

	Cure rate of	Equal length rate of	Rate of knee	Patient
	inflammation	lower limbs	stiffness	satisfaction
Experimental	100%	96%	10%	98%
group				
Control group	88%	92%	32%	82%
Р	0.000	0.000	0.011	0.011

According to **Table 1**, in the experimental group, the cure rate of inflammation was 100%, indicating that inflammation of patients was effectively cured; the equal length rate of lower limbs was 96%, the rate of knee stiffness was 10%, and patients' satisfaction with treatment was 98%. The figures in the control group were 88%, 92%, 32%, and 82%, respectively. The above results were statistically significant (P < 0.05).

#### Conclusion

To sum up, Prunella vulgaris decoction has a significant effect on the treatment of patients with infectious bone defects. Compared with those treated in conventional measures, patients given Prunella vulgaris decoction obtained better therapeutic results, showing that Prunella vulgaris decoction is effective to infectious bone defects. Prunella vulgaris is a traditional Chinese herb with the efficacy of relieving heat and swelling, and an important treatment point of infectious bone defects is to eliminate the lump caused by infection and inflammation and prevent other bones from being further affected by infected tissue. The therapeutic effect of Prunella vulgaris decoction on infectious bone defects is realized through this mechanism. Moreover, Prunella vulgaris decoction can make up for the poor absorption effect of antibiotics on human bones and kill bacteria in bones, thus achieving the purpose of curing infectious bone defects. Therefore, Prunella vulgaris decoction should be appropriately added to the clinical treatment of infectious bone defects as an auxiliary treatment means to improve the cure rate of patients and alleviate their pain.

## References

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