

# A Case Report on the Effect of *Cissus quadranglis* on Bone Healing in 80yrs Aged Woman



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## Abstract

To evaluate the effect of *Cissus quadranglis* in the process of bone healing in the fracture of distal radius in left hand. *Cissus quadrangularis* L. (veld grape) is a climber plant of Vitaceae family. A case study was undertaken to evaluate the clinical efficacy of *Cissus quadrangularis* (CQ) on the healing process of accidentally fractured distal radius of left hand with depression in a woman aged 78yrs. Radiographic examination confirmed the fracture of distal radius of left hand with depression/collapse. The X-ray observation of healing process of bone was re-examined after 30 days. Healing was almost complete on the twenty first day of fracture in the treated bone. In the present case study, the patient was prescribed 750 mg/day of CQ along with calcium supplements. She was able to do her activities without any symptoms of fracture in a reduced period of time. Surprisingly, post treatment radiographic reports showed that the bone was completely healed. This is a preliminary report from our centre and currently we are working on the effect of CQ in different fractures.

**Keywords:** *Cissus quadranglis*; Bone healing; Fracture; Radiography

## Introduction

Medicinal plants and their extracts, exemplify the ancient and most widespread form of medication and at least 25% of the bioactive compounds used in currently approved synthetic drugs were first identified from plant sources. Due to over population, urbanization and continuous exploitation of these herbal reserves, the natural resources along with their related traditional knowledge are depleting day by day [1] *Cissus quadrangularis* Linn. (Hadjod) is an indigenous medicinal plant grown in India, Sri Lanka, and Africa. It has been prescribed in ancient Ayurveda texts by Bhava Prakasha and Chakra Dutta as a general tonic, especially for the fractured patient. It is widely

used as an external application and as an internal medication by bonesetters [2]. CQ is a shrub, which has slender, fleshy fibrous, smooth stem, with four winged internodes. Stem and root portion of this plant possess antioxidant and antimicrobial activity. Extracts of this plant are reported to contain phytoestrogenic steroids, ascorbic acid, carotene, calcium and anabolic steroids [3]. Toxicological evaluation of the plant revealed that the drug is safe even at higher dose for a prolonged duration of treatment [4]. The aim of the present case study was to evaluate the effect of CQ in accelerating healing of bone fracture by reducing pain and swelling.

## Case Report

A patient Mrs Adhiamma aged 78yrs, presented with swelling and pain in left hand wrist after an accidental fall from the stair case at her home was brought to SMC Ortho and Trauma care in Chennai, Tamilnadu, India (A unit of NRA advanced wound care) on December 2017. She is non-diabetic and blood pressure was found to be normal. The X-ray revealed Colles fracture in left hand (Figure 1a). Patient was taken up for closed reduction with POP under local anaesthesia. She was advised to take rest and prescribed with one capsule of CQ (1 capsule = 750mg powder of dried stem of CQ) along with calcium supplement. The extract was provided in capsule form by Herbovedic Company and certified organic, free from any pesticides and chemicals and heavy metals.

## Result and Discussion

Pain and swelling gradually reduced and was completely absent after 30 days. (Figure 1b & 1c) depicts the Radiography performed on the 15<sup>th</sup> and 30<sup>th</sup> day of follow up and the X ray reveals bone healing. From our clinical observation, the patient presented a remarkable increase in the rate of healing in the bone fracture with a decrease in pain and swelling with an oral dosage of dry powder for 30 days. *Cissus quadrangularis*

is edible and is used as a vegetable in India and this plant has been used from ancient times to enhance fracture healing and has several other health benefits. Slowly, interest in natural products for the treatment and prevention of disease is growing in the quest to minimize severe side effects that existing drugs can cause and WHO has endorsed the safe and effective use of such medicines [5] Nutrition supply is an essential aspect for bone healing and the mineral calcium helps in healing of bone. The rate of new bone formation does not improve by increased intake of calcium alone. The ability for absorption and utilization of calcium should be improved for the hastening of healing. Phytochemical studies of CQ have shown the presence of various versatile constituents such as flavanoids, triterpenoids,

Vitamin C, stilbene derivatives and many others, e.g. resveratrol, piceatannol, pallidolperthenocissin and phytosterols [6] CQ acts by the stimulation of metabolism and increased uptake of the minerals calcium, sulphur, and strontium by the osteoblasts in fracture healing [7] . Certain amino acids such as lysine help in absorption of calcium. CQ also contains Vitamin A and C that is effective in the formation of collagen. CQ facilitates bone fracture healing by accelerating the proliferative physiological process in the bone. It increases the rate of bone regeneration and improves blood circulation and nutrient supply to the bone. It preserves bone tissue anabolism and regeneration and promotes osteoblastic proliferation and differentiation [8].



Figure 1: 78 years female-fracture at left hand (Distal Radius with depression/ collapse).

## Conclusion

The study presented an inspiring outcome by using this plant product as capsule for the fracture. CQ has drawn much attention recently for its medicinal uses because of its efficacy and safety for human use. Further experimental studies are warranted to study the efficacy of this herb for healing bone fracture in the different age group patients.

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