



## CISSUS QUADRANGULARIS: BOON TO FRACTURES

Yogitha Bali M.R\*

Dheerghaayu Ayurvedic Health care, Opposite Reliance Mart, Arakere mico layout, Bannerghatta road, Bangalore-76 India

\*Email: [baliyogitha@gmail.com](mailto:baliyogitha@gmail.com)

Received on: 31/07/12 Revised on: 10/08/12 Accepted on: 15/08/12

Fractures are normally managed with reduction, retention and rehabilitation for the proper union. It takes three weeks for a fracture to heal. In Ayurvedic medical science, there are many herbs that accelerate the fracture healing and make the patient independent earlier. *Cissus quadrangularis* also known as *asthi shrunkala*, is one such effective herb that has been experimented and proved to be effective through research studies. With the intention of creating awareness of this herb so that this can be used clinically, a literary review of the scientific studies of this herb has been made.

A clinical study on patients with various types of fractures were treated with external application of the paste prepared from *cissus quadrangularis* and this showed that the earlier formation of collagen fibres leading to earlier calcification and callus formation.<sup>1</sup> This not only neutralizes the anti-anabolic effect of cortisone in healing of fractures but also enhances the mineralization of the callus.<sup>2</sup> A study conducted on animals showed much early gain in the tensile strength in study group and thus *cissus quadrangularis* builds up the chemical composition of the fractured bone namely its mucopolysaccharides, collagen, calcium, phosphorus and others as well as its functional efficiency.<sup>3</sup> Systemic use of *cissus quadrangularis* in rats caused complete restoration of the normal composition of bone after fracture in 4 weeks while the control group required 6 weeks. Thus there was a shortening of about two weeks in the bone healing duration. It has greater impact on osteoblastic proliferation than other cellular responses. In both the models the mucopolysaccharide and collagen levels of the bones in the treated group came down to normal at the end of only four weeks while the controls required 6 weeks as confirmed with histological and histochemical observations.<sup>4</sup> In a trial undertaken to evaluate the effect of *cissus quadrangularis* extract on the healing process of experimentally fractured radius-ulna of dog, fracture was completely healed in 21 days in the treated group and remained incomplete in the control group. The treated group also revealed replacement of cartilaginous cells by osteoblastic cells and union of the fractured gap at several places with the formation of new bony trabeculae whereas bony trabeculae were absent in the control group.<sup>5</sup>

A study conducted using albino rats to explore whether the beneficial effect of *cissus quadrangularis* in the healing of fractures is due to its vitamin C content. The animals receiving *cissus quadrangularis* showed rapid accumulation of larger quantity of mucopolysaccharides in the first week

followed by more rapid fall and its earlier disappearance from the fractured area and both of these actions have beneficial effect on the healing of fractures. At the end of third week, the skiagram showed greater amount of calcification in the *cissus quadrangularis* treated group in which one could hardly see a gap at the site of fracture, while the control and vitamin C treated group showed some gap. At the end of 5<sup>th</sup> week, the union at the fractured site was more firm in the *cissus quadrangularis* treated group than the others. Earlier disappearance of mucopolysaccharides from the fractured area is associated with the earlier calcification and firmer callus formation. Mucopolysaccharides play an important role in the healing by supplying raw materials for repairs. In the latter period, where the mucopolysaccharides content decline in the fractured area is an indicative of rapid utilization of these raw materials leading to earlier completion of healing process.<sup>6</sup> In animals treated with *cissus quadrangularis*, mineralization process takes place much earlier roughly in the second half of the second week. Not only the healing has been faster but also the quality of the callus seems to be better in terms of the enormous deposition of the minerals at the end of the second week only.<sup>7</sup> *Cissus quadrangularis* exhibited significant analgesic activity compared to that of Aspirin when tested using Haffner's clip and Eddy's hot plate methods. The optimal effective dose for analgesic effect lay between 1/20<sup>th</sup> to 1/10<sup>th</sup> of its LD50 which indicates its wide margin of safety for the treatment of pain. This analgesic effect of *cissus quadrangularis* may be of great value in relief of pain associated with bone fractures.<sup>8</sup>

### REFERENCES

1. K N Udupa. *Cissus quadrangularis* in healing of fractures, a clinical study; J.Indian Medical Association. 38: (11). June, 1962.
2. K N Udupa, Gurucharan. Effect of *Cissus quadrangularis* in the healing of cortisone treated fractures; Ind.Jour.Med.Res. 51: (4). June, 1963.
3. K N Udupa, Gurucharan. Biochemical and calcium 45 studies on the effect of *Cissus quadrangularis* in fracture repair. Ind.Jour.Med.Res. 52: (5). June, 1964.
4. K N Udupa, Gurucharan. Further studies on the effect of *Cissus quadrangularis* in accelerating fracture healing. Ind.Jour.Med.Res. 52: (1). June, 1964.
5. D.K.Deka, L.C.Lahon. Effect of *Cissus quadrangularis* in accelerating healing process of experimentally fractured radius-ulna of Dog. A preliminary study. Indian Journal of Pharmacology; 26:44-45, 1994.
6. K N Udupa, H J Arnikart, L M Singh. Experimental studies of the use of *Cissus quadrangularis* in healing of fracture; Ind.Jour.Med.Scies; p-551.
7. L M Singh, K N Udupa. Studies on *Cissus quadrangularis* in fracture by using Phosphorus part II. Ind.Jour.Med.Scies; p-926.
8. S P Singh, N Mishra. An experimental study of analgesic activity of *Cissus quadrangularis*. Ind.J.Pharm (1984)162.