

## ADMINISTRATION OF BEE VENOM BY ULTRASOUNDS

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Pavlina POCHINKOVA  
BULGARIA

Bee venom has been used for various affections for thousands of years. Treatment with bee venom has been scientifically only recently.

There are various ways of introducing it into the human body: directly by bee stings, by injecting standardised products, by ionisation, by friction, inhalation, or sublingual administration.

Knowing the power of ultrasounds we used it for introducing bee venom into the human body (ultrasounds were used in medicine for the first time by Polman, in 1938, and since then they have been used more and more often in this domain). The great acoustic energy of ultrasounds has the effect of "introduction" into the skin of various substances.

### Material and method

Investigations were made at the physiotherapeutic clinic of the Central Hospital in Sofia, of 326 patients suffering of various vertebral arthroses: cervical, thoracic, and combined forms.

Before starting the treatment with ultrasounds, the patients were examined in order to find possible counter indications for the therapy with ultrasounds and bee venom. Their urine and blood were analysed, and radiographies were made. Treatment was started only after a negative bee venom biotest.

We used a TUR-US-5, 800 kHz generator with action over an area of 5.4 sq cm. Ultrasounds were applied in 10—15 treatments, of 5—12 minutes each, with increasing doses depending on the duration and intensity of ultrasounds. Depending on the kind and stage of the disease, continuous, 0.5—1.5 W/cm<sup>2</sup> ultrasounds were used. A labile sonorization is thus produced. The sound producing device smoothly slides on the affected part of the body which is previously smeared (200—300 sq cm) with a salve containing 150% bee venom. Sonorisation is produced when the device touches the patient's skin, through a thin layer of the salve.

Phenomena of incompatibility were recorded only seldom and they were only a local, general reaction.

Two months after the first treatments, treatments with higher doses were made.

### Results

The 326 patients treated with bee venom by phonophoresis suffered of various dystrophic articular-vertebral affections.

Improvement was recorded in 89.5% (65% by phonophoresis and 70% when bee venom was injected). With some affections (periarthritus calcarea) improvement was recorded in 96% of patients.

The results of treatment with ultrasounds are given in Table 1.

Table 1

	Total	++	+	±	% Improvement
Cervical arthrosis	165	93	54	18	88
Thoracic arthrosis	38	21	13	4	89.4
Lomboarthrosis	105	70	24	11	89.5
Combined forms	18	10	7	1	94.4
<b>Total</b>	<b>326</b>	<b>194</b>	<b>98</b>	<b>34</b>	<b>89.5</b>

Already from the fifth or sixth sitting patients feel a gradual decrease in pains which, towards the end of the treatment, completely disappear. The reactive inflammatory phenomena disappear, the movements are ampler and rigidity disappears. By eliminating bursitis, tendovaginitis and nevritis a relief is obtained. The disagreeable creaking of the joints reduces or completely disappears in most patients.

In a series of cases the curative effect appears 10—15 days after the latent period. It is often remarked that pains grow worse beginning with about the 4th or 5th sitting, which, in our opinion, is a positive reaction. When treatment is over, an improved general condition, sleep and appetite was recorded in patients.

Positive results of control examinations (from 2 months to 3 years) persisted in most patients (see Table 2).

Table 2

Controls after the treatment	Positive result was final	Positive result was temporary	Total
Up to 6 months	152	21	173
After 6—12 months	56	5	61
After 1—3 years	48	—	48
<b>Total</b>	<b>256</b> (90.7%)	<b>26</b> (9.3%)	<b>282</b> (100%)

Effect of treatment was visible particularly in patients suffering of *periarthritis calcarea*. From 35 patients, a considerable improvement, almost a complete recovery, was recorded in 34. In a great number of these patients by means of radiographs we noted during the treatment already that calcium agglomerations had disseminated and disappeared; often these agglomerations were very large. Towards the end of the treatment, radiographs were negative. Under ultrasonic treatment patients were cured not only clinically but they also completely recovered anatomically.

### Discussion

Numerous authors published data about the therapy with ultrasounds accompanied or not by use of medicines. The curative effect of bee venom is justified by its having been empirically used in the past, and is confirmed by the present clinical experimental evidences. Combination of the two therapeutic means is fully justified as better results are obtained than when applied separately. These two curative factors, one biological and the other physical, produce a strong local effect.

With high frequency oscillations, short-wave ultrasounds allow for the pencil to be precisely focused and consequently to introduce bee venom in the very centre of affection, with a strictly local effect.

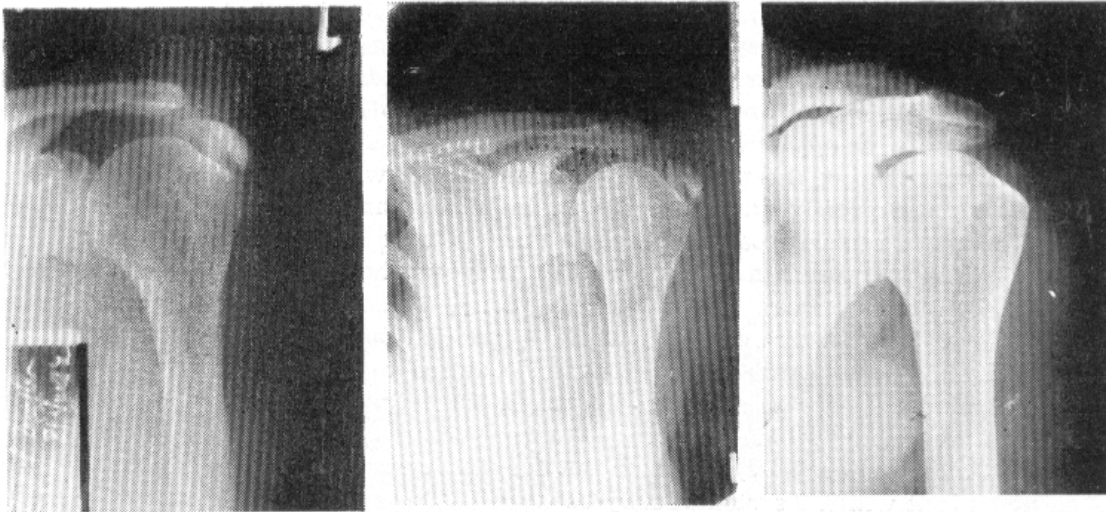
Our investigation proved that bee venom has a long lasting effect, and that it penetrates into the body under the action of ultrasounds. Once inside the tissues, bee venom has an analgesic and anti-inflammatory effect. It also improves nutrition of tissues. The local hyperaemia caused by bee venom improves the irrigation of tissues.

During our investigation we also found out that when introducing bee venom by phonophoresis, the number of mastocytes and consequently the quantity of muco-polysaccharides increases. This accounts for the positive effect of this method in degenerative affections of joints which causes considerable decrease in the number of mastocytes and muco-polysaccharides.

### Conclusions

1. Our method of introducing bee venom into the body by phonophoresis has greater therapeutic effect than that of each factor applied separately. We recommend it for application in practice.

2. For *periarthritis calcarea* this should be the favourite method of treatment because of its considerable advantage as compared to radiotherapy and surgical operations.



X-ray photographs : before, during, and after the treatment