

ULTRASONIC TREATMENT OF SUBCUTANEOUS INFILTRATIONS AFTER INJECTIONS

By

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Repeated subcutaneous injections of different medicaments, for instance antibiotics, insulin and iron preparations often bring about traumatism of the subcutis with changes in the tissue. These infiltrations are painful, sore and feel like granulations of harder consistency than that of the surrounding subcutis; occasionally they can also be found in the muscles.

As it is not generally known that ultrasonic (u.s.) treatment is a very effective treatment of these changes, and as we have not been able to find any description of it in literature, we feel justified publishing this material.

Ultrasound was introduced in medicine in 1938 by the physicist *Pohlman*.

U.s. waves are mechanical oscillations produced by making a quartz sheet, coupled to an alternating current supply, vibrate. The frequencies employed in the therapy now are about 1,000 kHz.

The wavelength is 1.5 mm. The waves spread in a line from the quartz sheet fixed to the soundhead and are quickly braked in the air and by surfaces. The mechanical energy is thus transformed into thermal energy. In adipose tissue the depth of penetration is 10 cm. During the particle movements alternating areas of concentration and rarefaction may be produced in the substrate (cavitation). Reference is given to the following publications: *Pohlman* 1951, *Graudal* 1957, and *Licht* 1958.

Own investigations.

The aim has been to examine the effect of u.s. treatment of infiltrations caused by injections.

Technique.

The ultrasonic apparatus employed was a Siemens Sonostat 631, intensities used ranged between 0.5 to 0.8 watt/cm.² and frequency 870 kHz. The size of the soundhead 1.3 and 4 cm.², depending on size of area to be treated. Duration of treatment was about 5 minutes. The skin of the area to be treated is smeared with a thin coating of paraffin oil and the soundhead applied in a slow movement over the diseased area. The patient feels no pain but possibly a slight sensation of heat during the treatment.

M A T E R I A L

15 patients with subcutaneous infiltrations have been treated during the past two years.

The age of patients ranged from 23 years to 66, 13 women and 2 men. In 11 cases the cause of the infiltrations was repeated injections of Na-penicillin, in some cases combined with streptomycin, 3 of the patients had had insulin, 1 Imferon and 1 pethidin. The duration of the symptoms was from one month to some years.

In 8 of the patients the infiltrations were localized to the gluteal regions and in 7 to the femora.

The u.d.s treatment was given in series of 6, either daily or every other day. 4 patients had 6 sessions, 11 received 10 or 12 sessions. The pain and soreness disappeared in all the patients. The objective changes decreased considerably in 10 patients and disappeared completely in the remaining 5.

In no cases was damage to skin, muscle or bone seen and the treatment gave no kind of discomfort.

C O N C L U S I O N

Our material shows that u.s. is an effective and painless treatment of infiltrations caused by injections.

S U M M A R Y

The material covers 15 patients with infiltrations caused by injections insubcutis, treated effectively with u.s. The treatment is painless and without side effects.

RESUME

Le matériel d'observation comporte 15 malades souffrant d'infiltrations causées par des injections sous-cutanées traitées efficacement par ultrason. Le traitement est sans douleur et sans effets secondaires.

ZUSAMMENFASSUNG

Das Material umfasst 15 Patienten mit durch subkutanen Injektionen hervorgerufenen Infiltraten, die wirkungsvoll mit Ultraschall behandelt wurden. Die Behandlung ist schmerzlos und ohne Beiwirkungen.

REFERENCES

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