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After successfully treating breast implant capsular con¬tracture with ultrasound, the author asks, "If demonstrated that ultrasound is effective for treating already existing contractures, could it be also effectiv preventing them?" Here he presents his protocol and preliminary results of prophylactic applicatio ultrasound for the avoidance of capsular contractures. (Aesthetic SurgJ 2002;22:205-207.)

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The causes of breast implant capsular contracture are unclear and most likely multlfactonal.l-3

Although implantation of textured surface implants4-7 and several drug administration regimens8-13 l diminished the percentage of contractures, they still occur. Six years ago, 1 started applying external ultrasc to treat breast implant capsular contractures. Preliminary results were so positive that 1 was encourage continue.14,15

The ultrasonic device that I use is similar to the one used for superficial soft tissue treatment. In an early st 1 analyzed 52 patients, 25 of whom had bilateral contractures. Nineteen percent of the implanted breasts h grade IV Baker scale contracture, whereas the remaining 81 % were distributed between Baker scale grad and III. The number of treatment sessions was determined by evaluating improvement. Patients were tre with repeat ultrasonic applications, ranging from 2 to 16 sessions, with an average of 6.4 sessions,15

To measure the effect of external ultrasound, contracture grade was analyzed before and after treatn Changes were measured by subtracting the Baker scale value of the final state from the initial one. In all ca a positive difference indicated an improvement in the patient's condition. In this study, 1 obtained an ov improvement rate of 82.6% at 1-year follow-up, with almost half of the contractures reaching total soft (Table 1).

Measurement	Pretreatment distribution %	Post-treatment distribution %
Baker 1		48
Baker 11	34	40
Baker 111	47	8
Baker IV	19	4

table 1. Measurement of capsular contractures around breast implants Pretreatment Post-treatment

breast implants Pretreatment Post-treatment

In a preceding study of 24 Patients, 14 treated similarly, 1 found that in 97% of cases the degree of contrac improved at least 1 Baker degree. Joining both studies, an evaluation of 83.8% improvement at 1-year fol up confirms observations of capsular softening and easier closed capsulotomy after external ultras treatment. In most cases, a limited number of sessions, fewer than 8, was enough 10 obtain a long-term re A satisfactory result was obtained in 75% of the cases. I also confirmed that the percentage of improver was higher in patients with prepectoral-placed implants.15

The external ultrasonic treatment has proved to be easy to apply, well accepted by patients, and fre significant complications.14,15

After analyzing the data and considering the positive results, 1 posed the following question: if demonstrated that ultrasound is effective for *treatment* of already existing contractures, could it be effective in *preventing* them? Theoretical justification for prophylactic use is based on demonstrated prope and effects (Table 2).16-18

Mechanical	Produces micromassages that improve Iymphatic drainage and help to resolve the edema
Thermal	Increases speed of cellular metabolism Activates fibroblast production Helps the healing process, arranging the scar architecture
Biochemical	Helps vascular proliferation Increases tissue oxygenation Increases release of cellular mediators of inflammation Increases fibrolytic processes

Table 2. Effects of ultrasou

We theorized that early application of ultrasound facilitates healing, diminishes edema, and regu inflammation, thereby diminishing the possibility of a future capsular con¬tracture. The following protoco prophylactic applica¬tion was suggested initially: session 1, 24 hours after surgery; session 2, 3 days surgery; session 3, 7 days after surgery; and session 4, 1 month after surgery.

Ultrasound was administered under the following para¬meters: level, prophylactic; energy, 60 J; power, 12 type, pulsed; time, 10 minutes. Early application of external uItrasound was associated with the highest postsurgi¬cal inflammatory peak. The later applications were administered according to a "modulation" scheme of inflammation for up to 3 months when healing and remodeling of collagen were already established.19-22

Generally, in the first session patients did not report any discomfort; however, in the second session (third postop¬erative day), some patients reported hypersensitivity, mainly in the submammary fold. In the follow ses¬sions, patients did not complain of discomfort.

Currently, I have modified the number of sessions and the schedule of application as follows: session 1, 7 d after surgery when removing the stitches; session 2, 15 days after surgery; session 3, 21 days after surgery.

This new protocol avoids the hypersensitivity that some patients had in early sessions by starting treatment when the capsule around the prostheses is already constituted.19-21

It has been almost a year and a half since I began using this prophylactic protocol, and the preliminary resu demonstrate faster reduction of edema and inflammation, faster absorption of small bruises and ecchymose and a decrease of postsurgical discomfort. Most important is that from the first patients receiving this treatn to the current patients, none has experienced the formation of capsular contracture thus far.

view of these good results, I have followed this protocol and improved its design, and I look forward to statistical¬ly validating the different variables. At the moment, I am carrying out both protocols in parallel: therapeutic and prophylactic. Therapeutic results are quite encouraging and prophylactic results fulfill our expectations so faro.

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