

# Silicone Breast Implant Rupture is Associated with a Higher Risk of Capsular Contracture: An Intra-patient Study of 96 Patients with Unilateral Implant Rupture

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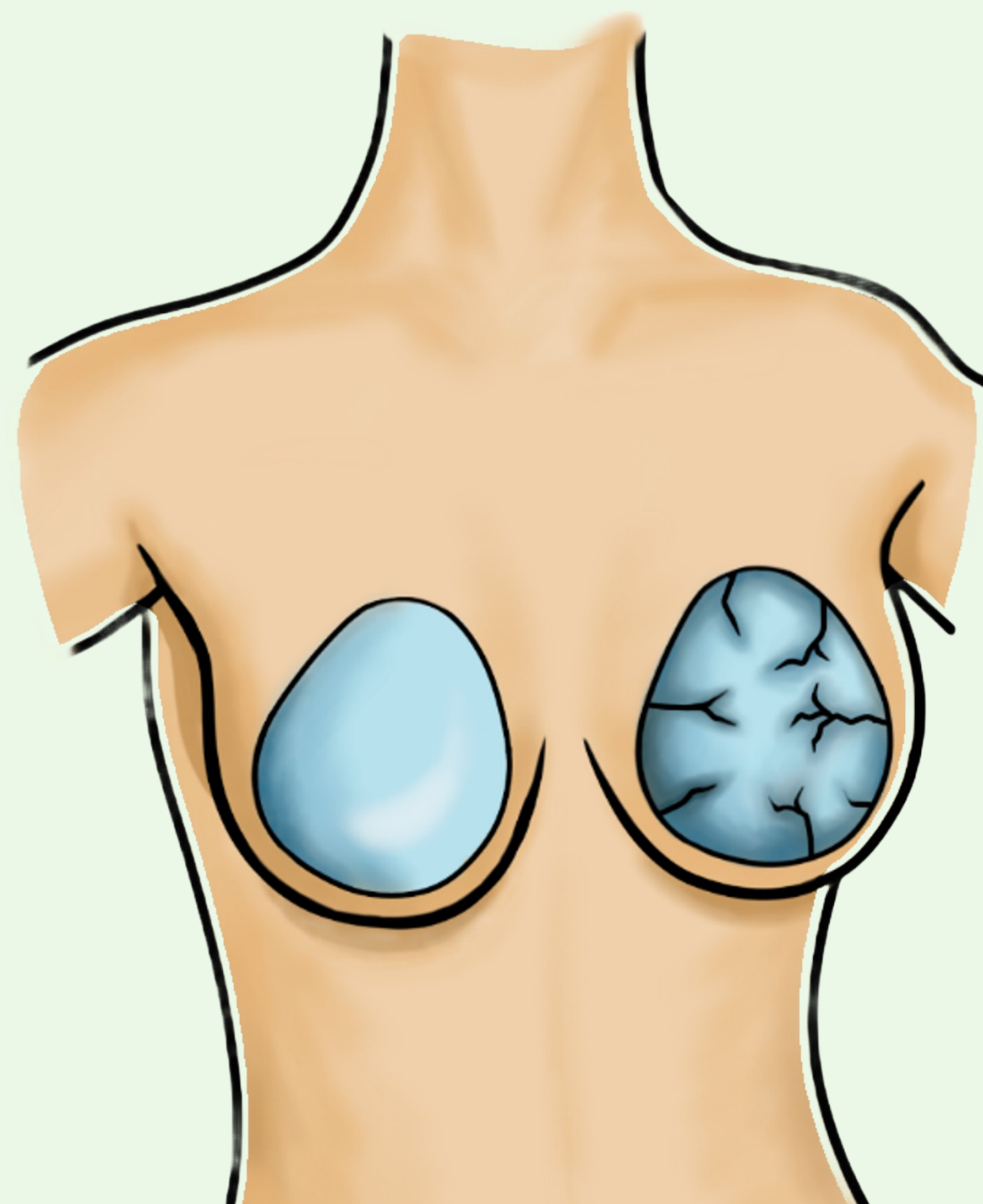
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## BACKGROUND

It is a widely adopted hypothesis that implant rupture causes capsular contracture. However, robust evidence supporting this link is missing.

## METHODS

Patients unilateral implant rupture after primary breast augmentation were included to the Copenhagen Breast Implant (COBI) Biobank. Capsular contracture was diagnosed using the Baker classification system (Baker III and IV) assessed preoperatively. During surgery we received a bioposy of the breast implant capsule for histological analysis.



## RESULTS

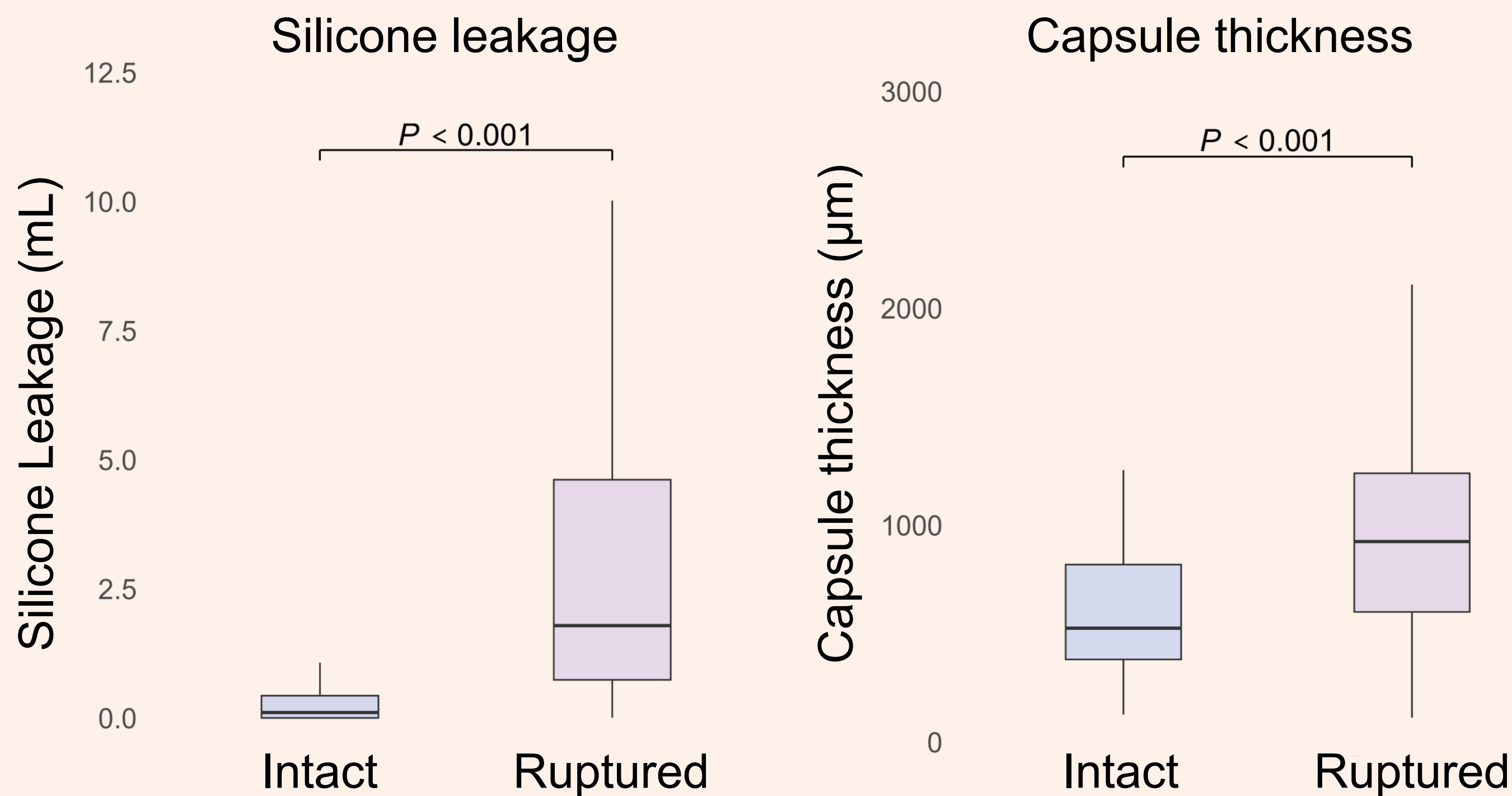
We included 96 patients with unilateral implant rupture. Of these, 7 (7.3%) had capsular contracture on the intact implant side, while 35 (36%) had capsular contracture on the ruptured implant side, corresponding to an odds ratio (OR) of 5.0,  $P < 0.001$ . Data are summarized in the table below.

| <i>Total Cohort</i>     | <b>Ruptured implant side</b> |                      |
|-------------------------|------------------------------|----------------------|
|                         | <b>Intact implant side</b>   |                      |
|                         | No capsular contracture      | Capsular contracture |
| No capsular contracture | 39                           | <b>35</b>            |
| Capsular contracture    | <b>7</b>                     | 15                   |

In a secondary analysis, where we excluded 28 patients where one or both breasts’ capsular contracture diagnosis had been likely misclassified, the OR increased to 8.67,  $P < 0.001$ . Data are summarized in the table below.

| <i>Secondary analysis</i> | <b>Ruptured implant side</b> |                      |
|---------------------------|------------------------------|----------------------|
|                           | <b>Intact implant side</b>   |                      |
|                           | No capsular contracture      | Capsular contracture |
| No capsular contracture   | 29                           | <b>26</b>            |
| Capsular contracture      | <b>3</b>                     | 10                   |

In the histological analysis, we found that capsules from ruptured implants had significantly more silicone and were thicker.



## CONCLUSIONS

Implant rupture is strongly associated with capsular contracture in patients with silicone breast implants. Ruptured implants also show significantly more silicone within the capsule and increased capsule thickness. Preventing rupture, e.g., choosing highly cohesive implants or timely implant exchange, may reduce this risk.