Amorous Squeezing of the Augmented Breast May Result in Late Capsular Hematoma Formation

A Report of Two Cases (and a Review of English-Language Literature on Late Hematoma Formation in the Augmented Breast)

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Abstract: Late hematoma formation is a rare complication of augmentation mammoplasty. Late hematoma formation related to excessive or vigorous squeezing of the breast during sexual activity has not been described. We present 2 such cases and review the English-language literature on all causes of late hematoma formation after breast augmentation reported thus far. It is suggested that this newly reported cause is probably underreported, either because of unnoticed small hematomas or because of embarrassment of the patient. Bleeding is probably caused by the rupture of vulnerable vessels in the tissue capsule, triggered by a minor or more obvious trauma. Late hematomas might be a cause of late capsular contraction in the augmented breast. Ultrasound or magnetic resonance imaging is a reliable method to confirm the diagnosis of late hematoma formation. Treatment should preferably be surgical, but in minor cases observation may be justified.

Key Words: breast, augmentation, hematoma, capsular hematoma, mammaplasty, late complication, amorous squeezing

Breast augmentation with silicone prostheses is a common aesthetic surgical procedure. Complications after esthetic breast augmentation are rare: hematoma formation is the most frequent early complication (2%–10.3%), followed by infection (2.2%), which usually presents several days to weeks after augmentation.1,2 Some complications occur long after the initial procedure: the most common delayed complication is capsular contraction (6%–40%).3 An extremely rare late complication is late capsular hematoma formation. Thus far, only 12 cases of late capsular hematoma formation have been reported in the English-language literature4–11 (see Table 1).

We report 2 cases of late hematoma formation, which occurred long after the initial operation and that were caused by either excessive or vigorous squeezing of the breast during sexual activity, a cause we call amorous squeezing that has not been described thus far.

CASE REPORTS

Case 1

A 43-year-old patient presented with a sudden enlargement of her left breast, 6 months after a successful, uncomplicated bilateral, subglandular breast augmentation with silicone prostheses (McGhan style 410, 245 mL) had been performed (Fig. 1). During examination, she related that her partner had squeezed her breast during sexual activity the night before, resulting in severe pain, which lasted approximately a quarter of an hour. When she woke up the following morning, her left breast appeared enlarged. She was in no pain and the breast felt somewhat tense.

Routine laboratory tests were normal. Ultrasound mammography was performed, which demonstrated a large amount of fluid surrounding the implant. A diagnosis of a late capsular hematoma formation most likely related to the vigorous squeezing of the breast was made. The patient was informed of the diagnosis and possible consequences but refused surgical drainage because of the absence of severe pain. Six weeks later, she returned to our outpatient clinic. Her left breast had turned hard and the appearance of the breast had been distorted: a Baker IV capsular contracture was diagnosed. Exploration and capsulectomy were planned. The implant was found to be intact, but deep to the implant (between the implant and the pectoralis muscle) a thick fibrous capsule with an organized hematoma was present (Fig. 2). Both the capsule and organized hematoma were removed and the implant was replaced. Histopathology confirmed our intraoperative findings: organized hematoma and
thickened capsule. Bacterial culture result was negative. The postoperative course was uneventful.

Five months later, however, she again presented with a sudden swelling of her left breast. Ultrasound mammography and magnetic resonance imaging (MRI) again revealed a hematoma: it showed a fluid collection and small particles. She was diagnosed as having another hematoma, and again preferred conservative management.

**Case 2**

A 23-year-old dental assistant presented as an emergency with a “spontaneous,” progressive enlargement of the left breast. The visible swelling had apparently started shortly after a lunch break with her employer. Both breasts had been augmented with equally sized prostheses, 6 months previously. She did not suffer from a bleeding diastasis and no anticoagulants had been taken. No specific traumatic incident was referred to.

On examination, the patient was in severe discomfort. The left breast was more than double the size of the normally appearing right breast. The scars had all healed well and no bruises or abrasions were seen. The breast was opened, in theater, through the (old) inframammary incision and approximately 4 to 500 mL of relatively fresh blood was drained. A tear of a few centimeters was discovered in the tissue capsule only. No active bleeding was found. The cavity was rinsed with physiologic saline, a drain was inserted, and the wound was closed over the intact 260-mL high profile, subpectoral prosthesis. The patient was happily discharged the following day. Healing was uneventful.

Six weeks later, on control at the outpatient clinic, the patient informed the surgeon that she had resigned from her employer as he tended to, as was the case on that specific day, become “too demanding” during lunch breaks.

**DISCUSSION**

Sudden onset of swelling of a breast, long after augmentation has been reported infrequently in the literature. These rare cases presented within a period of 6 months to 12 years after augmentation4–11 (see Table 1). Possible causes suggested include infection, hematoma, neoplasm, and capsular formation with or without rupture of the implant. We wish to share our experience with 2 cases with a late hematoma formation.

### TABLE 1. Causes of Late Hematoma Formation in the Augmented Breast as Reported in the English-Language Literature

<table>
<thead>
<tr>
<th>Author/Journal</th>
<th>Patient Age</th>
<th>Time to Onset</th>
<th>Sudden/Chronic Onset</th>
<th>Diagnostic Procedures</th>
<th>Trigger</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Görgü et al. <em>Aesth Plast Surg</em> 19994</td>
<td>21 yr</td>
<td>3.5 yr</td>
<td>Sudden</td>
<td>Surgery, 1 yr after onset</td>
<td>Throwing a ball</td>
<td>Breakdown eroded vessel in capsule</td>
</tr>
<tr>
<td>Iowerth et al. <em>Breast</em> 20005</td>
<td>54 yr</td>
<td>12 yr</td>
<td>Chronic, 4 mo</td>
<td>MRI surgery</td>
<td>No trauma/anticoagulants</td>
<td>Inflammation leading to chronic expanding hematoma</td>
</tr>
<tr>
<td>Hsiao et al. <em>Aesth Plast Surg</em> 20026</td>
<td>34 yr</td>
<td>2 yr</td>
<td>Chronic, several weeks</td>
<td>Surgery</td>
<td>No trauma/anticoagulants</td>
<td>Mechanical friction</td>
</tr>
<tr>
<td>23 yr</td>
<td>14 mo</td>
<td>*</td>
<td>MRI and CT endoscopic surgery</td>
<td>*</td>
<td>Mechanical friction</td>
<td></td>
</tr>
<tr>
<td>Brickman et al. <em>Aesth Plast Surg</em> 20047</td>
<td>44 yr</td>
<td>9 yr</td>
<td>Sudden</td>
<td>Surgery, twice because of recurrence after 5 mo</td>
<td>*</td>
<td>Inflammation on polyurethane coating</td>
</tr>
<tr>
<td>Schavon et al. <em>Aesth Plast Surg</em> 20058</td>
<td>64 yr</td>
<td>6 mo left side</td>
<td>*</td>
<td>MRI, surgery</td>
<td>No trauma/anticoagulants</td>
<td>*</td>
</tr>
<tr>
<td>11 mo right side</td>
<td>*</td>
<td>MRI, surgery</td>
<td>No trauma/anticoagulants</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Veiga et al. <em>Aesth Plast Surg</em> 20059</td>
<td>26 yr</td>
<td>1 yr</td>
<td>Sudden</td>
<td>Percutaneous needle aspiration using ultrasound</td>
<td>Heavy lifting</td>
<td>Mechanical friction on surface of prosthesis</td>
</tr>
<tr>
<td>Cagli et al. <em>Plast Reconstr Surg</em> 200710</td>
<td>40</td>
<td>4 mo</td>
<td>Sudden</td>
<td>MRI, surgery</td>
<td>Muscle myoelectrostimulation</td>
<td></td>
</tr>
<tr>
<td>Peters <em>Can J Plast Surg</em> 200711</td>
<td>37</td>
<td>9 yr</td>
<td>Chronic, 1 mo</td>
<td>Surgery*</td>
<td>No trauma/anticoagulants</td>
<td>Erosion of capsular artery</td>
</tr>
<tr>
<td>51</td>
<td>14 yr</td>
<td>Chronic, 4 mo</td>
<td>Surgery*</td>
<td>No trauma/anticoagulants</td>
<td>Erosion of capsular artery</td>
<td></td>
</tr>
<tr>
<td>51</td>
<td>12 yr</td>
<td>Chronic, 1 yr</td>
<td>Surgery*</td>
<td>No trauma/anticoagulants</td>
<td>Erosion of capsular artery</td>
<td></td>
</tr>
<tr>
<td>Present study</td>
<td>43 yr</td>
<td>6 mo</td>
<td>Sudden</td>
<td>Ultrasound, MRI, surgery</td>
<td>Amorous squeezing of the breast</td>
<td>Probably rupture of a capsular vessel</td>
</tr>
<tr>
<td>23 yr</td>
<td>6 mo</td>
<td>Sudden</td>
<td>Surgery</td>
<td>Amorous squeezing of the breast</td>
<td>Probably rupture of a capsular vessel</td>
<td></td>
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*Is not stated clearly in the article.

In all cases the prosthesis used for implantation was a textured silicone prosthesis, except for Brickman,7 and case 2 of this report and possibly the 1 reported by Iowerth.5
formation caused by amorous squeezing; excessive squeezing, or compression of the breast during sexual activity.

Hematomas have been reported to complicate between 2% and 10.3% of all breast augmentations in the immediate postoperative period.\(^1\,2\) As a late complication, however, this complication has been reported in 20 cases thus far only.\(^4\,10\) Of these 20 cases, 8 occurred in patients who received the implants after a modified radical mastectomy. As these reconstructions were performed after treatment for a malignancy and frequently received radiotherapy or chemotherapy with its own consequences regarding vascularity of the capsule, these cases obviously fall outside this study. This leaves us with 12 cases of late hematoma formation after esthetic augmentation mammoplasty reported thus far and with 14 cases including this case report\(^4\,10\) (see Table 1).

Some theories have been proposed regarding the etiology of this rare complication. Currently, it is believed that capsular formation and microfractures in the capsule play a central role in the formation of a hematoma.\(^4\,6\,9\) In some cases, the insertion of steroids in the pocket or the use of anticoagulation therapy trigger this process, but this concerns only the very old prostheses as this is no longer standard treatment. The cases described above do not match this description, neither did the patients suffer from any known coagulopathy. Other authors, such as Iowerth\(^5\) and Brickman,\(^7\) suggest that a low degree of inflammation could contribute to the formation of a hematoma. However, pathologic analyses of the tissue samples we took did not support this theory.

In a more recent study, Peters and Fornasier\(^11\) reported on the histopathologic findings in 3 patients who presented with late unilateral hematomas, which developed 9, 12, and 14 years after breast augmentation. Multiple large vessels were found within the wall of the capsules, and in each case, an erosion of a capsular artery was discovered. Two out of these 3 had a capsular contracture after initial surgery, which required capsulectomy and changing of the implants, years before the hematoma. The discovery of hemosiderin deposits and new bleeding in the pockets suggested, according to the authors, that several episodes of bleeding had occurred in each of their cases. This could also have been etiopathology in our first case.

Theoretically, the appearance of a late hematoma could be the result of trauma to the augmented breast, such as squeezing or blunt trauma. This would cause the already eroded vessels of the capsule to rupture because of an unusual large amount of friction. In both our cases, there seems to be a direct relation between excessive (amorous) squeezing (during sexual activity) and formation of the hematoma. On reviewing the literature, we were quite astonished that this link has not been described previously. It may be quite possible that in many cases only a small hematoma develops, which is not recognized as such by the patient; such a small hematoma might be one of the triggerpoints in late capsular contraction after breast augmentation. It may also be possible that many patients with larger late hematoma formation after augmentation caused by squeezing are too embarrassed to present themselves to a doctor.

If a patient presents with a sudden swelling of an augmented breast, ultrasound mammography is a reliable cost effective instrument to differentiate between different causes of swelling.\(^12\) Alternatively, but more expensive, a MRI could be considered.\(^5\,6\,8\) Brickman et al\(^7\) advocates to perform no imaging studies because he finds surgical treatment mandatory. We think that it is useful to perform these studies, not only to confirm the clinical diagnosis but also to ascertain the extent of the hematoma or other fluid collection, ensuring correct treatment. As for the appropriate treatment, it is obvious that a large hematoma should be drained. Not only because the amount of discomfort it causes, but also because the hematoma may trigger serious capsule formation.\(^7\) In cases with a minor (and proven diagnosis of) hematoma, observation may be justified.

We suspect that late hematoma formation of the augmented breast caused by excessive (amorous) squeezing during sexual activity probably occurs more often than we think, probably because of the rupture of a capsular vessel, but these late hematomas remain either undetected because of minor

FIGURE 1. Case 1 with swelling and tenderness of the left breast at presentation.

FIGURE 2. Perioperative view the explanted prosthesis with a thick fibrous capsule with an organized hematoma.
degree of pain, discomfort, visible malformation, or because of embarrassment of the patient.

SUMMARY

Late hematoma formation is a rare complication of augmentation mammaplasty. Late hematoma formation related to excessive or vigorous squeezing of the breast during sexual activity (“amorous squeezing”) has not been described before. Bleeding is probably caused by the rupture of vulnerable vessels in the tissue capsule, triggered by a minor or more obvious trauma. Ultrasound or MRI is a reliable method to confirm the diagnosis. Treatment should preferably be surgical, but in minor cases observation may be justified.

REFERENCES