

## **Capsular Contracture in Aesthetic Breast Surgery. An Overview of a Common Procedure**

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### **ABSTRACT**

Complications following reconstructive or aesthetic breast surgery are important considerations for women pursuing these options. Common complications of breast reconstruction using implants and expanders include capsular contracture. Knowing this pathology is necessary due to its prevalence in patients undergoing breast interventions. Preventive actions must be taken, as well as optimizing some techniques and knowing risk factors in patients to reduce the incidence as much as possible.

### **ARTICLE DETAILS**

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### **INTRODUCTION**

For women considering reconstructive or cosmetic breast surgery, complications are crucial factors to take into account.<sup>1</sup>

Following a complete mastectomy, reconstructive breast surgery can be done using both implants and the patient's own tissues (autologous lumps). Several oncoplastic methods that include tissue rearrangement can be used for partial mastectomy reconstruction. There are unique difficulties associated with each form of reconstruction.<sup>2</sup>

Breast augmentation, reduction, and mastopexy are all cosmetic breast surgeries that often include the use of breast implants or tissue rearrangement procedures.<sup>3</sup>

### **IMPLANT-BASED COMPLICATIONS**

Capsular contracture is a frequent side effect of breast reconstruction with implants and expanders.<sup>4</sup> Capsular contracture is a danger that comes with implant use. An area of fibrous tissue develops a capsule around a breast implant after it is inserted. Normally, the capsule is small and symptomless, but occasionally it can develop into a firmer, more calcified capsule that can hurt, irritate, and distort the breasts. The majority of contractures (92%) seem to develop within a year of surgery.<sup>5</sup>

The size of the implant, the patient's propensity for scarring, and circulating microorganisms are just a few of the numerous variables that might cause capsular contracture to occur. Some believe that the development of a bacterial biofilm and a low-grade subclinical bacterial infection cause capsular contracture, albeit this is not established. A chronic inflammatory process-based immunologic explanation of

capsular contracture has some supporting data. Smoking cessation may reduce the occurrence of capsular contracture (8 percent for smokers versus 3 percent for nonsmokers, in one study). Avoiding hematoma may also reduce the likelihood of capsular contracture.<sup>6</sup>

Compared to breast augmentation, capsular contracture may occur more frequently following breast reconstruction, especially if radiation therapy is used.<sup>7</sup>

The use of implants with textured rather than smooth shells may reduce the risk of capsular contracture. In a group of 14 patients who had Biocell textured implants, an uncommon discovery of a "double capsule" was noted. In three of these instances, a late seroma was also present.<sup>7</sup>

A decreased risk of capsular contracture also appears to be linked to partial or full submuscular or subfascial implant insertion.<sup>8</sup>

The Baker scale is commonly used to rate the significance and severity of breast implant capsules:<sup>9</sup>

- Baker I – The breast is soft with no palpable capsule and looks natural
- Baker II – The breast is a little firm with a palpable capsule but looks normal
- Baker III – The breast is firm with an easily palpated capsule and is visually abnormal
- Baker IV – The breast is hard, cold, painful, and markedly distorted

Studies often consider contracture in Baker grades III and IV to be substantial enough to be categorized as a complication, unless otherwise noted. The recommended treatments and complication rates often exclude Baker grades I and II.<sup>10</sup>

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Only breasts with Baker III and IV capsules should have surgery, however nonsurgical treatments are available and may be attempted before moving on to invasive operations.<sup>11</sup> Although it has been suggested to massage the breasts with the goal of avoiding or lowering breast firmness, there are no studies to back up the efficacy of this method. Although external ultrasound has been touted as a treatment for capsular contracture, there aren't any conclusive research to back up its efficacy or long-term effects. It has been investigated whether some drugs can lessen how severe capsular contracture is.<sup>12</sup>

A hematoma, an implant rupture, and a pseudoherniation can result with closed capsulotomy, which necessitates manual compression of the breast to break up the capsular scar tissue. Internal circumferential and longitudinal incisions in the capsule are made during an open capsulotomy. This keeps the capsule in place on the tissues while easing implant pocket constriction and enhancing implant deformation. Similar to open capsulotomy, open capsulectomy also removes the problematic capsule and scar tissue. Although a short-term improvement may be shown after an open capsulotomy, recurrence is common. A partial (or anterior) capsulectomy may be carried out in its place if there is danger involved in removing the capsule from the chest wall due to substantial adhesion.<sup>13</sup>

Patients who have had breast augmentation surgery may experience less recurrence of capsular contracture if the implant pocket is moved from a subcutaneous to a dual-plane location. Acellular dermal matrix (ADM) may be applied during capsulectomy to aid in the formation of a "dual plane" pocket. The dual-plane position places the inferior third of the implant in a subglandular position and the superior two thirds of the implant beneath the pectoralis major muscle. Because ADM surfaces with breast pocket integration exhibit lower levels of inflammation than breast pocket capsule surfaces, they may be able to reduce capsular contracture.<sup>14</sup>

Patients undergoing breast reconstruction who have substantial capsular contracture should be given a capsulectomy with implant removal and autologous tissue replacement. It may also be made available to patients undergoing breast augmentation, although the costs of doing so tend to make it prohibitively expensive if the patient is footing the bill. When substantial capsular contracture recurs despite the use of all appropriate therapies to address the issue, a capsulectomy with implant removal and no additional implant replacement should be taken into consideration. When these "out point" requirements are satisfied, it could be in the patient's best interest to terminate any more surgical therapies because they might be ineffective and cause the patient additional injury and misery.<sup>15</sup>

### CONCLUSION

Knowing this pathology is necessary due to its prevalence in patients undergoing breast interventions. Preventive actions

must be taken, as well as optimizing some techniques and knowing risk factors in patients to reduce the incidence as much as possible.

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