



## **Treatment Strategies Of Breast Animation Deformity: A Systematic Review**

Author(s):

Nayif Alnaif, MD<sup>1</sup>

Tyler Safran<sup>2</sup>

Alex Viezel-mathieu, MD<sup>3</sup>

Tassos Dionisopoulos, MD<sup>4</sup>

Background:

Breast augmentation is the most commonly performed aesthetic procedure in North America. Sub-pectoral implant placement, also known as the retro-pectoral technique, has become widely used and is an appropriate technique for many patients. Animation deformity (AD) is a known complication of sub-pectoral implant placement and results from the contraction of the pectoralis major muscle with resultant movement of the underlying implant. This can lead to a poor cosmetic result with the implant becoming distinctly visible post breast reconstruction and augmentation<sup>3</sup>. The prevalence and clinical significance of AD remains unclear. To date there does not exist a published review outlining the treatment modalities for AD and their effectiveness. The objective of the current study is to review and appraise the effectiveness of the various treatment options through a systematic review of the literature.

Methods:

The MEDLINE search tool was used to carry out a search of the National Library of Medicine (PubMed) database. Two separate reviewers independently assessed the initial resultant 504 papers, first sorting by title/abstract based on strict inclusion and exclusion criteria. Factors evaluated included patient demographics, publication information, study design, number of patients, preventative/treatment technique, and type and size of implant.

Results:

The search strategy yielded 504 articles of which, six articles met all the inclusion criteria. The six studies included represent 90 individual patients/breasts that underwent surgical correction for AD. Interventions for treating AD were successful in 100% (n=90) of documented cases, with an overall complication rate reported in the studies after treatment of 20.0% (n=18). One author used the subfascial plane technique (n=8), which reported an overall complication rate of 11.48% (n=7) in the total study, but was not stratified for the patients receiving purely treatment for previous AD (n=8). Three authors utilized the Pre-pectoral (Subglandular/Subcutaneous) plane (n=63), which pooled a complication rate of 17.4% (n=11), with the most common complication being capsular contracture (n=6). Two authors employed a

muscle splitting technique, which pooled a complication rate of 0.0% (n=0). Total complications included: capsular contracture (n=10), hematoma (n=3), seroma (n=1), suture erosion (n=1), red breast syndrome (n=1) and new onset stretch marks (n=1). Each surgical technique was compared for use in specific patient demographics.

#### Conclusions:

In conclusion, animation deformity is an under-estimated complication that is increasing in incidence with the growing number of breast augmentations being done by plastic surgeons using the sub-pectoral plane. This review concludes that surgical intervention for correction through a variety of techniques is effective in eliminating the excess animation. Proper patient selection, proper plane placement and surgical dissection must be selected on a patient-to-patient basis to allow for the optimum aesthetic outcome. Surgeons must be aware of the potentially devastating effects of a dynamic distortion to the patient, and must be familiar with the different surgical and non-surgical modalities of treating this common complication.

McGill University <sup>1 2 3 4</sup>