

CORRECTING BREAST IMPLANT COMPLICATIONS USING TIGR® LONG-TERM SYNTHETIC MESH

Jeffrey G. Lind II and Hilton Becker present a case study on the use of the TIGR® Matrix for bilateral breast augmentation revision for a patient with asymmetry, synmastia, and unnatural implant movement



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KEYWORDS
reconstructive breast surgery, breast reconstruction, cosmetic breast surgery, long-term synthetic mesh, TIGR® Matrix mesh, acellular dermal matrix, revision breast surgery, breast implant complications

ABSTRACT Objective

Breast implants are associated with many potential complications. Some of these complications, such as asymmetry or unnatural movement, require operative intervention for correction. In this article, the authors report on the use of a

new long-term synthetic resorbable mesh to correct a representative breast implant complication.

Patient/Method

A retrospective look at a case was performed of a 46-year-old patient who presented with asymmetry, synmastia, and unnatural implant movement with muscle

contraction, after having undergone bilateral sub-muscular implant-based breast augmentation and eight additional corrective breast surgeries, including vertical mastopexy, by another surgeon. The patient subsequently underwent bilateral breast augmentation revision incorporating

the use of a new long-term resorbable synthetic mesh (TIGR® Matrix) to correct her problem.

Results

The patient experienced no intra/postoperative complications. She enjoyed good aesthetic improvements in both breasts and was pleased with the results. The

authors' view of the result of the operative revision was in line with the patient's.

Conclusion

This new long-term synthetic resorbable mesh appears to be a very useful tool in the correction of complications resulting from implant-based breast surgery.

IN 2011, APPROXIMATELY 80% OF THE 96 277 cases of breast reconstruction were implant-based.¹ The same year, breast augmentations saw a rise of 4% and continue to hold the title of 'top cosmetic surgical procedure', a title it has held since 2006¹. Given the invasive nature of surgical fields, no matter how great the technique or the device, complications may occur. Benjamin Franklin once said, 'in the world nothing can be certain except for death and taxes'. For a surgeon, 'complications' should be added to this list.

Complications seen in implant-

based breast surgery include haematoma, seroma, infection, alteration in tactile sensation, breast asymmetry, implant displacement, or capsular

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contracture. Some of these complications can be managed conservatively. However, sometimes operative intervention is needed to correct the problem. In a Danish study that examined 5373 women who had primary breast augmentations, asymmetry/displacement occurred in 5.2% of patients and capsular contracture in 1.7%. These two complications were found to be the most frequent reason for reoperation². When breast implants are placed in a sub-pectoral position, this can often ▷





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Figure 1 (A) Preoperative patient with breast asymmetry following previous bilateral sub-muscular breast augmentation and vertical mastopexy, (B) preoperative deformity exaggerated with muscle contraction, and (C) preoperative lateral view

▷ lead to unnatural movement of the implant with muscle contraction, loss of ideal position of the implant, and exaggerated upper pole fullness³.

In this article, the authors present the case of one patient who had an implant-based breast complication that was treated operatively and included the use of TIGR® Matrix, a new synthetic long-term resorbable mesh^{4,6}. The patient had previously undergone bilateral sub-muscular breast implant augmentation many years previously. The patient developed capsular contracture and underwent eight subsequent surgeries, including vertical mastopexy. She unfortunately developed unacceptable breast asymmetry, synmastia, and abnormal movement that worsened with muscle contraction.

Patient and method

A retrospective review was performed on a patient who presented to a private practice after having undergone bilateral sub-muscular breast implant augmentation and subsequent vertical mastopexy by another surgeon. The patient presented complaining of breast asymmetry that worsened with muscle contraction. After verbal and written consent were given, this patient underwent a bilateral breast augmentation revision. Previous incisions were used to gain access to the capsule. A capsulotomy was performed and the previously placed

intact implants were removed. Aggressive capsular scoring was performed to facilitate vascularisation of the mesh. The retracted pectoral muscle was replaced in its original position. The implants were replaced with 325 cc moderate plus profile smooth gel implants. These were placed in the sub-fascial position, where the fascia was present and the TIGR® mesh scaffold was placed above the implant where the fascia was absent.

Results

The female patient was 46 years of age. She was seen in consultation 22 years after her initial breast augmentation.

Her initial breast augmentation was complicated by postoperative capsular contracture, leading to eight additional surgeries, including bilateral vertical mastopexy. The authors' preoperative examination showed the patient to have breast asymmetry, synmastia, and excessive movement that was worsened with muscle contraction (*Figure 1*). Intraoperatively, it was discovered that the patient's pectoral muscles had retracted superiorly (*Figure 2*). The type of implants that the patient had in place were 425 cc high profile gel implants placed in the sub-muscular position. The skin flaps were also noted to be very thin.

Postoperatively, the patient experienced no complications. She had good aesthetic improvements in both breasts with improved symmetry and alleviation ▷

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Figure 2 (A) Intraoperative, the pectoral muscle has retracted superiorly, the skin flap is thin. (B) Intraoperative, after scoring the capsule, a TIGR® mesh scaffold is placed in the pocket



▷ of abnormal movement of the implants with muscle contraction. She was quite pleased with the results. Postoperative photographs were taken 3 weeks after treatment (Figure 4). The authors' opinion of the result of the operative revision was in line with the patient's.

“ Just as many techniques exist as there are implant devices. No matter the implant type or the technique used, complications may well occur. These complications often require another operation to correct the problem. ”

Discussion

Hundreds of thousands of implant-based breast surgeries are performed worldwide each year. Breast implant devices are numerous, ranging from gel to saline, smooth to textured, round to anatomic, and adjustable to non-adjustable. Just as many techniques exist as there are implant devices. No matter the type of implant or the technique used, complications may well occur. These complications often require another operation to correct the problem.

A recent 5-year follow-up of a line of breast implants showed a risk of reoperation of 23.8%⁷. The use of acellular dermal matrices has become very popular in implant-based revision surgery⁸. A study by Spear et al showed that these matrices could be

incorporated in the treatment of capsular contracture, rippling, implant malposition, and soft tissue thinning⁹. The use of these matrices in revision breast surgery allow additional support to the lower pole of the breast and implant, extend the pectoralis

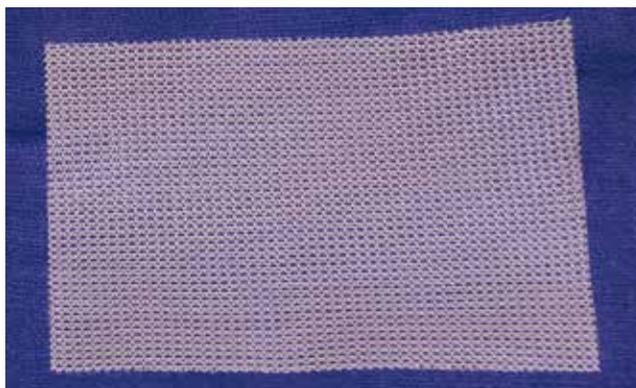
muscle, and can smooth surface abnormalities¹⁰.

In this article, the authors have reported on a case in which a patient had previously undergone a bilateral breast augmentation with implants and multiple revisions, including bilateral mastopexy by another surgeon. She was unhappy with the results and was seen in consultation for symmastia and breast

asymmetry that worsened with muscle contraction. She was then electively taken to the operating room and had an augmentation revision performed using the new synthetic long-term absorbable mesh, TIGR[®] Matrix, as an alternative to acellular dermal matrices.

TIGR[®] Matrix is the first synthetic long-term resorbable surgical mesh. It is a copolymer of glycolide, lactide, and trimethylene carbonate. Pre-clinical trials of this mesh show that it is vascularised very rapidly ▷

Figure 3 The TIGR Matrix



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Figure 4 (A) 3 weeks postoperative result following replacement of implants in the sub-fascial position with mesh support and (B) 3 weeks postoperative, lateral view

▷ and is replaced by well-organised host tissue¹¹. The mesh became fully absorbed at 36 months post-implantation¹². This gives it the ability to aid in tissue support for a long period of time. These qualities make it an ideal reinforcement in revisionary surgery after breast implant complications.

TIGR® Matrix was shown to be efficacious in the patient featured in this article who presented with a breast implant complication. Excellent functional and aesthetic improvements were made with the revision. To date, the authors have used this surgical mesh in over 40 breast revision cases with very good results and patient

resorbable mesh, TIGR® Matrix, is a very useful tool in the correction of certain complications resulting from implant-based breast surgery. However, for patients who have undergone radiation treatment, the result can be slower healing and incorporation of the mesh implant. Further studies on the uses of the TIGR Matrix are ongoing.

► **Declaration of interest** Dr Becker is a consultant for Novus Scientific

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“TIGR® Matrix is the first synthetic long-term resorbable surgical mesh. It is a copolymer of glycolide, lactide, and trimethylene carbonate.”

satisfaction. The authors continue to find new ways to use it in breast surgery, such as primary reconstruction, reconstruction revision, augmentation/mastopexy revision, and breast implant revision and are consistently happy with the results.

Conclusions

Based on the case presented in this article and other cases like it, the authors believe the long-term synthetic

Key points

- TIGR® Matrix is the first synthetic long-term resorbable surgical mesh
- Pre-clinical trials of this mesh show that it is vascularised very rapidly and is replaced by well-organised host tissue
- Synthetic absorbable mesh offers a viable alternative to acellular dermal matrices in breast surgery procedures

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