Author's response to reviews

Title: New technical approach for Abdominal wall defects after TRAM-flap: a case report

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Author's response to reviews: see over
Dear Editor-in-Chief,

A revised version of the manuscript has been submitted together with this letter, nevertheless we would like to comment on the reviewers remarks:

**Reviewer:** Darren I Booi

1. 
   a. We agree especially in the case of *bilateral* TRAM-flap-transposition that bulging occurs often and therefore this technique should not be used as a matter of routine, nevertheless it is still used by some surgeons.
   b. We corrected the inclusion of SIEA-flaps under techniques with a risk of bulging and true herniation. As we mention during our discussion, the anterior rectus sheath is one of the major components for the integrity of the abdominal wall. As it is left intact, bulging will not occur. As mentioned in the reviewers comments, its limitation is an insufficient superficial inferior epigastric artery.

2. 
   a. A true hernia did not develop after TRAM-flap repair, so we did not favour a reconstruction resembling incisional hernia repair by midline reconstruction and subfascial placement of a mesh which would be our standard procedure. In this patient however no collagen-defect is likely to be present, but – as the reviewer also proposes – bulging because of denervation. The Ramirez-procedure preserves nerval as well as vascular structures by dividing the abdominal muscles in an avascular plane if it is performed in the right way. Therefore we do not fear to denervate the external oblique muscle in a relevant way. Furthermore this technique was developed to close large defects and has proven to be able to reduce midline-tension adequately. However we think it is worth reporting because it has not been performed before without rectus muscles left.

3. 
   The option of an intraperitoneal mesh implantation with an ePTFE prosthesis is also a suitable option for abdominal wall repair. Nevertheless there are certain disadvantages that should be mentioned. First of all, there are a growing number of reports that ePTFE has also a potential of intraabdominal adhesion formation with a tendency of mesh area shrinkage. Another
disadvantage is its rigidity, the lack of elasticity/stretchability. The IPOM technique itself is a technique were the mesh-prosthesis is used for bridging the defect; it is a replacement technique, not an augmentation technique. In case of abdominal relaxation due to a missing muscle this technique will not supply a greater impact on the abdominal wall contour. By combining the Ramirez technique with a mesh repair we were able to augmentate the abdominal defect with the M. oblique internus and the M. transverses plus a layer of alloplastic mesh material.

Reviewer: James Long

1. As mentioned above, in our patient no hernia was seen. Bulging is a common problem after TRAM-flap repair and may be one of the most annoying complications after successful transposition. The Ramirez-technique was developed to close large fascia defects due to lateralisation of rectus muscles. As mentioned above, in case of a missing rectus muscle, were the abdominal wall consists only of the posterior rectus sheath, the Ramirez technique provides a reconstruction with innervated muscle tissue. In slim patients, as described in our case, the lateral abdominal wall appeared rather thinned out, particularly after the longitudinal incision of the aponeurosis of the oblique external muscle. Therefore the augmentation with a light-weight, large pore mesh prosthesis is meant for further augmentation of the lateral abdominal wall. Aim of this operation is a reconstruction of the abdominal wall with its function and body contour.

To our knowledge, this is the first description of an abdominal wall reconstruction after TRAM flap defect performed with a Ramirez combined with a light-weight mesh augmentation. Therefore we believe that this case is worth reporting, that the technique is persuasive and does make a difference to clinical practice. It highlights the risks of a TRAM flap technique and offers a surgical approach for a sufficient repair.

Please find our corrections marked in the manuscript and do not hesitate to contact me in case of any further questions.

Sincerely,

Dr.med. D.A. Kaemmer