

Native tissue surgery and pelvic floor surgery

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During the Kelly¹ and White² era the only building blocks available to the surgeon were the tissues in front of him. Transfer of tissues from distant sites in the body - or from external sites - only became available late in the 20th century. These were called upon when the primary tissue was judged to be inadequate. In due course the implant materials were primarily utilized as mesh kits with primary native tissue surgery being ignored as part of the “reconstructive” process. The resulting complications led to a kneejerk response where all synthetics were to be banned from vaginal surgery, and a leap back to the previous comfort zones occurred. The conventional colporrhaphy is again re-introduced as the standard for prolapse surgery. And with this a new catchphrase is introduced: “native tissue surgery”.

But native tissue surgery goes beyond only the utilization of native tissue as the building blocks for reconstructing the vaginal wall supports to get rid of the bulging vaginal wall. It should also include the tissue reaction during wound healing due to the surgical insult. This process will go through its phases of haemostasis, inflammation, proliferation and remodelling. The aim of surgical reconstruction is to re-establish normal anatomy, morphological and functional, with minimal scar tissue formation. This will require tissue dissection in anatomical planes, approximating torn edges of damaged tissue layers, no tension on the native tissue and the use of materials that do not enhance the inflammatory phase: this will support the extracellular matrix in the remodelling phase of wound healing by reducing the impact of the inflammatory phase. These are the requirements of regenerative medicine. Conventional colporrhaphy gives the opposite effect: tissue is put under tension, normal anatomy is ignored and disregarded and definitely not recreated, and perfectly normal tissue is usually removed. Scar tissue formation is seen as an adjuvant for “good” surgical outcome.

By combining good surgical technique by limiting tissue damage with the regenerative principles of tissue engineering, regenerative surgery is done. This is applied in plastic surgery since 1997. The same principles are found in inguinal hernia repairs.

The same can be done in vaginal wall prolapse surgery. We are now entering what can be called the post mesh kit era. In this era one can return to the surgical techniques of the past, or improve them. In prolapse surgery we are curtailed by either lack of tissue, or poor quality of tissue. Variable tensions are being put on suture lines from the abdominal cavity leading to poor wound healing. To counter these, temporary splinting or support needs to be provided to keep the native tissue in place until proper strong collagen is being produced to strengthen the previous defective areas.⁶

In regenerative surgery new tissue is remodelled under the guidance of a biodegradable synthetic scaffold or biodegradable xenografts. This scaffold will aid in growth of resident-tissue stem cells. These scaffolds can have a dual purpose: they can act as a splint to keep tissues approximated for a sufficient time for wound healing to go through its phases, and can support the extracellular matrix to control the inflammatory and enhance the remodelling phases of wound healing. This can only happen if the native tissue is respected. Regenerative medicine will only work if combined with good, safe surgical practices.

The first surgeon who attempts to repair the damage that leads to the collapse of the vaginal wall is the most important one. The surgical footprint left behind is not only paramount in the success of the primary surgery, but also may impede secondary surgical reconstructive attempts if the first procedure fails to give an optimal surgical outcome. The secondary procedure must not be an undo-redo process, but rather an add-on process. The minimal damage caused by following regenerative surgical principles will enhance this. The surgeon can control scar tissue formation, improve tissue quality and function using tissue regenerating surgical techniques.

The message is clear. Regenerative surgery puts the focus on the surgeon to do surgery on the do-no-harm principles. Don't ask how big is the vaginal bulge, rather ask why did it happen. The surgeons' ability to dissect, diagnose and repair the defect that led to the prolapse will control the surgical outcome. To rely on the ability of implant materials to give surgical outcome is too unpredictable, and can be damaging to the patient. These must be utilized as an adjuvant to primary tissue healing to improve outcome. This can only happen if the primary tissue handling follows regenerative principles. That is regenerative vaginal surgery.

In a sense one could say that with regenerative vaginal surgery the vaginal surgeon is invited back into the vagina. Vaginal surgery is an art practised by many, but mastered by few.

REFERENCES

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