

EXTRAPERITONEAL SACROCOLPOPEXY WITH PVDF VISIBLE MESH IMPLANT

Hypothesis / aims of study

Sacrocolpopexy is a well established standard procedure for the treatment of genital prolapse in women. It connects two extraperitoneally located structures, the sacrum and the vaginal cuff. In contrast to the usual transperitoneal route (open or laparoscopic) it appears obvious to proceed extraperitoneally from the beginning and leave the peritoneal cavity unharmed.

This method was introduced by Onol et al. in 2011 (n=23) [1] and further pursued since then (2013 n=58, 2014 n=92). It was first named ESCP (extraperitoneal sacrocolpopexy) and later TURC (Total Utilization of Retroperitoneum for Colpopexy). In this cohort a conventional polypropylene mesh was used [2].

The utilization of a PVDF (Polyvinylidenfluoride) mesh loaded with iron particles in humans and the subsequent visualization with MRI was first reported by Hansen et al. in 2013 [3]. In 13 patients with inguinal hernias 16 laparoscopically inserted mesh implants were successfully depicted on MRI studies.

For the first time we present a combination of these two innovative methods.

Study design, materials and methods

In 2013 two patients had a sacrocolpopexy with the new PVDF visible mesh implant (DynaMesh® PR visible, FEG Textiltechnik, Aachen, Germany) via the usual transperitoneal route. In 2014 three patients had a complete extraperitoneal sacrocolpopexy with the PVDF visible mesh implant. Hereby the extraperitoneal space is exposed via a short Pfannenstiel incision. The peritoneal cavity is retained to the left side while the sacrum and the vaginal cuff are bluntly exposed along the right pelvic wall. In 2 patients a concomitant burch colposuspension was performed due to stress urinary incontinence. Pre- and postoperative dynamic MRI studies were conducted for the evaluation of the pelvic floor defects and their correction together with the demonstration of the visible mesh implant.

Results

In all 5 cases a complete anatomic and functional correction of the prolapse was achieved. No complications occurred. The mesh implant could be visualized in all cases, but markedly better in the latter three cases in 2014 due to the cumulative experience with the MRI settings for the deeper position of the mesh in the pelvis in contrast to the more superficial hernia meshes. Dynamic sequences could well demonstrate the correction of the pelvic floor defects. In addition, 3D images of the meshes were created from the MRI data sets with further useful information of the postoperative position and shape of the meshes and their relation to the surrounding pelvic organs.

Interpretation of results

The extraperitoneal sacrocolpopexy is fairly easy to perform for the trained surgeon in the retroperitoneal space. The invasiveness of the procedure is comparable to a colposuspension and therefore much less harmful than the transperitoneal approach. The utilization of the visible mesh implant enables the visualization of the surgical result and possible sequelae. Through this additional information potential reoperations might be avoided.

Concluding message

The extraperitoneal sacrocolpopexy is a reasonable procedure for the correction of genital prolapse in women. The visible mesh implant has obvious advantages in the demonstration of postoperative results and the properties of mesh implants that could not be visualized that clearly, yet.

Figure 1

Exposure of vaginal cuff with PVDF visible mesh implant in place

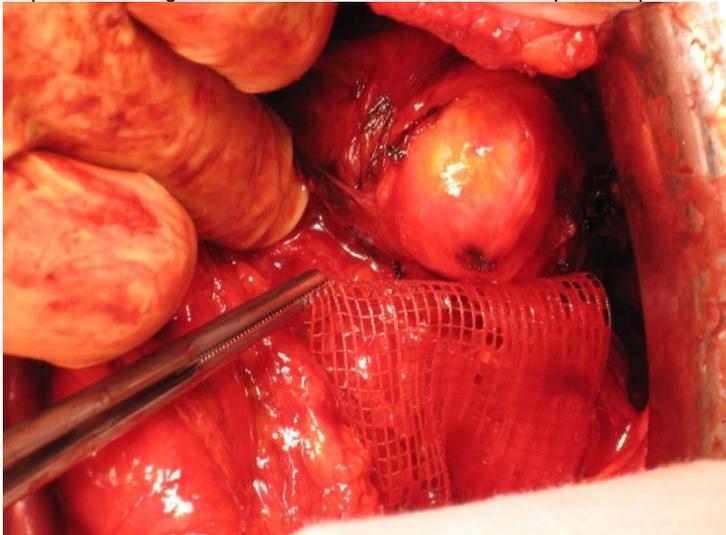
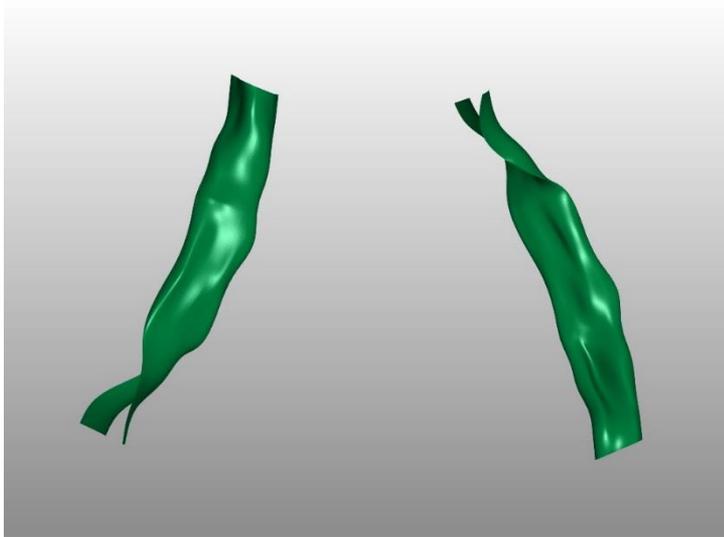


Figure 2

3D reconstructed images of mesh implant from different angles



References

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3. Hansen NL, Barabasch A, Distelmaier M, Ciritsis A, Kuehnert N, Otto J, Conze J, Klinge U, Hilgers RD, Kuhl CK, Kraemer NA. First in-human magnetic resonance visualization of surgical mesh implants for inguinal hernia treatment. *Invest Radiol.* 2013;48(11):770-778

Disclosures

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