

# Laparoscopic hysteropexy: a novel technique for uterine preservation surgery

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## Abstract

**Introduction** In recent years uterine preservation surgery for pelvic organ prolapse has become more popular. Traditional operations such as vaginal hysterectomy do not address the underlying pathophysiology of poor connective tissue support, which may result in a higher incidence of recurrent prolapse.

**Methods** This video article demonstrates uterine preservation surgery for women with uterine prolapse using laparoscopic abdominal Prolene mesh.

**Conclusions** This procedure, apart from possible preservation of fertility in younger women, provides strong apical support, which should be long lasting. The other advantages of laparoscopic surgery are quicker recovery, less pain and better cosmesis.

**Keywords** Uterovaginal prolapse · Hysteropexy · Laparoscopic · Uterine preservation · Uterine suspension · Mesh

## Aim of the video

We demonstrate laparoscopic hysteropexy, a uterine preserving procedure, which aims to give a long-lasting apical support in women with uterine prolapse. This uterine

conserving surgery technique has been offered to our patients with uterine prolapse since 2006. In a separate publication we have presented the outcomes of a 1- to 4-year follow-up of post-laparoscopic hysteropexy [1]. This video abstract describes the technique in more detail with visual illustration.

## Method

The procedure is conducted under general anaesthesia with the woman supine and in semi-lithotomy position. A pneumoperitoneum is created, and four laparoscopic ports are placed: one 10-mm sub-umbilical, one 12-mm suprapubic port and two 5-mm lateral ports. The peritoneum over the sacral promontory is incised with bipolar graspers and monopolar scissors. The ureters are identified bilaterally, and a peritoneal relaxing incision is made medial to the right ureter to retract it away from the operative site.

A bifurcated polypropylene type 1 monofilament macroporous non-absorbable mesh (Atrium Medical Corporation, Hudson, NH, USA) is cut to required bifurcated shape and used to suspend the uterus from the sacral promontory. Each broad ligament at the level of the cervico-uterine junction is opened through the avascular area. The vesico-uterine peritoneum is incised and the bladder reflected distally for 2–3 cm. The arms of the bifurcated mesh are then introduced bilaterally through windows created in the broad ligaments. The arms of the mesh are sutured to the anterior cervix with three non-dissolvable non-absorbable polyester 2–0 sutures (Ethibond Excel™, Ethicon Inc., Somerville, NJ, USA). The mesh is then largely re-peritonised before being tacked to the sacral promontory using 5-mm helical fasteners (Protack, United States Surgical, Tyco Healthcare, Norwalk, CT, USA) to elevate the uterus. The mesh is placed under moderate tension to achieve adequate elevation of the uterus, aiming to reposition the cervix at the vaginal apex. The

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**Electronic supplementary material** Electronic supplementary material The online version of this article (doi:10.1007/s00192-013-2129-4) contains supplementary material, which is available to authorized users. This video is also available to watch on <http://videos.springer.com/>. Please search for the video by the article title.

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sacral promontory is then re-peritonised to completely cover the mesh.

Our surgical technique for laparoscopic hysteropexy evolved during the years. Initially, we did not completely close the peritoneum over the mesh as previous research suggested this was unnecessary [2]. However, when performing subsequent laparoscopies on two of our patients, we noted adhesions between the mesh and loops of small bowel. We therefore amended our technique to include complete peritonisation of the mesh. After placement and fixation of the mesh to the cervix, closure of the uterovesical peritoneum is achieved by opposing the peritoneal edges with two or three absorbable poliglecaprone sutures (Monocryl, Ethicon Inc., Somerville, NJ, USA). Peritonisation of the mesh at the insertion of uterosacral ligaments and right pelvic sidewall is achieved prior to fixation of the mesh to the sacral promontory. Complete peritonisation of the mesh is performed after fixation, by opposing the edges of the peritoneum with absorbable poliglecaprone sutures (Monocryl).

## Conclusion

Women undergoing hysterectomy with severe pelvic organ prolapse have a significant risk of requiring subsequent pelvic floor repair [3, 4]; this may be explained by changes in connective tissue in women with genitourinary prolapse [5] which are not corrected with hysterectomy. The aim of our laparoscopic hysteropexy is to restore and reinforce normal uterine support by suspending the uterus from the sacral promontory using polypropylene mesh. The mesh is strongly attached at two points: completely encircling the cervix and transfixing to the anterior longitudinal ligament over the sacral promontory. This procedure allows the length of the vagina to

be restored without compromising its calibre, and we postulate a favourable functional outcome compared to other uterine prolapse surgery.

The procedure aims to correct the anatomy and augment the weak connective tissue by using the cervix and longitudinal ligament over the sacral promontory as an anchoring point. This technique restores the uterus to its natural anatomical position. We anticipate the polypropylene mesh will provide long-lasting apical support.

**Consent** Written informed consent was obtained from the patient for publication of this video article and any accompanying images.

**Conflicts of interest** None.

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