DOI: 10.7860/JCDR/2019/42610.13264

Case Report

Obstetrics and Gynaecology Section

Modified Sacrospinous Colpopexy with Standard Needle and Needle-Holder: Video Presentation

MANIDIP PAL[1], SOMA BANDYOPADHYAY[2], RANITA ROY CHOWDHURY[3]

ABSTRACT

Among the different operations for treatment and prevention of vaginal vault prolapse, sacrospinous colpopexy is the most preferred one. Many devices are used to perform this operation. Unfortunately these devices are not easily available in developing countries. This paper shows an improvisation wherein, to make the operation easier using standard needle and needle-holder, under direct visualisation, a stage 3 POP-Q vault prolapse, patient was operated. Needle was held longitudinally at its middle so that the long axis of the needle and needle-holder were in the same line. (Traditionally, needle is held transversely, hence long axis of needle and needle- holder remains perpendicular to each other). Swag end of the needle touched the needle-holder. This positioning created a smaller diameter at needle-holder tip than the diameter created by the traditional holding. Bite on sacrospinous ligament was from above downwards and forwards which coincided the normal curvature of the needle. Inferiorly, needle came out easily and retrieval was also easy. The sutures were then brought out through the apex of the vault which was tied after posterior vaginal mucosa closure, High-up vaginal vault was seen at the end. Holding the needle longitudinally eases the sacrospinous operation in the narrow operative field.

Keywords: Sacrospinous fixation, Vaginal operation, Vault prolapse

INTRODUCTION

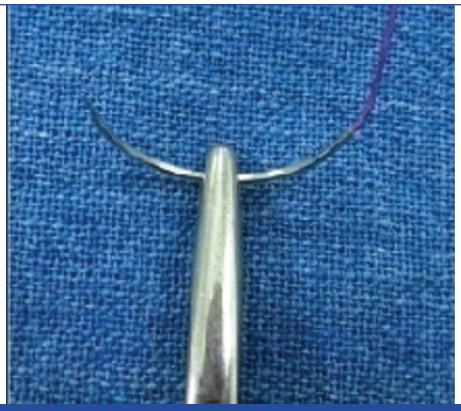
Vaginal vault prolapse is a major concern to the pelvic reconstructive surgeon. Many surgical procedures are performed to treat this condition- sacrocolpopexy, sacrospinous colpopexy, high uterosacral ligament suspension etc. In a recent survey at Netherlands, it was found that the most performed surgery for vault prolapse is sacrospinous colpopexy, followed by laparoscopic and robotic sacrocolpopexy [1]. Sacrospinous colpopexy is a vaginal procedure. Many special instruments are used to do sacrospinous colpopexy for instance Miya's hook [2], Deschamps ligature carrier [3], Capio device [4], Raz Anchoring System [5], Shutt Suture Punch System [6], Laurus device [7] etc. Different instruments have their advantages of ease of application, but inherent disadvantages of availability of the instruments easily in all set-ups, especially in developing countries. Needle-holder is available in all operation theatres- hence sacrospinous colpopexy under direct visualisation using needle-holder with a little modified technique was done.

CASE REPORT

Vault prolapse POP-Q stage 3 was operated. Informed consent was obtained. Patient did not have any urinary or faecal problems. Operation was done under spinal anaesthesia. Patient was in dorsal lithotomy position. Per-vaginal examination was done. Right side ischial spine followed by sacrospinous ligament was palpated. Which area of the apex of the vault could be reached to the proposed area of sacrospinous colpopexy, was assessed. Apex of the vault was hold with 2 Allis forceps. A midline incision was made on the posterior wall of the vagina- starting near to apex and going downwards for about 5 cm with scalpel. Margin of the wound was held with Allis forceps. Right side of the vaginal wall was dissected off from the underlying structures by sharp and blunt dissection. Direction of dissection was towards the right ischial spine. During dissection laterally, the resistance of rectal pillar felt which was perforated and then rectum was mobilised medially. Further blunt dissection with gauze on the fingers helped to reach to sacrospinous ligament. Blunt dissection was done by 2 index fingers. Index finger of two hands was introduced facing opposite to each other i.e., dorsum of the fingers touching each other. Then swiping movements of the fingers were done- bottom swiped medially and above swiped laterally. Thus a space at the sacrospinous ligament level was created easily.

Sim's posterior vaginal wall speculum and 1" Deavers retractor were introduced into the created space. Light focused on the space and sacrospinous ligament was identified by its glistening white reflection. Polyglactin suture with no. 1 round body 30 mm needle was taken. Needle was held at its middle longitudinally that means the long axis of the needle and needle-holder were in the same line whereas traditionally needle was held transversely that means the long axis of the needle and needle- holder were perpendicular to each other [Table/Fig-1,2]. The swag end of the needle was made to touch the needle-holder. Because of this positioning, the diameter created by the needle and needle-holder was smaller than the diameter that could have been created by the traditional way of holding needle and needle-holder. This smaller diameter helped to manoeuvre easily within the narrow space created at the level of sacrospinous ligament. The needle was forwarded towards the superior aspect of sacrospinous ligament about 2 cm medial to the ischial spine and bite was taken in the ligament from above

[Table/Fig-1]: Modified way of needle holding - Needle is hold at its middle longitudinally that means the long axis of the needle and needle-holder is in the same line. The swag end of the needle is made to touch the needle-holder.



[Table/Fig-2]: Traditional way of needle holding– Needle is hold transversely that means the long axis of the needle and needle- holder is perpendicular to each other.

DISCUSSION

Sacrospinous colpopexy is an age-old operation with its advantages and disadvantages. But this video is presented to show the little modification of needle holding technique with standard needle-holder which made the operation easier. The advantages are:

1. Needle and needle-holder are available everywhere.
2. Direct visualisation technique is better than palpation technique.
3. Modified holding of needle and needle-holder created an arc which has less diameter then the traditional holding.
4. Diameter of the created space at the level of sacrospinous ligament is not so much. So lesser diameter instruments can do the job easily.
5. To follow the normal direction of the needle during bite was easy, as a result, the needle came out of the ligament smoothly and retrieval was easy.

Name	Description	Technique	Remark
Miya's hook [1,8] (revolutionised sacrospinous colpopexy and inspired many people towards invention of many devices)	- Suture is loaded from inner aspect of the curve outwards so as to make hook removal easier. - Approximate the Miya's hook handle and simultaneously elevate the whole device → suture placed through the ligament. - Suture retrieval done using a nerve hook - then Miya's hook disengaged.	Visualisation technique	i) often difficult to penetrate down as hook point is not pointing into the coccygeus-sacrospinous ligament ii) Often visualisation of hook point and suture is difficult because of excess tissue on the hook.
Deschamps ligature carrier [2]	it's curved tip is gently slided down through the undersurface of the index finger towards the postero-inferior border of the sacrospinous ligament. Then clockwise rotation is done to penetrate the ligament vertically.	Palpatory technique	Penetration direction from below upwards- more chance of injury to the surrounding vessels and nerves
Capio device [3,8]	- long, narrow tool - catches and passes the sutures easily - allows throwing of suture deeply without excessive dissection	direct visualisation or palpation	- consistent depth of suture placement - permits fixation not perforation - only disadvantage is costly (Disposable device)
Raz Anchoring System [4]	2 parts: i) a 15-mm-long cylindrical titanium anchor; ii) a disposable inserter. - penetration limiter tube allows penetration to the desired depth. - Anchor is then released into the ligament and vaginal apex is fixed	Palpatory technique	Device is not easily available
Shutt Suture Punch System [5]	- Arthroscopic instrument - safe application of the suture (rigid material e.g., nylon, polypropylene) through the ligament - automatic retrieval of the ligature - rapid application (less than 1 minute)	Visualisation and Palpatory	- useful in morbidly obese patient - good device, but not easily available
Laurus device [6]	- A standard needle placed in the suture groove. - Laurus drive tip is palpated against the index finger and rotated 90° before firing for posterior direction of suture path. - rapid application (1 minute per suture)	Palpatory technique	Costly (Disposable)

[Table/Fig-3]: Evaluation of other techniques of sacrospinous colpopexy [1-6,8].

downwards and forwards. It was kept in mind that the bite did not encircle the ligament, and went through the ligament. The tip of the needle came out easily through the lower aspect of the sacrospinous ligament, which was retrieved easily. The retrieval could be done with another needle holder also. The suture was brought outside by piercing the vaginal mucosa of the apex of the vault at the right side flap. Other end of the suture was brought outside through the gap of the cut area at the posterior vaginal wall at the apex without piercing the vaginal mucosa. Another bite was taken on the sacrospinous ligament about 0.5-1 cm medial to the first bite in the same manner. This needle was brought outside the vaginal mucosa at the apex of the vault by piercing the vaginal mucosa at the left side flap. The other ends was brought outside the vaginal mucosa at the apex of the vault without piercing mucosa through the midline gap of the cut area.

Placement of the suspension suture i.e., whether it had gone through the ligament or not was tested by gently pulling the suture which caused movement of the patient. Haemostasis was checked and then closure of the posterior vaginal wall was started from below upwards. At the apex of the vault, a small gap was left so that the colposuspension sutures could be slided easily during fixation. Left sided colposuspension suture was tied first. The knot was pushed towards the ligament so as to avoid the cut through. Five knots were applied. Then the right sided suture was tied in the same manner. Sim's posterior vaginal wall speculum was inserted and the vault was seen placed very high up [Video 1: Sacrospinous colpopexy].

6. Cost-effective.
7. Easy to reproduce.

Evaluation of other techniques of sacrospinous colpopexy is mentioned in [Table/Fig-3] [1-6,8].

CONCLUSION

Hence, it could be concluded that sacrspinous colpopexy under direct vision by needle-holder in a modified fashion is a safe and easy technique.

REFERENCES

[1] Vermeulen CKM, Coolen ALWM, Spaans WA, Roovers JPWR, Bongers MY. Treatment of vaginal vault prolapse in The Netherlands: a clinical practice survey. Int Urogynecol J. 2019;30(4):581-87. 2018 Dec 4. doi: 10.1007/s00192-018-3832-y. [Epub ahead of print]

[2] Miyazaki FS. Miya hook ligature carrier for sacrospinous ligament suspension. Obstet Gynecol. 1987;70(2):286-88.

[3] Tohamy EO. Sacrospinous colpopexy. Ain Shams J Obstet Gynecol. 2006;3:32-37.

[4] Kohli N, Goldberg R, Maccarone J. Augmenting pelvic floor repairs- New materials and techniques. OBG Management. 2006;18(suppl):S1-S8.

[5] Giberti C. Transvaginal sacrospinous colpopexy by palpation- A new minimally invasive procedure using an anchoring system. Urology. 2001;57(4):666-69.

[6] Sharp TU. Sacrospinous suspension made easy. Obstet Gynecol. 1993;82(5):873-75.

[7] Lind LR, Choe J, Bhatia NN. An in-line suturing device to simplify sacrospinous vaginal vault suspension. Obstet Gynecol. 1997;89(1):129-31.

[8] Effect of Miya hook ligature carrier and Capio device on prolapse. https://www.hra.nhs.uk/planning-and-improving-research/application-summaries/research-summaries/effect-of-miya-hook-ligature-carrier-and-capio-device-on-prolapse/ accessed on 29.07.19

PARTICULARS OF CONTRIBUTORS:
1. Professor and Head, Department of Obstetrics and Gynaecology, College of Medicine and JNM Hospital, WBUHS, Kalyani, West Bengal, India.
2. Professor and Head, Department of Obstetrics and Gynaecology, Katihar Medical College, Katihar, Bihar, India.
3. Assistant Professor, Department of Obstetrics and Gynaecology, College of Medicine and JNM Hospital, WBUHS, Kalyani, West Bengal, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Soma Bandyopadhyay,
Tolly Twin, Block C, 2nd Floor, B-1, 327 M G Road, Kabardanga More, (Near Axis Bank ATM), Kolkata-700104, West Bengal, India.
E-mail: somapb@gmail.com

PLAGIARISM CHECKING METHODS: [Jain H et al.]
- Plagiarism X-checker: Aug 27, 2019
- Manual Googling: Sep 13, 2019
- iThenticate Software: Oct 05, 2019 (10%)

ETYMOLOGY: Author Origin

AUTHOR DECLARATION:
- Financial or Other Competing Interests: No
- Was informed consent obtained from the subjects involved in the study? Yes
- For any images presented appropriate consent has been obtained from the subjects. Yes

Date of Submission: **Aug 06, 2019**
Date of Peer Review: **Sep 11, 2019**
Date of Acceptance: **Sep 16, 2019**
Date of Publishing: **Nov 01, 2019**