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Review Article

Q-RUSH Hysterectomy: A Mini Review of a Novel, Rapid, and Vault-Supportive Modification of Traditional Total Abdominal Hysterectomy

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Abstract: *Background: Total abdominal hysterectomy often requires multiple sequential pedicle clamps and separate vault suspension steps, which can prolong operative time, increase surgeon fatigue, and result in variable apical support. Optimizing both operative efficiency and post-hysterectomy vault support remains a key surgical priority.* ***Objective:*** *To describe the conceptual basis, surgical rationale, and potential advantages of Qudsia's Rapid Unified Suspension Hysterectomy (Q-RUSH) technique as an innovative modification of total abdominal hysterectomy.* ***Methods:*** *This mini-review synthesizes the development and operative concept of Q-RUSH, which streamlines pedicle management and incorporates uterosacral–transcervical ligament suspension into a single, continuous suture technique. Relevant literature on total abdominal hysterectomy, apical suspension, and prevention of post-hysterectomy vault prolapse was narratively reviewed to contextualize Q-RUSH within current practice. Early pilot experience from its use in a tertiary care setting was examined descriptively with respect to operative workflow, hemostatic control, and urinary tract safety; no formal hypothesis testing or comparative statistical analysis was undertaken.* ***Results:*** *Q-RUSH conceptually reduces the number of separate pedicle clamps and consolidates apical support into an integrated suspension step, which appears to shorten operative workflow and lessen intraoperative handling. Early pilot observations indicate meaningful time savings with maintained hemostasis and no evident compromise in urinary tract safety. By providing immediate, anatomically anchored apical support via a continuous uterosacral–transcervical suspension, Q-RUSH may help reduce the risk of post-hysterectomy vault prolapse. However, this requires confirmation in prospective comparative studies with long-term follow-up.* ***Conclusion:*** *Q-RUSH represents a promising modification of total abdominal hysterectomy that unifies pedicle control and apical suspension in a single continuous technique, with the potential to improve operative efficiency and apical support. Robust prospective trials with adequate sample size, standardized outcome measures, and long-term follow-up are needed to validate its safety profile and efficacy in preventing post-hysterectomy vault prolapse.*

Keywords: Hysterectomy, Operative Time, Postoperative Complications, Surgical Procedures, Operative, Uterine Prolapse

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Introduction

Total abdominal hysterectomy (TAH) continues to play a central role in the surgical management of benign gynecological disorders, especially where minimally invasive surgery is unavailable, not feasible, or when complex pelvic anatomy precludes laparoscopic or vaginal approaches. Despite its wide utility, traditional TAH remains a time-intensive operation involving sequential clamps, pedicle-by-pedicle ligation, and repeated instrument exchanges, factors known to prolong surgery, prolonged anesthesia, increase surgeon fatigue, and heighten risk of urinary tract injury and postoperative pelvic floor dysfunction if special steps of vault support are missed(1–4). In addition, the standard method frequently divides uterosacral and cardinal ligaments without reliably incorporating them into vault closure, contributing to postoperative vault descent, a complication reported in 3–6% of abdominal hysterectomy cases over long-term follow-up. This complication, however, is also preventable with the traditional method and requires an additional step to incorporate the uterosacral and trans cervical ligaments into vault support (5–7).

Growing interest in surgical optimization has spurred the development of techniques to reduce operative duration, simplify pedicle management, and strengthen apical support. Evidence increasingly supports the concept that structured ligament suspension during hysterectomy lowers the likelihood of vault prolapse and improves long-term pelvic support outcomes(8–10). Simultaneously, faster operative workflows—such as limiting clamp application, using continuous suturing, or combining pedicles- have been shown to significantly reduce operative time without compromising safety (11,12). However, only a few open hysterectomy modifications integrate both goals: surgical speed and built-in vault suspension, and below is the conceptual review of our improvised technique, which offers these benefits together.

Conceptual Basis of the Q-RUSH Technique

Q-RUSH differs from conventional TAH by reducing clamp dependency, minimizing repetitive pedicle handling, and using a continuous suture that simultaneously ligates the transcervical–uterosacral complex and suspends these ligaments to the vault. This method leverages established biomechanical principles: crush-ligation for hemostasis, reduced traction on bladder tissue, and preservation of ligament continuity for apical support. By integrating these elements, Q-RUSH aims to address two major shortcomings of open hysterectomy: excessive operative time and lack of inherent vault suspension, within a single operative modification.

Stepwise Description of Q-RUSH (Qudsia's Rapid Unified Suspension Hysterectomy)

1. Patient preparation and abdominal entry

1.1 The patient is positioned and prepped in the usual manner as for an open abdominal hysterectomy.

1.2 A Pfannenstiel skin incision is made, the anterior abdominal wall is opened layer by layer, and the peritoneal cavity is entered.

1.3 The uterus is inspected and mobilised to allow free access to adnexal and uterine pedicles.
1.4 For manipulation, the uterus can be held with a myocardial screw or Clamp holders on each side.

2. Initial pedicle control: round and adnexal structures
2.1 On each side, the round ligament and tubo-ovarian structures (or utero-ovarian complex if ovaries are being removed) are taken together in a single suture instead of being treated as separate pedicles.
2.2 A delayed-absorbable ligature is placed directly to ligate, transfix, and cut this combined pedicle. This reduces the number of individual clamp–cut–transfix-ligate cycles at the start of the procedure.
2.3 The same sequence is repeated on the opposite side, leaving the adnexal region securely ligated with minimal clamp use.

3. Bladder dissection
3.1 The bladder is mobilised in a controlled fashion off the lower uterine segment and cervix, as in standard TAH from the round ligaments of both sides, but with particular attention to staying well within the avascular plane.
3.2 Dissection continues until the level of the true vaginal fornix is palpated, ensuring that later colpotomy is performed on "free" vaginal vault rather than too close to the end of the cervix near the vesicovaginal junction, where the risk of hemorrhage is higher.
3.3 The aim at this stage is to create a safe bladder flap without repeated blind clamping under the cervix, thereby reducing the risk of cystotomy and potential damage to the bladder plexus.

4. Uterine artery pedicle management
4.1 Each uterine artery pedicle is addressed with direct, separate sutures rather than multiple clamps:
- A ligature is placed at the level of the internal os using an OSHA Clamp on both sides.
- The suture is transfixed through the perivascular connective tissue to avoid the chances of slipping ligature and to avoid piercing the vessel.
- For stopping back flow, either holding clamps can be repositioned down, or a stabilising ligature can be placed 1cm above the crush ligature.
- Once the uterine vessels of both sides are secured, the suture is transacted horizontally 1 cm above the crush ligature to avoid the chances of suture ligation.

Quick Tips

1: Cutting vessels on both sides after securing these on either side also minimizes blood loss secondary to contralateral circulation.
2: If a superomedial ligature is applied for backflow storage, it can be cut in such a way that it is removed with the specimen. In contrast, the lateral ligature provides secure haemostasis on the stump.
3: To avoid direct needle trauma to the vessel, a blunt instrument (such as blunt forceps or the back of the needle) is gently passed behind the pedicle to guide the suture around the vessel instead of piercing it.
4: Once the sutures are tied & cut, clamps are reserved for holding the deeper support ligaments in the next steps.

5. Handling of uterosacral and cervical (transcervical) ligaments
5.1 Attention is then directed to the uterine support ligaments, the uterosacral and cervical (transcervical) components.
5.2 On each side, a clamp is reversed-applied to grasp the uterosacral–cervical complex at its maximal functional length, avoiding bladder tissue so that the full length of the ligamentous support is preserved for later suspension. Reversed application of the clamps by keeping the acute-angle curvature outwards allows ligament dissection and manipulation.
5.3 The uterus is gently mobilised so that the surgeon can feel the vaginal fornix sliding over the cervical portion. This tactile cue confirms the correct level for later colpotomy. It ensures that the planned vault opening will lie well away from the bladder, while also making a complete cervical excision and hence providing a TAH.

6. Creation of the vaginal opening (colpotomy)
6.1 Once the support ligaments are controlled, the vaginal vault is opened first anteriorly and then posteriorly, exactly at the level of the free vaginal fornix that was identified by palpation.
6.2 By deliberately opening the vagina at this "true" fornix rather than at the cervical level, the surgeon keeps the incision plane away from the bladder reflection, lowering the risk of bladder injury. The open vaginal foramen can be held with Allis forceps to avoid the slipping of tissue and vaginal arteries.
6.3 The uterus is then separated from the vagina by extending colpotomy on both sides, superoleterally parallel and medial to the holding clamps with a knife or cautery, hence completing the hysterectomy specimen removal while keeping the uterosacral/transcervical complexes secured with clamps on both sides.

7. Unified suspension suture: linking ligaments to the vault
7.1 The hallmark of Q-RUSH is a single continuous suspension suture that unites hemostasis and apical support in one step.
7.2 A delayed-absorbable continuous suture is started on one side by taking a firm bite through the transcervical/uterosacral ligament stump, then passing through the corresponding edge of the vaginal vault.
7.3 The same suture is then continued across the vault to the contralateral side, again incorporating the transcervical/uterosacral complex and the opposite vault edge, while sealing and supporting the vault as well as securing hemostasis.
7.4 This creates a bridging sling that pulls both ligament complexes snugly up to the vaginal apex, functioning as an in-built uterosacral suspension without requiring separate, additional fixation sutures.
Tip: Chances of surgeons missing vault suspension in standard TAH are high (14), which is minimised by integrating vault suspension and closure in a single step.

8. Vault closure integrated with suspension
8.1 Without changing sutures, the surgeon continues the same continuous stitch to complete closure of the vaginal vault in a single layer.
8.2 As the vault is closed from one side to the other, each pass reinforces contact between the ligament stumps and the vault, maintaining strong apical support along the entire line of closure.
8.3 At the end of the sequence, the suture is tied securely, resulting in:
- A closed vault,
- Both uterosacral/transcervical complexes are anchored directly to it, and
- No separate step required for vault suspension.

9. Final haemostasis and abdominal closure
9.1 The pelvis is inspected for bleeding; any small oozing points are addressed.
9.2 Irrigation and sponge/instrument counts are performed.
9.3 The peritoneum, rectus sheath, subcutaneous tissue, and skin are closed in layers as in traditional TAH.

10. Postoperative follow-up focus
10.1 Standard postoperative care is provided as for open hysterectomy.
10.2 Long-term follow-up in the original series focuses on:
- Operative time, on average, was 45-55 minutes skin to skin.
- Estimated blood loss was almost the same as in a traditional abdominal hysterectomy.
- Urinary tract injuries or fistula were not noted in our initial series of 15 cases.
- Vault support, assessed clinically for post-hysterectomy vault prolapse over at least one year, didn't show any cases of post-hysterectomy vault prolapse.

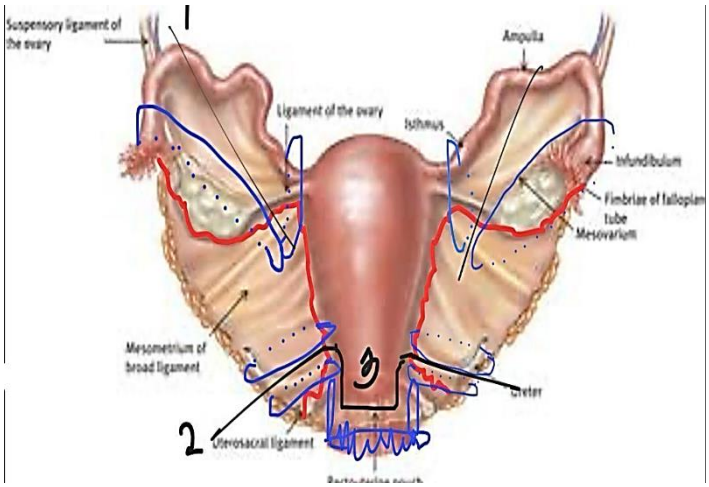

Image-1: Front profile of uterus, demonstrating concept of Q-Rush Hysterectomy

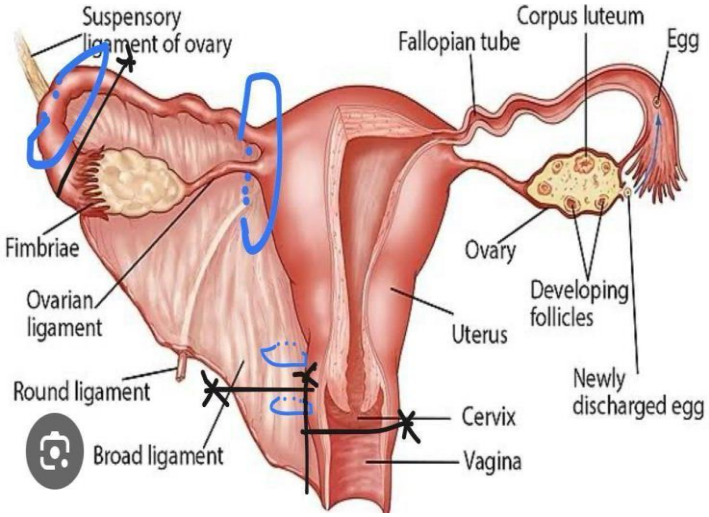

Image-2: Rear profile of uterus, demonstrating concept of Q-Rush Hysterectomy

Discussion

Q-RUSH (Qudsia's Rapid Unified Suspension Hysterectomy) represents a novel refinement of open hysterectomy that addresses gaps in traditional TAH. Unlike traditional TAH, Q-RUSH consolidates multiple steps of pedicle management into a unified sequence that minimizes clamp usage and employs a continuous suture to concurrently ligate the transcervical/uterosacral complex and suspend these ligaments to the vault in a single integrated motion. This approach is theoretically advantageous for three reasons:

1. Reduction of operative time by decreasing repetitive clamping, cutting, and assistant-dependent maneuvers;
2. Lower risk of bladder traction injury, as the method avoids the repeated blind clamp passes implicated in urinary tract injuries during traditional open hysterectomy;
3. Preservation of apical support by maintaining continuity between the uterosacral–cardinal complex and the vaginal apex, eliminating the need for separate suspension procedures.

The concept aligns closely with established evidence supporting prophylactic uterosacral suspension, a practice increasingly endorsed to reduce postoperative pelvic organ prolapse (8,9,13). It also echoes trends in modern gynecologic surgery, emphasizing streamlined instrument handling and workflow efficiency (11,12,14). Early observations from pilot clinical use suggest that Q-RUSH may achieve meaningful reductions in operative time while maintaining low blood loss and potentially decreasing the risk of long-term vault prolapse—outcomes consistent with current priorities to enhance the safety and durability of open hysterectomy.

As global health systems continue to face disparities in access to minimally invasive surgery, particularly in low-resource and high-volume settings, there is a growing need for refinements that make open hysterectomy safer, quicker, and more anatomically restorative. This mini-review situates the Q-RUSH technique within the evolving landscape, highlights its conceptual advantages over conventional TAH, and outlines its potential to reduce operative strain and improve long-term pelvic outcomes. Larger, multicenter trials remain essential to validate its effectiveness, but early findings position Q-RUSH as a promising innovation for modernizing open hysterectomy.

Clinical Relevance and Potential Advantages

Given global disparities in access to laparoscopy and robotics, a safe and efficient modification of open hysterectomy is especially relevant. Q-RUSH may reduce operative time by minimizing assistant-dependent clamp exchanges. It may also reduce the risk of bladder injury by avoiding blind clamp placements and vault-opening approaches, which make the mid-cervix even safer. The continuous suspension suture ensures apical reinforcement without adding extra procedural steps, potentially lowering long-term prolapse complications. Early observations indicate promise, warranting multicenter validation.

Future Research Recommendations:

Although preliminary findings are encouraging, rigorous studies are needed to compare Q-RUSH with traditional TAH and minimally invasive approaches in larger randomized trials. Additional outcomes—patient-reported pelvic floor function, sexual health, postoperative pain, time-effectiveness, and cost-effectiveness —should be incorporated into future evaluations.

Conclusion

Q-RUSH represents a meaningful evolution in open abdominal hysterectomy by aligning surgical efficiency with anatomical restoration. Its dual focus on reducing operative time and enhancing vault support positions it as a valuable technique for settings where open hysterectomy remains the primary approach.

Declarations

Data Availability statement
All data generated or analysed during the study are included in the manuscript.
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Conflict of interest

The authors declared no conflict of interest.

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All authors reviewed the results and approved the final version of the manuscript. They are also accountable for the study's integrity.

References

1. Aarts JWM, Nieboer TE, Johnson N, Tavender E, Garry R, Mol BWJ, et al. Surgical approach to hysterectomy for benign gynaecological disease. Cochrane Database Syst Rev. 2015 Aug 12;(8): CD003677. https://doi.org/10.1002/14651858.CD003677.pub5
2. Mou T, Brown O, Das D, Mueller MG, Kenton KS, Bretschneider CE. Postoperative complications after abdominal, laparoscopic, and vaginal hysterectomy for uteri weighing 250 grams or less. Gynecol Pelvic Med. 2023;6:3. https://doi.org/10.21037/gpm-22-44
3. Patel UJ, Heisler CA. Urinary tract injury during gynecologic surgery: prevention, recognition, and management. Obstet Gynecol Clin North Am. 2021 Sep;48(3):535-556. https://doi.org/10.1016/j.ogc.2021.05.007
4. Mamik MM, Antosh DD, White DE, Myers EM, Abernethy M, Rahimi S, et al. Risk factors for lower urinary tract injury at the time of hysterectomy for benign reasons. Int Urogynecol J. 2014 Aug;25(8):1031-1036. https://doi.org/10.1007/s00192-013-2308-3
5. Coolen AWM, Dietz V, Bui BN, Wang R, van Montfoort APA, Mol BWJ, et al. The treatment of post-hysterectomy vaginal vault prolapse: a systematic review and meta-analysis. Int Urogynecol J. 2017 Dec;28(12):1767-1783. https://doi.org/10.1007/s00192-017-3493-2
6. Kansaria HJ, Chouhan T. Study of post-hysterectomy vault prolapse and surgical management. J Obstet Gynaecol India. 2023 Oct;73(Suppl 1):124-129. https://doi.org/10.1007/s13224-023-01757-9
7. Maher C, Feiner B, Baessler K, Schmid C. Surgical management of pelvic organ prolapse in women. Cochrane Database Syst Rev. 2013 Apr 30;(4): CD004014. https://doi.org/10.1002/14651858.CD004014.pub5
8. Maher C, Feiner B, Baessler K, Christmann-Schmid C, Haya N, Brown J. Surgery for women with apical vaginal prolapse. Cochrane Database Syst Rev. 2016 Oct 1;10(10): CD012376. https://doi.org/10.1002/14651858.CD012376.pub2
9. Carlin GL, Bodner-Adler B, Husslein H, Hanzal E, Koelbl H, Laml T, et al. The effectiveness of surgical procedures to prevent post-hysterectomy pelvic organ prolapse: a systematic review of the literature. Int Urogynecol J. 2021;32(4):775-783. https://doi.org/10.1007/s00192-020-04572-2
10. Iglesia CB, Smithling KR. Pelvic organ prolapse. Am Fam Physician. 2017 Aug 1;96(3):179-185. (DOI not available)
11. Asati P, Asati S, Sinha V, Dixit H, Mahajan A, Alraddadi YK, Syed AK. Evaluation of the efficacy and complications of different hysterectomy techniques in the management of uterine fibroids. J Pharm Bioallied Sci. 2024 Jul;16(Suppl 3): S2428-S2430. https://doi.org/10.4103/jpbs.jpbs_236_24
12. Im H, Ahn S, Kim K, Kim MK, Park JY, Chang HK, Seong SJ, Hwang JH. Surgical time in gynecologic surgery using laparoscopic articulated instruments (KGOG 4002). Obstet Gynecol Sci. 2025 Sep;68(5):401-407. https://doi.org/10.5468/ogs.25076
13. Kim EK, et al. Prophylactic apical suspension at the time of hysterectomy for benign, non-prolapse indications: predictors of performing procedure and associated complications. Am J Obstet Gynecol. 2023;228(3 Suppl):S864. https://doi.org/10.1016/j.ajog.2022.12.115
14. Lowder JL. Apical vaginal support: the often forgotten piece of the puzzle. Mo Med. 2017 May-Jun;114(3):171-175.