

Recurrence of vaginal cuff dehiscence following hysterectomy: case presentation and literature review

NADER GAD¹, KATHRYN IRWIN², AMULYA DUVVURU¹

¹ Obstetrics and Gynecology, Royal Darwin Hospital

² Prince of Wales Hospital, Randwick, Sydney, NSW

Abstract: This report presents a case of a recurrence of vaginal cuff dehiscence in a 34 years old woman following a total laparoscopic hysterectomy for chronic pelvic pain. Vaginal intercourse at 7 weeks postoperatively was the precipitant in both instances of the dehiscence. Vaginal cuff dehiscence following hysterectomy is rare and recurrence is incredibly scarce.

Key Words: Abdominal Hysterectomy; Recurrence of Vaginal Cuff Dehiscence; Total Laparoscopic Hysterectomy.

INTRODUCTION

Vaginal cuff dehiscence (VCD) is a rare complication following hysterectomy and recurrence is incredibly scarce.

CASE REPORT

A 34 year old woman (gravida 7 and para 3) presented to the Emergency Department (ED) of Royal Darwin Hospital (RDH) with a history of worsening abdominal pain following her child jumping on her abdomen. The pain was worse with straining and coughing. She had two episodes of vomiting and discomfort on opening her bowels. She had engaged in sexual intercourse seven days prior to her presentation and reported yellow vaginal discharge and lower abdominal pain since that time. Examination revealed generalised abdominal rebound tenderness and the presence of copious clear fluid freely flowing from the vaginal cuff (VC). There was a defect on right side of the VC with no bowel seen herniating through the defect. This patient was a smoker of an average built.

This patient had a total laparoscopic hysterectomy (TLH) for chronic pelvic pain in a different Australian state approximately 14 weeks prior to the above presentation. Her records indicated that the VC was opened using laparoscopic coagulating shears and closed vaginally with 0-maxon sutures. The patient was advised to avoid vaginal intercourse for a minimum of six weeks. It was reported that when she was reviewed five weeks postoperatively that she complained of some abdominal discomfort and on examination she had soft abdomen and the laparoscopic port sites were well healed. The histology of the uterus revealed no abnormality.

The patient had vaginal intercourse seven weeks following the TLH. She felt a 'popping' sensation intra-coitally followed by sharp abdominal pain and vaginal loss of approximately 30-60mL of fresh blood followed by a copious yellow brown discharge. Then she presented herself "for the first time" to the ED of RDH. Abdominal examination revealed generalised abdominal tenderness and speculum vaginal examination revealed pink coloured small bowel in the vagina, indicating VCD and evisceration. The patient had an exploratory laparotomy under the care of the specialist on duty who documented the bowel was healthy, maxon suture at VC was not intact and was removed and VC was sutured with interrupted number 1 Vicryl. The patient was given appropriate course on antibiotics and was discharged home on the 5th postoperative day after being advised to avoid vaginal intercourse until she was next reviewed. At her review 5 weeks later her treating specialist noted no vaginal discharge and appropriate healing of VC.

She was instructed to avoid intercourse for a further four weeks, despite this, she had intercourse one week later, resulting in her current above presentation.

The recurrence of vaginal cuff dehiscence (RVCD) was managed with laparotomy by the principal author. A 4-5cm long defect was confirmed at the right side of the VC (Figure 1). The bowel that was firmly adherent to the posterior vaginal edge was mobilised. Also the bladder was mobilised away from the anterior vaginal edge. Both organs were carefully and adequately mobilised using sharp and very gentle blunt dissection. This mobilisation allowed adequate debridement to obtain fresh vaginal edges. The defect was closed using interrupted stitches with adequate bites that were 1 cm apart and 1 cm from the vaginal edges. A small needle with 3.0 Vicryl (polyglactin) suture material was used to minimize trauma to the relatively inflamed and weak vaginal tissue. Prophylactic antibiotics cover was started preoperatively and continued on for five days postoperatively. The patient was commenced on oral hormone replacement therapy (HRT), Premarin, 0.625mg on the second postoperative day when she became adequately mobilising. She was discharged home on the 5th postoperative day and was advised to continue on HRT for a period of six months, cease smoking and abstain from vaginal intercourse for 6 months. She was scheduled for reviews at 3 and 6 months with the principal author.

On review at 3 months, she was asymptomatic. She was encouraged to continue with the above plan. When she was

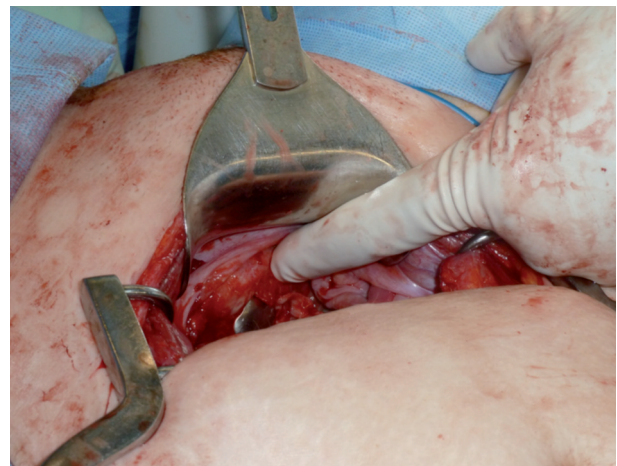


Figure 1. – Recurrent vaginal vault dehiscence “a metal probe in the vaginal vault is showing the defect in the right side of vaginal cuff”.

reviewed 6 months postoperatively, she reported resuming intercourse 2 months before the visit (4 months after the repair). Since then, she has had regular intercourse 1-2 times per week with no pain or bleeding. On examination, the VC was well healed and supported. The patient was discharged from the clinic and advised to report back if any problem.

DISCUSSION

VCD is a rare complication of hysterectomy. By year 2011, approximately 120 cases of VCD had ever been reported in the literature¹ and notably only two case reports documenting a recurrence have been identified by the authors.^{2,3} The incidence of unreported cases is unknown.

The overall rate of VCD following hysterectomy is 0.24%.⁴ Chan et al⁵ reported a rate of VCD of 1.59% following TLH compared with no cases of dehiscence following vaginal hysterectomy (VH) or total abdominal hysterectomy (TAH) in their retrospective analysis of 1224 cases. Ceccaroni et al⁶ analysed data from 8635 hysterectomy patients and noted laparoscopic hysterectomy was associated with a significantly higher incidence of dehiscence (0.8%) than both TAH (0.25%) and VH (0.15%). Likewise Agdi⁷ observed a significantly higher incidence of VCD after TLH (1.14%) than after TAH (0.1%) and VH (0.14%).

It is suggested that the use of electro-cautery for colpotomy in TLH may lead to tissue necrosis and prolonged devascularisation, reducing the potential for adequate cuff healing and thus an increased risk of dehiscence.^{4,6, 8-10} Suturing techniques have also been implicated in the higher rates of dehiscence with TLH. It is suggested that laparoscopic knot pushers may cause fraying and weakening of the suture, predisposing to VCD.^{4,5,9} It is also thought that laparoscopic magnification can distort the view and result in shallow suture placement and thus inadequate closure.^{4, 5, 11}

It is unclear if the increased risk with laparoscopic hysterectomy is related to the technique of suturing. While some authors found that the choice of route^{10,12} (vaginal or laparoscopic) or method of suturing¹⁰ (interrupted or running) was not statistically significant in affecting dehiscence rates, Uccella et al¹¹ reported that laparoscopic and robotic sutures were associated with a rate of VCD three and nine times that of trans-vaginal colporrhaphy. To minimise the risk, some authors have recommended the use of double layer^{5,13} interrupted sutures⁵ when closing the VC during a TLH, while Shen et al¹⁴ reported no significant difference in frequency of dehiscence between one or two layers closure.

The type of suture material used has also been debated. Hur⁴ suggests the use of a delayed absorbable monofilament suture. Chan et al⁵ supported the use of a monofilament suture and questioned the use of Vicryl sutures in TLH. Dauterive et al⁸ and Bikkendaal et al¹⁰ hypothesise that regardless of the suture material, there is a primary healing defect as a result of excessive coagulation.

The most common precipitant of VCD in premenopausal women is sexual intercourse.^{4,8, 12, 15, 16} This patient VCD occurred twice when she had vaginal intercourse 7 weeks postoperatively. Surgical wounds in general will attain up to 40% of maximal strength within the first month postoperatively although strength will continue to increase for as long as a year.¹⁷ Timing of the resumption of sexual intercourse must therefore take into consideration the prolonged healing process. The general recommendation is to avoid the "early resumption" of coitus^{4,5,8,9,12,16}; however, specific time frames vary. Hwang¹² recommended avoidance of intercourse until the postoperative examination

identified a completely healed VC incision, although we question how it is possible clinically to identify the degree of healing that would withstand the intercourse. Hur⁴ suggested delaying sexual intercourse for a period of six to eight weeks after total hysterectomy and a minimum delay of 12 weeks after a repair of VCD. Dauterive⁸ and Nick et al⁹ also suggest eight weeks of "pelvic rest" following TLH. However longer periods of abstinence would not prevent spontaneous dehiscence.^{4,10}

There is no agreement on how women with VCD should be managed. A recent review of the literatures reported 51% of VCD were repaired vaginally, 32% abdominally, 2% laparoscopically and 10% using a combined approach; only 5% were allowed to heal by secondary intention.¹³ Some authors have recommended closure of VCD with delayed absorbable monofilament suture in an interrupted fashion.^{1,4} The use of postoperative HRT has been suggested to maximise wound healing following gynaecological surgery⁵, although evidence of its efficacy is limited.⁴

A literature search on RVCD was conducted which revealed only two case reports, only one of which is a true RVCD. This case was reported by Ferri² (1996) and is of a 65 year old woman who presented with a relapse of VCD seven months after repair for initial dehiscence and twelve months after vaginal hysterectomy for uterine prolapse. There was no obvious precipitant in this case. The repair of the first VCD was achieved via a median laparotomy with uterosacral ligament plication. The recurrent defect was repaired using interrupted Vicryl sutures and polytetrafluoroethylene mesh. The patient had no reported complications at 12 months post operatively.

The second case was of a 31 year old woman who originally underwent laparoscopic assisted vaginal hysterectomy and bilateral salpingo-oophorectomy for endometriosis.³ The peritoneum and vaginal cuff were closed using 0 chromic sutures. At the first attempt of sexual intercourse, six weeks post-operatively, VCD and evisceration occurred. The defect was repaired vaginally using a double layer closure with interrupted 0 Vicryl sutures. Six months later, the patient underwent an exploratory laparotomy for investigation of severe pelvic pain that revealed persistent endometriosis and scarring of the VC with multiple bowel adhesions and thus a partial vaginectomy was performed and VC closed with 0 vicryl. Four months later, the patient presented with a RVCD after intercourse. The defect was repaired using interrupted Polydioxanone suture in an overlapping mattress technique followed 5 months later by abdominal sacrocolpopexy using synthetic Prolene mesh to prevent future evisceration. Obviously, a potential confounder in Jurus³ report is the additional vaginectomy during laparotomy the patient underwent before the relapse of VCD and thus could independently have played a role in causing the dehiscence.

CONCLUSION

As there is such limited information available reporting on RVCD following hysterectomy, it is difficult to draw solid conclusions with regard to the risk of recurrence, and how to best avoid and manage this problem. The authors view is that in management of VCD or RVCD, it is very important to obtain fresh vaginal edges by good debridement of both edges of the vagina that may require adequate mobilisation of the bladder and bowel. It may be equally important to use interrupted sutures with adequate bites, administer prophylactic antibiotics intraoperatively and postoperatively, administer estrogen postoperatively and advise the patient to delay vaginal intercourse for at least 12 weeks.

REFERENCES

1. Gandhi P, Jha S. Vaginal vault evisceration. *Obstet Gynaecol.* 2011; 13:231-237.
2. Hur HC. Vaginal cuff dehiscence after hysterectomy [document on the internet]. Up to Date; 2012 [cited 2012 August 10]. Available from: http://www.uptodate.com/contents/vaginal-cuff-dehiscence-after-hysterectomy?source=search_result&search=vaginal+cuff+dehiscence+after+hysterectomy&selectedTitle=1~150.
3. Chan WS, Kong KK, Nikam YA, Merkur H. Vaginal vault dehiscence after laparoscopic hysterectomy over a nine-year period at Sydney West Advances Pelvic Surgery Unit – our experiences and current understanding of vaginal vault dehiscence. *Aust N Z J Obstet Gynaecol.* 2012; 52: 121-127.
4. Ferri J, Simon C, Ruiz, G. Vaginal evisceration: surgical repair with synthetic mesh. *Int J Gynaecol Obstet.* 1996; 54(2):183-4.
5. Jurus D, Finamore P, Vakili B. Use of synthetic mesh to prevent recurrent vaginal evisceration: a case report. *Int Urogynecol J.* 2009; 20:259–260.
6. Ceccaroni M, Berretta R, Malzoni M, et al. Vaginal cuff dehiscence after hysterectomy: a multicenter retrospective study. *Eur J Obstet Gynecol Reprod Biol.* 2011; 158: 308–313.
7. Agdi M. Vaginal vault dehiscence after hysterectomy. *J Minim Invasive Gynecol.* 2009; 16(3): 313-7.
8. Dauterive E, Morris G. Incidence and characteristics of vaginal cuff dehiscence in robotic-assisted and traditional total laparoscopic hysterectomy. *J Robotic Surg.* 2012; 6:149-154.
9. Nick A, Lange J, Frumovitz M, et al. Rate of vaginal cuff separation following laparoscopic or robotic hysterectomy. *Gynecol Oncol.* 2011, 120: 47-51.
10. Blikkendaal MD, TwijnstraAR, PacqueeSC, et al. Vaginal cuff dehiscence in laparoscopic hysterectomy: influence of various suturing methods of the vaginal vault. *Gynecol Surg.* 2012.
11. Uccella S, Ghezzi F, Mariani A, et al. Vaginal cuff closure after minimally invasive hysterectomy: our experience and systematic review of the literature. *Am J Obstet Gynecol.* 2011; 205:119.
12. Hwang JH, Lee JK, Lee NW, Lee KW. Vaginal cuff closure: a comparison between the vaginal route and laparoscopic suture in patients undergoing total laparoscopic hysterectomy. *Gynecol Obstet Invest.* 2011; 71:163-169.
13. Cronin B, Sung V, Matteson K. Vaginal cuff dehiscence: risk factors and management. *Am J Obstet Gynecol.* 2012; 206(4): 284-8.
14. Shen CC, Hsu TY, Huang FJ, et al. Comparison of one- and two-layer vaginal cuff closure and open vaginal cuff during laparoscopic-assisted vaginal hysterectomy. *J Am Assoc Gynecol Laparosc* 2002; 9:474-480.
15. Rajesh S, Kalu E, Bong J, Wales N. Evisceration 5 years post abdominal hysterectomy. *J Obstet Gynaecol Res.* 2008; 34(3): 425-427.
16. WalshCA, Sherwin JR, Slack M. Vaginal evisceration following total laparoscopic hysterectomy: case report and review of the literature. *Aust N Z J Obstet Gynaecol.* 2007; 47:516-519.
17. Kirsner RS, Eaglstein WH. The wound healing process. *Dermatol Clin.* 1993; 11:629.

Correspondence to:

Dr. Nader Gad
MBChB, MChGO, FRCOG, FRANZCOG
Consultant & Senior Lecturer- Obstetrician and Gynaecologist
Royal Darwin Hospital, PO Box - 41326 - Casuarina
NT- 0811, Australia.
Phone no: 0415 159 150, Fax No: 08- 8945 6922
Email: drnadergad@hotmail.com