Prophylactic Vac dressing in carcinoma case of gynecology

Dr. Amey Chugh[1], Dr. Rutuja Kothmire[2]

[1]*Assistant Professor, MS. OBGY, Dr Dy Patil Medical College and Hospital , Pimpri, Pune (ameychugh17@gmail.com)*
[2]*Junior Resident, Dr. Dy Patil Medical College and Hospital, Pimpri, Pune 411018 (Rutujakothmire12@gmail.com) [Corresponding Author]*

KEYWORDS

Prophylactic VAC dressing, carcinoma endometrium, abdominal dehiscence, gynecological surgery, burst abdomen.

ABSTRACT

Post-operative complications, such as abdominal dehiscence, are a major challenge in gynecological oncology, particularly in patients undergoing extensive surgeries like total abdominal hysterectomy. This case report describes an 69-year-old female with carcinoma endometrium who underwent total abdominal hysterectomy with rectus closure using Prolene. On the second post-operative day, the patient developed gaseous distension, which progressed to vomiting and increased abdominal distension by day four. Imaging revealed findings suggestive of impending burst abdomen. Emergency re-exploration was performed, and secondary suturing with vacuum-assisted closure (VAC) dressing was applied. The VAC dressing stabilized the wound, promoted granulation tissue formation, and prevented further complications, resulting in successful recovery. This case highlights the potential of VAC dressing not only as a therapeutic intervention but also as a prophylactic measure during primary closure in high-risk surgical patients. Prophylactic VAC dressing may prevent post-operative wound dehiscence, reducing morbidity and improving outcomes in gynecological oncology surgeries. Further studies are needed to evaluate its routine application in similar cases.

Introduction

Post-operative wound complications, particularly abdominal dehiscence, are significant challenges in surgical oncology, especially in high-risk patients undergoing extensive procedures such as total abdominal hysterectomy [1]. Carcinoma endometrium is one of the most common gynecological malignancies worldwide, especially in postmenopausal women, requiring surgical intervention as the cornerstone of management [2]. However, these extensive surgeries are associated with a higher likelihood of wound healing complications due to patient-related and disease-related factors [3].

Abdominal dehiscence, often referred to as "burst abdomen," is a severe post-operative complication characterized by the partial or complete separation of the abdominal wound layers. This condition is associated with high morbidity and, in some cases, mortality, if not managed promptly [4]. Risk factors include advanced age, nutritional deficiencies, malignancy-related immunosuppression, high intra-abdominal pressure, and the type of surgical closure used during the procedure [5]. For gynecological oncology patients, who often present with multiple co-morbidities and weakened systemic conditions, these risks are exacerbated, necessitating proactive management strategies to prevent complications [6].

One promising approach in wound management is the use of vacuum-assisted closure (VAC) therapy. VAC dressing, also known as negative pressure wound therapy (NPWT), works by applying controlled negative pressure to the wound site, stabilizing wound edges, reducing fluid accumulation, promoting granulation tissue formation, and accelerating wound healing [7]. Initially developed for managing chronic and complex wounds, VAC therapy has also been widely

adopted for secondary wound management in surgical dehiscence cases. However, its potential role as a prophylactic measure in primary wound closure has not been extensively studied, especially in high-risk gynecological oncology patients [8].

The rationale for using prophylactic VAC dressing lies in its ability to mitigate key risk factors for abdominal wound dehiscence. By stabilizing the wound and reducing intra-abdominal tension, VAC dressing can potentially prevent fluid collection and seroma formation, both of which contribute to delayed wound healing and dehiscence [9]. In patients with carcinoma endometrium, whose surgeries often involve extensive dissection and closure under tension, prophylactic VAC therapy could be a game-changing innovation in post-operative care.

This case report presents the management of an 89-year-old female with carcinoma endometrium who developed an impending burst abdomen following total abdominal hysterectomy. The case highlights the successful use of secondary suturing with VAC dressing to stabilize the wound and prevent further complications. Based on this case, the discussion explores whether prophylactic application of VAC dressing during primary wound closure could help prevent abdominal dehiscence and improve outcomes in high-risk surgical patients [10].

By addressing these considerations, this report aims to contribute to the growing body of literature on VAC therapy and its potential utility as a prophylactic measure in surgical oncology. As surgical techniques evolve and patient outcomes take precedence, exploring innovative strategies to mitigate complications remains critical. Prophylactic VAC dressing may represent a proactive approach to improve post-operative wound healing and reduce morbidity in patients undergoing extensive gynecological oncology procedures. Further research and clinical trials are warranted to establish the routine use of this promising technique in similar cases.

Case Report

Patient Presentation

A 69-year-old postmenopausal female presented to our facility with a diagnosis of carcinoma endometrium. The patient had a history of postmenopausal bleeding and was evaluated with imaging and biopsy, which confirmed the diagnosis. She reported no significant prior medical history apart from mild hypertension, which was controlled with medication. However, the patient was frail, with clinical signs of malnutrition, and her BMI was below normal, indicating poor nutritional status, a common risk factor in malignancy-related cases. The patient underwent a total abdominal hysterectomy with bilateral salpingo-oophorectomy under general anesthesia. During the procedure, the uterus was observed to have significant endometrial thickening consistent with malignancy. The rectus sheath was sutured using Prolene to ensure a robust closure of the abdominal wall. The surgery was completed without intra-operative complications, and the patient was transferred to the post-operative ward for recovery.

On the second post-operative day, the patient developed gaseous abdominal distension. Vital signs remained stable, and symptomatic care was provided, including bowel rest, nasogastric tube placement, and intravenous fluids. Despite these measures, her condition worsened. By the fourth post-operative day, the patient began experiencing abdominal pain, vomiting, and increased distension. A physical examination revealed significant tenderness and tense abdominal swelling. Concerned about the possibility of wound dehiscence or an impending burst abdomen, further diagnostic imaging was conducted.

An ultrasound of the abdomen suggested fluid collection and tension at the surgical site. Subsequently, a contrast-enhanced CT scan confirmed the findings of an impending burst abdomen, with evident tension on the rectus sheath and a risk of wound dehiscence. The decision was made to immediately take the patient for surgical re-exploration. During re-exploration, the rectus sheath was found to be under significant tension, with fluid collection and signs of tissue

strain. The wound was meticulously cleaned, and secondary suturing was performed. Additionally, vacuum-assisted closure (VAC) dressing was applied to stabilize the wound and promote healing. The VAC therapy was chosen based on its ability to reduce wound tension, control fluid drainage, and enhance granulation tissue formation, which was crucial for a patient with high risk of poor wound healing due to advanced age and nutritional deficiencies.

Figure 1:Distended abdomen(pre secondary suturing)

Figure 2: Rectus sheath opened up and intestines visualised.

Treatment and Management

The management of this case involved addressing the immediate complication of impending burst abdomen while ensuring optimal wound healing to prevent further issues. After the primary surgery of total abdominal hysterectomy with bilateral salpingo-oophorectomy, the patient initially

developed gaseous distension on the second post-operative day. Conservative measures were undertaken, including bowel rest, nasogastric tube placement to decompress the abdomen, intravenous fluids, and electrolyte correction. Despite these interventions, her symptoms progressed by the fourth post-operative day, with increasing abdominal pain, vomiting, and distension. Imaging studies, including ultrasound and CT scan, confirmed the diagnosis of impending burst abdomen, prompting an urgent surgical intervention.

The patient was taken for re-exploration under general anesthesia. Upon inspection, the rectus sheath closure was under significant tension, with fluid collection and tissue strain observed. Secondary suturing of the rectus sheath was performed using tension-free Prolene sutures to ensure a secure closure. The wound was thoroughly cleaned and irrigated to reduce the risk of infection. To optimize wound healing and reduce the likelihood of further complications, vacuum-assisted closure (VAC) therapy was applied. The VAC dressing provided controlled negative pressure, which stabilized the wound edges, promoted granulation tissue formation, and prevented further fluid accumulation. This intervention was particularly valuable given the patient's advanced age and compromised nutritional status, both of which posed significant risks for poor wound healing. Post-operative care included close monitoring in the intensive care unit, with VAC dressing changes performed every 48–72 hours under sterile conditions. Broad-spectrum antibiotics were administered to prevent infection, and nutritional support, including high-protein supplementation, was provided to enhance wound healing. Over the subsequent days, the patient showed steady improvement, with reduced abdominal distension and progressive wound healing. This case underscores the effectiveness of secondary suturing combined with VAC therapy in managing burst abdomen and highlights the potential benefit of prophylactic VAC dressing to prevent such complications in high-risk surgical patients.

Table 3: Rectus sheath closed after reducing the bowels and skin flaps elevated for VAC dressing.

Discussion

Abdominal wound dehiscence, or burst abdomen, is a critical complication in high-risk surgical patients, particularly in gynecological oncology. This case highlights the effective management of an impending burst abdomen using secondary suturing combined with vacuum-assisted closure (VAC) therapy. VAC therapy promotes healing by creating controlled negative pressure, stabilizing

wound edges, reducing tension, minimizing fluid accumulation, and enhancing granulation tissue formation [11]. These properties make it a valuable tool in managing post-operative complications. However, its role as a prophylactic measure during primary surgical closure warrants further exploration, particularly in high-risk patients such as those with carcinoma endometrium, advanced age, and poor nutritional status.

In this case, the use of VAC therapy during secondary intervention stabilized the wound and prevented further complications, leading to a successful outcome. This raises the question of whether prophylactic VAC dressing during the primary surgical closure could have prevented dehiscence altogether. Prophylactic VAC dressing could address several risk factors preemptively, potentially reducing the incidence of burst abdomen and other wound complications in high-risk patients [12].

Further studies and clinical trials are needed to establish the efficacy, safety, and cost-effectiveness of prophylactic VAC therapy [13]. Its routine application in high-risk surgical populations could revolutionize wound management by preventing complications and improving surgical outcomes, particularly in oncology.

Conclusion

This case underscores the potential of VAC therapy as both a therapeutic and prophylactic tool in wound management. Prophylactic VAC dressing during primary closure in high-risk patients could prevent abdominal dehiscence, reducing morbidity and improving outcomes. Further research is essential to establish its routine use in surgical practice.

References

1. Ousey K, Rippon MG, Rogers AA, Totty JP. Considerations for an ideal post-surgical wound dressing aligned with antimicrobial stewardship objectives: a scoping review. Journal of wound care. 2023 Jun 2;32(6):334-47.
2. Montgomery A, van Eeden L, Boo M, Maul K, de Silva K, Klasan A, Sedgwick PM, Eva L, Bergzoll C. Does Closed Incision Negative Pressure Wound Therapy Reduce Surgical Site Infection in Endometrial Carcinoma Patients Undergoing Laparotomy? A Multicentre Retrospective Cohort Study. Clinical and Experimental Obstetrics & Gynecology. 2023 May 16;50(5):102.
3. Pierson RC, Scott NP, Briscoe KE, Haas DM. A review of post-caesarean infectious morbidity: how to prevent and treat. Journal of Obstetrics and Gynaecology. 2018 Jul 4;38(5):591-7.
4. Limpat Wihastyoko HY, Mustikaningrat ER, Kusumaningrat DR, Wruhastanti GS, Rinhastyanti ES, Joni Y. USING OF NEGATIVE WOUND PRESSURE THERAPY (NPWT): A CASE SERIES OF WOUND DISRUPTION AS A COMPLICATION OFA CAESAREAN SECTION. Jurnal Rekonstruksi dan Estetik. 2024 Jan 1;9(1).
5. Falola RA, Tilt A, Carroll AM, Kim MJ, Bowles-Johnson G, Attinger CE. Management of abdominal wound dehiscence following cesarean section: The case for debridement and immediate primary re-closure. Clin Surg. 2018;3:1881.
6. Chambers LM, Morton M, Lampert E, Yao M, Debernardo R, Rose PG, Vargas R. Use of prophylactic closed incision negative pressure therapy is associated with reduced surgical site infections in gynecologic oncology patients undergoing laparotomy. American Journal of Obstetrics and Gynecology. 2020 Nov 1;223(5):731-e1.
7. Morgan-Jones R, Szczepanik A, Gunther T, Debre J, Dolezel R, Banasiewicz T, Pécsi Ö, Wilczak M. Incision care and dressing selection in surgical incision.

8. Wills A, Obermair A. A review of complications associated with the surgical treatment of vulvar cancer. Gynecologic oncology. 2013 Nov 1;131(2):467-79.
9. Strugala V, Martin R. Meta-analysis of comparative trials evaluating a prophylactic single-use negative pressure wound therapy system for the prevention of surgical site complications. Surgical infections. 2017 Oct 1;18(7):810-9.
10. Ozkan B, Ertas NM, Bali U, Uysal CA. Clinical experiences with closed incisional negative pressure wound treatment on various anatomic locations. Cureus. 2020 Jun;12(6).
11. Schimp VL, Worley C, Brunello S, Levenback CC, Wolf JK, Sun CC, Bodurka DC, Ramirez PT. Vacuum-assisted closure in the treatment of gynecologic oncology wound failures. Gynecologic oncology. 2004 Feb 1;92(2):586-91.
12. Galan HL, Huguelet T, editors. Emergencies in Obstetrics and Gynecology, An Issue of Obstetrics and Gynecology Clinics, E-Book: Emergencies in Obstetrics and Gynecology, An Issue of Obstetrics and Gynecology Clinics, E-Book. Elsevier Health Sciences; 2022 Sep 21.
13. El Alili M. Reporting and statistical quality of trial-based cost-effectiveness analysis in obstetrics and gynaecology. VU Research Portal.;35(10):27.