

Successful Perioperative Hemostatic Management in Type 3 von Willebrand Disease During Laparoscopic Repair of Giant Hiatus Hernia Complicated by Pneumothorax

Jamal A. Abu Dina^{1,2}

[1]. Department of Anesthesia and Intensive Care Care Unit, Misurata Medical Center, Misurata, Libya

[2]. Department of Surgery, Faculty OF Medicine, Misurata University, Misurata, Libya

DOI: <https://doi.org/10.65540/jar.v30i.1607>

Article information	Abstract
Key words von Willebrand disease; type 3; laparoscopic surgery; perioperative management; pneumothorax; hemostasis <i>Received: 20-02-2026</i> <i>Accepted: 10-03-2026</i> <i>Available: 01-04-2026</i>	Background: Type 3 von Willebrand disease (vWD) is the most severe form of inherited bleeding disorders and carries a high perioperative hemorrhagic risk. Case Presentation: A 33-year-old male with known type 3 vWD underwent elective laparoscopic repair of a grade IV hiatus hernia. Perioperative management included administration of von Willebrand factor/factor VIII (VWF/FVIII) concentrate. The postoperative course was complicated by left-sided pneumothorax requiring chest tube insertion. Replacement therapy continued for six days; no bleeding complications or transfusion were required. Conclusion: Major laparoscopic surgery can be safely performed in patients with severe vWD when managed with appropriate replacement therapy and multidisciplinary coordination. Keywords: von Willebrand disease; type 3; laparoscopic surgery; perioperative management; pneumothorax; hemostasis

I) INTRODUCTION:

Von Willebrand disease is the most common inherited bleeding disorder, while type 3 represents its rarest and most severe form, characterized by near-complete absence of von Willebrand factor and markedly reduced factor VIII levels (1,2). Patients with type 3 vWD are at substantial risk of spontaneous and perioperative bleeding (3). Recent international guidelines emphasize individualized perioperative management using von Willebrand factor replacement and multidisciplinary planning to minimize bleeding risk (4,5). Advances in therapeutic approaches have improved surgical outcomes, even in high-risk patients (6).

II) Case Presentation

A 33-year-old male with a previously established diagnosis of type 3 von Willebrand disease was admitted for elective laparoscopic repair of a grade IV hiatus hernia. Preoperative hematology consultation recommended administration of VWF/FVIII concentrate. On the day of surgery, 2000 IU of VWF/FVIII concentrate was administered intravenously prior to induction of anesthesia. The laparoscopic procedure lasted approximately 3.5 hours with minimal intraoperative blood loss. Postoperatively, the patient was transferred to the surgical intensive care unit and extubated uneventfully. On postoperative day one, he

developed a left-sided pneumothorax requiring chest tube insertion. Replacement therapy (2000 IU twice daily) was continued for six days. Drain output remained minimal (~150 mL), and hemoglobin levels declined in a predictable postoperative pattern without need for transfusion. No clinical evidence of bleeding was observed throughout hospitalization.



Figure 1: Legend: Preoperative chest radiograph demonstrating large left-sided intrathoracic herniation of the stomach consistent with grade IV hiatus hernia.

**Internal medicine
department
endoscopy unit**



مركز مصراتة الطبي
MISRATA MEDICAL CENTER

قسم امراض الباطنه
وحدة المناظري

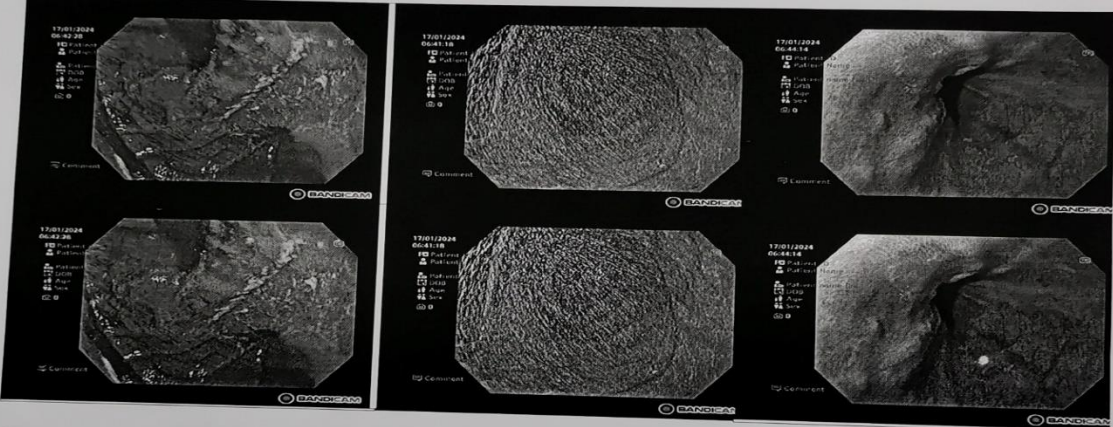
Name: _____ Age: 33 Gender: Male IDNo: 99

procedure: Gas Date: 18/01/2024

Indication of the procedure : _____

Comorbidity : von willebran diseas type III

Sedation and dose : propafol 10%



Report :

Esophagus : Sliding hiatus hernia junction 36cm

Stomache : food contint nodular gastritis involving antrum and curpus

Doudenum : not will vesualised because of food content

Advice :

Operator doctor : Dr Tarek Abuzaid

Figure 2: Legend: Upper gastrointestinal endoscopy demonstrating sliding hiatus hernia and nodular gastritis.

Successful Perioperative Hemostatic Management in Type 3 von Willebrand Disease During Laparoscopic Repair of Giant Hiatus Hernia Complicated by Pneumothorax



Figure 3: Legend: Axial CT image confirming herniation of the stomach into the left hemithorax with associated lung compression.

III) Discussion

Type 3 vWD presents significant perioperative challenges due to severe deficiency of von Willebrand factor and secondary reduction in factor VIII levels (2,3). Current international guidelines recommend VWF-containing concentrates as the mainstay of perioperative management, particularly in major surgeries (4,7). Individualized dosing strategies and close laboratory monitoring are essential to ensure optimal hemostatic control while minimizing complications (5,6). In this case, effective perioperative planning and adherence to guideline-based therapy resulted in excellent hemostatic outcomes despite two invasive procedures. The absence of bleeding complications, even following chest tube insertion, reinforces the safety of surgical interventions in well-managed patients with severe vWD. This case supports feasibility of minimally invasive surgery in high-risk hematologic patients when managed within a multidisciplinary framework.

IV) Conclusions:

Major laparoscopic surgery can be safely performed in patients with severe type 3 von Willebrand disease when appropriate hematologic evaluation, perioperative replacement therapy, and close monitoring are implemented.

V) Ethical approval

Ethical approval was obtained from Misurata Medical Center.

VI) Consent

Written informed consent was obtained from the patient for publication.

VII) Conflict of interest

The author declares no conflict of interest.

VIII) Funding

No funding was received for this study.

IX) References:

- (1) Nichols WL, Hultin MB, James AH, et al. Von Willebrand disease (VWD): evidence-based diagnosis and management guidelines. *Haemophilia*. 2008;14(2):171–232.
- (2) Leissinger C, Granger S, Singleton T, et al. Perioperative management of patients with von Willebrand disease. *Thromb Res*. 2014;134 Suppl 1:S1–S6.
- (3) Mannucci PM. Treatment of von Willebrand disease. *N Engl J Med*. 2004;351(7):683–694.
- (4) Connell NT, Flood VH, Brignardello-Petersen R, et al. ASH ISTH NHF WFH 2021 guidelines on the management of von Willebrand disease. *Blood Adv*. 2021;5(1):301–325.
- (5) James PD, Connell NT, Ameer B, et al. Evaluation and management of von Willebrand disease: updated perspectives. *Res Pract Thromb Haemost*. 2022;6(1):e12616.
- (6) Castaman G, Coppola A, Rodeghiero F. Von Willebrand disease in the era of personalized medicine. *J Clin Med*. 2021;10(3):445.
- (7) Sidonio RF Jr, Lavin M. Perioperative management of bleeding disorders including VWD. *Hematology Am Soc Hematol Educ Program*. 2022;2022(1):596–603.
- (8) Franchini M, Mannucci PM. Advances in the treatment of von Willebrand disease. *Expert Rev Hematol*. 2023;16(2):101–110.