CASE REPORT

Myomectomy in a case of von Willebrand's disease in a low resource setting

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ABSTRACT

Von Willebrand's disease (vWD) is an inherited bleeding disorder with an estimated prevalence of 1% in the general population. It is caused by deficiency or dysfunction of von Willebrand's factor. Surgical procedure on patients with vWD is usually associated with increased haemorrhage.

Keywords: *Clotting Factors, Coagulation Disorder, Fibroids, von Willebrand's Factor*

INTRODUCTION

In 1926, Finnish physician Erik von Willebrand reported symptoms of an unknown bleeding disorder in a large family from the Aland Islands, off the coast of Finland. This newly discovered malady, unlike haemophilia, affected both sexes. It became known as von Willebrand's disease (vWD), which is the most common genetic coagulation disorder affecting 1-**2**% of the population worldwide. Gingival bleeding and epistaxis are frequently encountered in the affected individuals.[1]

The disease results from either quantitative or qualitative defects in the von Willebrand factor (vWF). This factor is produced in the endothelial cells and bone marrow megakaryocytes and consists of multimers that are stored in platelet alpha granules and in Weibel-Palade bodies of endothelial cells. The vWF plays a crucial role in both primary and secondary haemostasis. In primary haemostasis, vWF facilitates platelet adhesion to sites of vascular injury by binding to platelets at the glycoprotein Ib (GPIb) receptor. To achieve secondary haemostasis, vWF binds and stabilizes factor VIII (FVIII), thus preventing its circulatory clearance and reabsorbtion.[2]

The disease is divided into 3 types. Types I and III are characterized by partial and complete quantitative deficiencies respectively, whereas, type II is caused by qualitative defects. Type II is further subdivided into IIA, IIB, IIN, and IIM, which relate to specific multimer size defects and the mechanisms of multimer loss. Type III is the most severe form of vWD and is characterized by very low or no detectable levels of vWF.[2] Most forms of vWD are inherited through the autosomal recessive trait with the exception of type IIN and type III.[1]

There is a higher frequency of symptomatic vWD in women because of the haemostatic challenges of menses, pregnancy and delivery.[3] The initial tests to determine vWD is by factor VIII, VWF Antigen, vWF and Ristocetin co-factor activity in blood. To determine the type of vWD the tests required are Ristocetin induced platelet agglutination; plasma vWF multimer analysis.[3]Surgery on patients with vWD is associated with increased haemorrhage.[3]

We present a case of myomectomy on a patient with vWD in a low resource setting.

CASE REPORT

The index patient was a $P0^{+2}$ who presented with symptomatic uterine fibroid (menorrhagia) with repeated blood transfusions for 6years. The patient, however, had history of bleeding tendencies since childhood ranging from mucosal bleeds, gum bleeding, nasal bleed and persistence of bleeding from injuries more than expected. She attained menarche at the age of 13years, and menstruates for 5days in a regular cycle of 30days. The menstrual bleeding was usually heavy and associated with blood clots. She married at the age of 20years.

She had two first trimester miscarriages at 8 and 6weeks, respectively, when she was 30years old. She started experiencing irregular menses and menorrhagia 6years prior to presentation and was regularly diagnosed as anaemic on several occasions, which warranted repeated blood transfusions and referral to a haematologist for evaluation. She had no history of surgery and drug allergy. She is the first child out of six siblings. There was no family history of similar problem.

On examination she was moderately pale, anicteric with no generalized lymphadenopathy. The chest was clear clinically and pulse rate and blood pressure were normal. The abdomen showed a 22-week size mass that was firm in consistency and freely mobile. There was no palpable organomegaly, and pelvic examination revealed a 22-week sized uterine mass. No adnexal mass lesions were palpable.

Investigation results reveals a white blood cell count 9.1 x 10g/L, haematocrit 8.8 g/dL, platelet count was 204 x 10g/L, electrolyte, urea and creatinine and liver function tests

were all normal. Bleeding time was prolonged >15sec, prothrombin time was 15sec, partial thromboplastin time activated with kaolin was 43sec. Factor VIII concentration was 0.46IU/ml, von Williebrand's factor antigen was 0.10IU/ml. molecular biologic diagnostics thus confirmed von Williebrand's disease. Ultrasound scan revealed multiple intramural fibroids, which evolved into the additional diagnosis of uterine fibroids.

She was planned for myomectomy to uphold her wish but agreed to hysterectomy where necessary. In view of the fact that we had limitations in our centre for lack of the necessary concentrates for the optimal management of vWD like recombinant factors VIII/vWF concentrates, cryoprecipitate and platelet concentrates, the patient was transfused with fresh whole blood pre, intra and post operatively. She received tranexamic acid injection 2hrs before surgery and 500mg twice daily after surgery for five days. During myomectomy measures employed to minimize blood loss included the use of tourniquet, minimal incisions and closure of myoma beds before further enucleation.

Intraoperative findings were: bulky uterus with multiple intramural myoma nodules. Six myoma nodules were removed mostly anteriorly with one solitary fundal myoma nodule. The largest of them measures 10x9x5cm. The tubes and ovaries were grossly normal. Estimated blood loss was 500mls.

Figure 1. Uterus after enucleating the myoma nodules

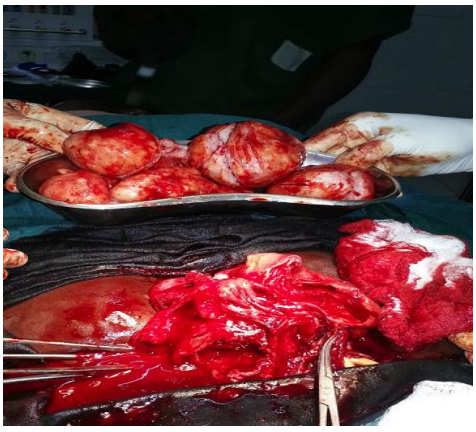
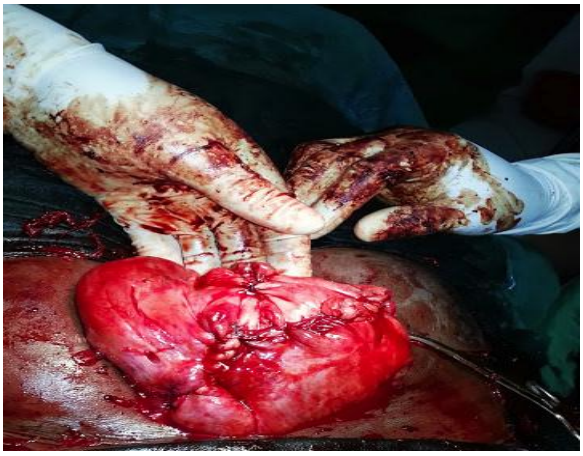


Figure 2. The uterus after repair



Her condition was stable in the immediate post-operative period and afterwards. She was commenced on postoperative antibiotics and analgesics. Her postoperative PCV was 33%. The patient was discharged home 8th post-operative day.

DISCUSSION

Management of patients with vWD presents a unique challenge to the management team, and even worse the in low resource settings. Understanding the underlying pathophysiology of vWD, its subtypes, and diagnostic tests are important. Collaboration with a hematologist is crucial. The course of treatment would depend on the type of vWD defect and the extent of surgery. To maintain primary haemostasis, the presence of functional vWF and platelets are necessary, whereas, in secondary haemostasis FVIII is required to participate in the intrinsic clotting pathway.

The goals of treatment in vWD are to correct the dual defects of haemostasis, namely, the abnormal platelet adhesion and abnormal coagulation due to decreased FVIII. First-line therapy that can potentially correct both of these deficiencies is synthetic peptide 1-deamino- 8-D-arginine vasopressin, also known as desmopressin.[4,5] It induces the release of vWF from endothelial cells by binding to vasopressin-2 receptors and activating adenylate cyclase and cyclic adenosine monophosphate-mediated signaling, thus, leading to exocytosis of vWF

from Weibel-Palade bodies. Mechanisms responsible for desmopressin mediated cellular release of FVIII are still poorly understood.[4,5]However, desmopressin and other concentrates like cryoprecipitate, recombinant factor VIII/vWF or platelet concentrates are not available in our centre and thus the team had to operate on this patient using fresh whole blood. Perhaps, we were successful probably because ours was a mild form of vWD.

The treatment for menorrhagia due to uterine fibroids in patients with vWD is hysterectomy due to increased risk of haemorrhage.[6] Menorrhagia other than due to fibroids is usually treated by endometrial ablation. Patients with vWD are prone to increased haemorrhage during and after surgery.[6]

CONCLUSION

We have reported a case of surgical intervention on a patient with vWD in an environment where there are no replacement concentrates other than fresh whole blood.

REFERENCES

1. De Meyer SF, Deckmyn H, Vanhoorelbeke K. von Willebrand factor to the rescue. *Blood* 2009; 113:5049-5057.
2. Lee JW. von Willebrand disease, hemophilia A and B, and other factor deficiencies. *Int Anesthesiol Clin* 2004; 42:59-76.
3. National Heart, Lung, and Blood Institute. The diagnosis, evaluation, and management of von Willebrand disease. Bethesda, Md.: National Institutes of Health; December 2007. NIH publication no. 08-5832. http://www.nhlbi.nih. gov/guidelines/vwd. Accessed June 22, 2014.
4. Michiels JJ, van Vliet HH, Berneman Z, Schroyens W, Gadisseur A. Managing patients with von Willebrand disease type 1, 2 and 3 with desmopressin and von Willebrand factor-factor VIII concentrate in surgical settings. *Acta Haematol* 2009; 121:167-176.
5. Castaman G, Montgomery RR, Meschengieser SS, Haberichter SL, Woods AI, Lazzari MA. von Willebrand's disease diagnosis and laboratory issues. *Haemophilia* 2010; 16 (suppl.5):67-73.
6. Woods AI, Blanco AN, Chuit R, *et al.* Major haemorrhage related to surgery in patients with type I and possible type I von Willebrand disease. *Thromb Haemost* 2008; 100:797-802.