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Case Report

Acquired Von Willebrand Disease Due to Subclinical Hypothyroidism: A Case Report

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ABSTRACT

Background: Acquired von Willebrand Disease (VWD) is a rare bleeding disorder characterized by severe bleeding tendencies without prior personal or family history. It is often secondary to conditions such as lymphoproliferative or cardiovascular disorders and hypothyroidism, which reduce von Willebrand Factor (VWF) levels or function. Although acquired VWD has been associated with clinical hypothyroidism, reports of cases showing atypical features like neurological deficits due to subclinical hypothyroidism are rare.

Case Presentation: A case of a 34-year-old man with bilateral lower limb weakness occurring suddenly after a history of mild trauma was reported at Lahore General Hospital. On clinical examination decreased muscular tone and strength with hyporeflexia was noted and image study revealed spinal extradural hematoma. Clotting investigations demonstrated a prolonged activated partial thromboplastin time (APTT) at presentation, and this was corrected on mixing. Further investigations showed low von Willebrand Factor (VWF) level (3.5%) confirming acquired VWD. Thyroid function tests showed subclinical hypothyroidism (elevated TSH level with normal T3 and T4 levels). The patient was treated with Humate-P and Tranexamic Acid replacement therapy and later with thyroid hormone replacement. Euthyrestoration led to the normalization of coagulability parameters and clinical improvement.

Conclusion: This case demonstrates an unusual and previously undocumented association of subclinical hypothyroidism and acquired VWD, presenting atypically with spinal hematoma and neurologic symptoms. This underscores the importance of a thorough diagnostic workup for the treatment of bleeding disorders which could even be seen with few underlying endocrine disorders.

Keywords: Acquired Von willebrand disease, Bleeding disorder, Hematoma, Spinal extradural, Subclinical hypothyroidism, Von willebrand factor

INTRODUCTION

Acquired von Willebrand disease (AVWD) is a rare but important bleeding disorder seen in people with no previous personal or family history of bleeding disorders. This manifests as a higher tendency to bleed that may become serious. Before we look at the AVWD types and therapeutic approaches, it is necessary to mention that the cause of AVWD is often due to decreased levels or activity of VWF, a multimeric glycoprotein essential for hemostasis[1].

Later in life involves not a congenital defect goes on after the fact in view of different diseases. Various disorders have been associated with it, especially lymphoproliferative disorders (non-Hodgkin's lymphoma), myeloproliferative disorders (essential thrombocythemia), and some cardiovascular diseases (aortic stenosis)[2]. The extraction, inhibition (or both) or destruction of VWF is frequently the pathophysiology and is responsible for interfered and therefore normal clotting mechanisms.

In addition, a significant association exists between clinical hypothyroidism and AVWD. In most cases of AVWD, VWF levels are markedly abated, which is a major contributor to the bleeding diathesis present in hypothyroid patients with AVWD[3]. The decrease in levels of VWF is thought to be due to the decreased overall protein synthesis characteristic of hypothyroidism or via altered factor clearance.

Furthermore, both research and clinical experience show that normalisation of coagulation parameters in hypothyroid patients with AVWD can be achieved when a euthyroid state (normalisation of thyroid hormone levels) is accomplished. This enhancement highlights the necessity for handling thyroid dysfunction in AVWD individuals to minimize the risk of bleeding and bring balance to hemostasis.

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CASE REPORT

A 34-year man with no history of diabetes, hypertension or bleeding diathesis presented to the Lahore General Hospital with sudden weakness of both lower limbs, unable to bear weight on both legs. He gave history of fall from stairs 2 months ago and slight bruising on his back was noticed. There were no associated neurological symptoms and personal or family history of bleeding tendency. On clinical examination, tone and power were reduced in both lower limbs with hyporeflexia while systematic examination was unremarkable.

His coagulation profile showed PT 11 seconds (control 11 seconds) and APTT 42 seconds (control 26 seconds). After mixing studies, APTT was corrected from 42 seconds to 31 seconds. Samples were taken and sent for Factor VIII, IX, XI and von Willebrand Factor. MRI lumbosacral spine was performed which revealed presence of extramedullary extradural hematoma measuring 5.7cm in long axis, opposite to L1 till L3 vertebral levels. Laminectomy was performed by Neurosurgery Department under cover of FFPs to avoid irreversible nerve damage.

Postoperatively, oozing of blood started from surgical site on 3rd postoperative day. Clotting factor studies were as follows: Factor VIII 45.2% (N: 50%-150%), Factor IX 80% (N: 50%-150%), Factor XI 75% (N: 65%-130%), Von Willebrand Factor 3.5% (N: 50%-200%).

Based on clinical presentation and investigations, diagnosis of Acquired VWD was made. Patient was managed with Humate-P (Loading dose 2000IU B.D followed by maintenance dose of 1500IU B.D for 5 days) and Tranexamic Acid. Oozing of blood stopped 2 days after initiation of Humate-P.

Further workup for cause of AWD revealed normal echocardiography, autoimmune profile and serum protein electrophoresis, though thyroid function tests revealed hypothyroidism (T3: 0.5ng/mL, T4: 1.33ug/dL and TSH: 10.08 IU/mL). He was diagnosed as a case of Acquired VWD secondary to hypothyroidism.

He was prescribed levothyroxine 75ug/day and after 8 weeks coagulation parameters including von Willebrand Factor levels returned to normal after patient became euthyroid.

DISCUSSION

Acquired VWD is a rare disorder, with reported incidence of 0.04% and approximately 8% cases of acquired VWD are attributed to hypothyroidism[3]. The laboratory findings of acquired VWD are similar to inherited VWD and it is distinguished from inherited VWD on basis of lack of previous bleeding history or family history, disease onset at older age and association with different conditions. Clinical hypothyroidism is associated with reduced formation of VWF and its reduced release in circulation, resulting in manifestations of acquired VWD[3].

Ghariani et al, presented case reports of five patients diagnosed with acquired VWD. Lymphoproliferative, autoimmune and cardiovascular diseases were the most prevalent conditions identified in these patients. Four patients were treated for underlying conditions and improvement in von Willebrand Factor levels was observed in all cases[4].

Cakir et al, presented case report of a patient, who developed profuse bleeding after dental extraction, due to bleeding diathesis caused by reduced levels of VWF as a result of profound untreated hypothyroidism. Normalization of coagulation parameters was achieved only after patient became euthyroid[5].

Baioumi et al, also presented a case of girl, who presented with complaints of profuse bleeding after dental extraction and menorrhagia. Thyroid function tests revealed hypothyroidism and there was deficiency in von Willebrand Factor levels. She was diagnosed as a case of Acquired VWD and managed with levothyroixine therapy which led to normalization of coagulation parameters[6].

Similarly, Alabbood et al, also presented the case of a patient who developed severe intraoperative bleeding during elective rhinoplasty. She had history of thyroidectomy 2 years and discontinued thyroxine replacement 18 months ago. Her thyroid function tests revealed hypothyroidism and diagnosis of acquired VWD was made after further workup. She was put on thyroid replacement therapy which led to normalization of coagulation parameters after 6 weeks[7].

Although, cases have been reported in literature regarding association of hypothyroidism with acquired VWD, to the best of our knowledge, this is the first presentation of hypothyroidism associated-acquired VWD presenting with neurological symptoms and extradural hematoma. This case report will add to the current knowledge of atypical presentations of acquired VWD and will offer insights in diagnosis and management of these patients.

CONCLUSION

This case demonstrates an unusual and previously undocumented association of subclinical hypothyroidism and acquired VWD, presenting atypically with spinal hematoma and neurologic symptoms. It emphasizes the need for extensive diagnostic workups to be performed in patients experiencing atypical bleeding presentations and also where there is no past history of bleeding. As in the case of thyroid hormone replacement therapy, treatment of the underlying endocrine disorder is essential to restore von Willebrand Factor levels to normal and relieve symptoms. Such unusual and complex presentations are repetitive reminders of the need for coordinated interdisciplinary care to enhance the desired outcomes in these situations.

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