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**CASE REPORT**

# Hemophilia A—Acquired During Coronary Artery Bypass Grafting

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**ABSTRACT**

We report a challenging case of a rare cause of post operative bleeding that occurred after the coronary artery by-pass graft procedure. We believe that acquired hemophilia A was the main culprit. Patient post CABG developed nonsurgical bleeding with new isolated PTT prolongation. Bleeding was resistant to conventional therapy. Mixing studies didn't correct PTT, thus we ruled out factor deficiencies. Heparin effect was excluded by normal factor X levels. Patient received factor VIII inhibitor bypass therapy after which corrected PTT and stopped bleeding. The triad of acquired coagulopathy, noncorrectable PTT, and exclusion of heparin effect, make acquired hemophilia A the most likely diagnosis.

**KEY WORDS**

Hemophilia A, CABG, factor VIII inhibitor, PTT, heparin.

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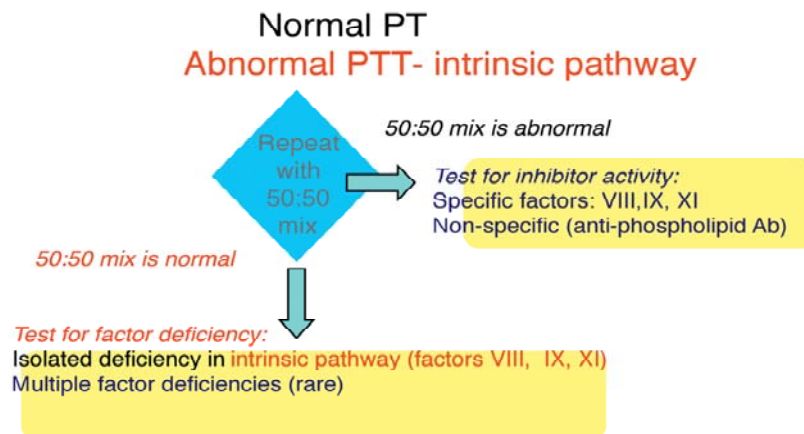
A 68-year-old, man with medical history of diabetes and chronic hypertension presented for coronary artery bypass grafting surgery. Patient had normal coagulation profile prior to surgery. Initiation and weaning from cardiopulmonary bypass (CPB) were uneventful with total CPB time of 197 minutes. In the Intensive care unit (ICU) patient was treated for retractable hypovolemia and increased chest tube output. Patient was stabilized over night with the use of blood products. Subsequently he underwent surgical exploration for continuous bleeding and coagulopathy. It was noted that bleeding was from the soft tissues and not surgically correctable. Coagulation profile was characterized by significantly elevated PTT despite administration of

multiple blood products, including 17 units of FFP, 5 units of cryoprecipitate, 15 units of platelets, 12 units of PRBCs and 750 ml cell saver return. In addition, patient received aminocaproic acid, DDAVP, Factor VII a, vitamin K and hydrocortisone. The patient returned to ICU with bleeding rate of 1750ml/h and persistently elevated PTT>240 with all other coagulation parameters essentially normal. Unremarkable values of fibrinogen, heparin, PT, INR and platelets were noted. Mixing studies showed correction of PT with time but PTT remained elevated. These results could be heparin effect (The factor Xa was normal and ruled out heparin effect.) vs. true inhibitor (Figure 1). Hematology service considered that this could be acquired hemophilia

**Table 1. Medications associated with acquired Hemophilia A.** Frequently, drug-induced anti-FVIII arises after hypersensitivity reactions and remits shortly after withdrawing the offending drug. The pathophysiology of this phenomenon remains unknown. However, the strong immune properties of both interferon (IFN) alpha and fludarabine may explain the appearance of autoantibodies against FVIII and other immune phenomena reported with their use.<sup>1</sup>

Antibiotics	Anticonvulsants	Miscellaneous
Penicillin	Phenytoin	Clopidogrel
Sulfonamides		Methyldopa
Chloramphenicol		Interferon alpha
		Fludarabine

## Initial Evaluation- Bleeding Patient



**Figure 1.** Elevated PTT – initial work-up

A with factor VIII inhibitor antibody. In the last effort they recommended giving FEIBA (factor VIII inhibitor bypassing agent) to counteract a possible inhibitor antibody to FVIII. The next morning there was noted marked clinical improvement. Chest tube output subsided, cardiac parameters improved and patient was weaned from hemodynamic support. He was discharged to rehab facility with no neurological sequel.

### Discussion

Acquired hemophilia A is a rare bleeding diathesis caused by antibodies directed against clotting factor VIII (FVIII). It involves mostly soft tissues. Precipitating factors/conditions associated with acquired hemophilia A are advanced age, autoimmune conditions, malignancies, diabetes, certain viral infections, or postpartum. It may be associated with the use of certain medications (Table 1). We present a case where this immune deregulation developed during open-heart surgery.

Acquired inhibitors against factor VIII, also termed acquired hemophilia A, occur in non-hemophilic population with an incidence of 1-4 per mil/year. Mortality rate, as severe bleeding occur in up to 90% of cases, range from 8-22%.<sup>2</sup> The treatment priority is to arrest the acute bleeding and to eradicate the factor VIII antibody.<sup>3</sup> Acute bleeding episodes in patients with high-titer inhibitors can be treated using human factor VIII bypassing agents, such as prothrombin complex concentrates or recombinant activated factor VII.

### References

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## Hemofilija A koja se pojavila u vreme koronarno-arterijskog premoštavanja

### APSTRAKT

Prikazali smo rijedak uzrok koji je doveo do postoperativnog krvarenja nakon premošćavanja koronarne arterije (CABG). Vjerujemo da je glavni uzrok tog krvarenja stečena hemofilija A. Nakon CABG procedure došlo je do krvarenja koje je praćeno prologiranim PTT (parcijalno tromboplastinsko vrijeme). Krvarenje je bilo otporno na konvencionalnu terapiju. Različitim ispitivanjima nije pokazano da PPT korigovano, stoga smo isključili njegovo pomanjkanje. Heparinski efekat je isključen jer je nivo faktora X bio u granicama normale. Pacijent je primio faktor VIII inhibitor kao terapiju kod bypassa što je normalizolo PTT i zaustavilo krvarenje. Trijada koja se sastoji od stečene koagulopatije, nekorektabilane PTT i izostanak efekta heparina, upućuje na to da je stečena hemofilija A najvjerovatnija dijagnoza.

### KLJUČNE REČI

Hemophilia A, premošćavanje koronarne arterije (CABG), infibitor faktora VIII, parcijalno tromboplastinsko vrijeme, heparin.