

CASE REPORT

Warfarin induced subdural hematoma in an elderly patient with aortic valve replacement: Case report

Jannat M¹, Dey SK², Mannan MA³

Abstract:

Metabolic Patient with mechanical heart valves requiring lifelong anticoagulant with warfarin. The elderly population is at an increased risk for major bleeding, possibly due to increased sensitivity to anticoagulation, multiple comorbidities, and polypharmacy. Elderly patients receiving antiplatelet along with anticoagulant therapy have an additional risk for bleeding. We report the case of a 69 years old patient with mechanical heart valve who developed subdural hematoma that was likely precipitated by concomitant use of both aspirin and warfarin.

Key words: Warfarin, subdural hematoma, aortic valve replacement

Introduction

Artificial non-organic prosthetic heart valves have now been implanted in a large number of patients. Although the operative mortality and morbidity have been dramatically reduced, embolic events remain a severe complication. Anticoagulant drug therapy can considerably reduce the frequency of emboli in patients receiving prosthetic heart valves but the therapy is often associated with hemorrhage. Intracranial hemorrhage causes only 0.4-1.8% of all bleeding complications of long-term anticoagulant therapy, but usually results in serious disability or death.^{1,2}

Intracranial hemorrhage is the most feared complication of treatment with vitamin K antagonists. The incidence of this hemorrhage is approximately 0.2% per year of treatment³. Despite the underlying risk of a thromboembolic event in patients requiring long-term prophylaxis, an intracranial hemorrhage necessitates temporary discontinuation of a vitamin K antagonist.

Mechanical heart valves are thrombogenic and require long-term anticoagulant therapy. The incidence of prosthetic valve thrombosis in patients not anticoagulated or taking antiplatelet drugs is 1.8% per patient-year. The incidence of embolism resulting in death, stroke, or peripheral ischemia requiring surgery is 4% per patient-year and this is reduced to 1.0% per-patient year with anticoagulant therapy.⁴ However, anticoagulation is associated with a high risk of

bleeding. In patients with mechanical valve on anticoagulation the incidence of hemorrhagic complications increase with international normalized ration (INR) > 4.8.⁵ The reported absolute risk of intracranial hemorrhage with anticoagulation is 0.3% to 1.0% per year and the associated mortality is about 60%.⁶ The reported risk of subdural hematoma (SDH) with anticoagulation is 4 to 15 fold.^{6,7} Recognition of anticoagulant-related SDHs is crucial because they are life threatening and amenable to therapy. However there are no clear guidelines on emergency treatment of anticoagulant-related SDH in patients with mechanical heart valve.

Case report

A 69 year old hypertensive patient admitted with sudden onset of moderate to severe headache, vomiting & hematuria. Few hours later he became drowsy & disoriented. His mentation was progressively deteriorating to such extent that he became unconscious. He underwent aortic valve replacement in 2011 along with CABG. Since then he was on regular Warfarin with dose adjustment according to INR. During the episode of illness he received warfarin 1.25 mg daily along with 75 mg aspirin. He had no history of head trauma or fall. He had one episode of gum bleeding 3 months prior to admission & INR was 3.2 otherwise his INR ranged between 1.8 to 2.5 without major bleeding or thrombosis.

1. Maftahul Jannat, Assistant Professor, Department of Neurology, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh
2. Subash Kanti Dey, Professor, Department of Neurology, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh
3. M.A. Mannan, Assistant Professor, Department of ICU, Dr. Sirajul Islam Medical College, Moghbazar, Dhaka, Bangladesh

Corresponding Author: Dr. Maftahul Jannat, Department of Neurology, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh

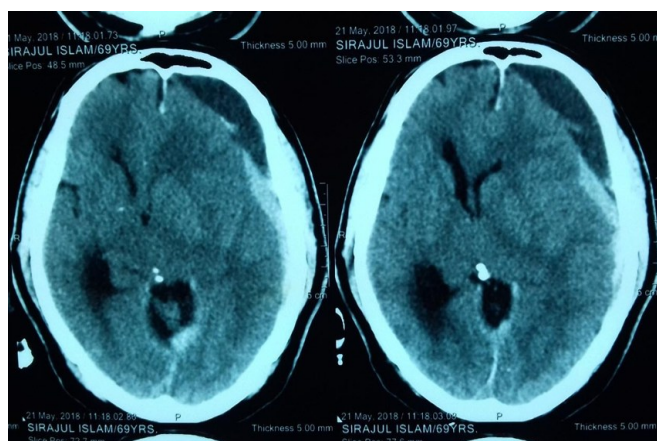


Figure 1: CT scan of head before operation showed large acute on chronic subdural hematoma with mass effect and midline shift

On examination his GCS was 6, pupil was reacting, fundoscopy revealed bilateral papilloedema, and planter response was extensor bilaterally. Vitals were still normal. CT scan showed large acute on chronic subdural hematoma with mass effect and obstructive hydrocephalus (Figure 1). Admission INR was 3.23. Patient was then immediately shifted to ICU and managed with Vitamin K injection with fresh frozen plasma, oradexon and mannitol. After initial resuscitation, evacuation of blood was done by burr hole operation. Patient regained consciousness in 1st POD. Two days later the patient was awake, alert and oriented with full sensorimotor function in all extremities. CT of the brain showed postsurgical changes and there was no midline shift (Figure 2). Following improvement warfarin restarted on 7th

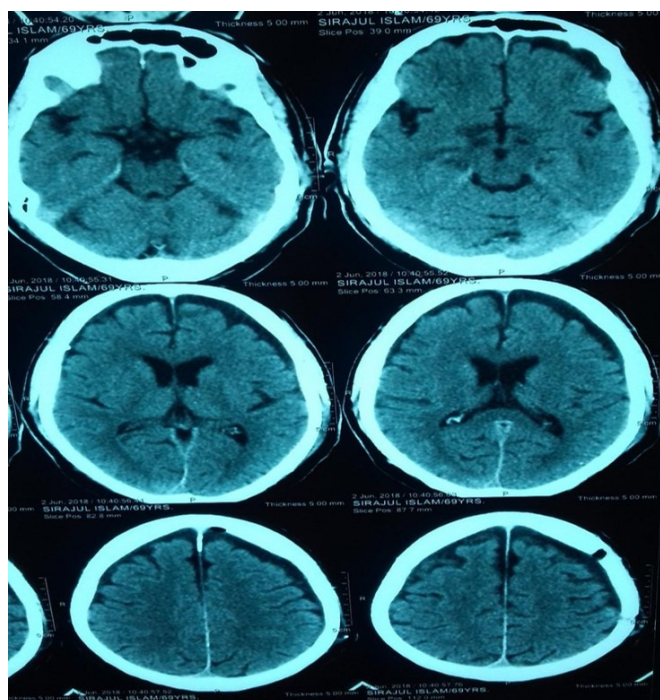


Figure 2: CT scan after evacuation of blood showed improvement of mass effect and midline shift

POD with 1.25 mg every alternate day. One day later he again developed hematuria & INR was 1.7 and platelet count was 70000. Then warfarin was stopped and patient thoroughly investigated for any bleeding disorder or renal disorder. After investigation he was diagnosed as asymptomatic chronic liver disease. Warfarin again started with low dose after 14 days. Patient was discharged following improvement with no new symptoms or hemorrhage.

Discussion

The exact incidence of anticoagulant-related SDH is uncertain. Before the advent of CT, of the anticoagulant-related intracranial hemorrhages, SDH was usually considered more common than intracranial hemorrhage.^{8,9} In recent studies ICHs constitute about 70%, while SDHs compose the bulk of the remainder.^{6, 8, 10-12} Approximately 20% are bilateral. SDH accounted for 50% of anticoagulant-related intracranial hemorrhages in patients with mechanical heart valves.¹² Intensity of anticoagulation and advanced age were the risk factors. The reported mortality of anticoagulant-related SDH in recent series is between 13% and 20%.^{8, 10}

The optimum timing of resumption of anticoagulation after warfarin-related intracranial hemorrhage in patients with indication for continued anticoagulation is uncertain. The optimal timing for resumption of warfarin therapy appears to be between 10 and 30 weeks after warfarin-related intracranial hemorrhage.¹³ Several of the authors and the American Stroke Association suggest restarting anticoagulation after a period of 7 to 14 days following intracranial hemorrhage.¹⁴ A recent systematic review of studies in patients with mechanical heart valves reached the same conclusion based on only 2 recurrent hemorrhages and 4 strokes.¹⁵ Seven experts expressed the opinion that warfarin could be restarted in stable patients 3 to 10 days after intracranial hemorrhage.¹⁶

Reintroduction of anticoagulation should be based on the balance between a patient's thromboembolic risk and their bleeding risk. When the risk is equal for both, use of intravenous unfractionated heparin may be considered.¹⁷

Conclusion

Concomitant use of anticoagulant and antiplatelet medication increased the risk of haemorrhage in our patient. The risk may further added by underlying liver disease. Management of these patient and reinstitution of anticoagulant is difficult. Our patient had good recovery following craniotomy but reinstitution of anticoagulant caused mild hematuria. Thus careful monitoring and judicious use of anticoagulant is highly recommended for patient with mechanical heart valve with anticoagulant induced subdural hematoma.

Acknowledgements

None

Conflicts of Interest

None

Reference

1. Askey JM: Hemorrhage during long-term anticoagulant drug therapy. Part 1. Intracranial hemorrhage. *Calif Med* 1966;104: 6-10.
2. Kase CS, Robinson RK, Stein RW, Mohr JP: Anticoagulant-related intracerebral hemorrhage. *Neurology* 1985; 35: 943-948.
3. Schulman S, Beyth RJ, Kearon C, Levine MN. Hemorrhagic complications of anticoagulant and thrombolytic treatment: American college of chest physicians evidence-based clinical practice guidelines (8th edition). *Chest*. 2008;133:257S–298S
4. Cannegieter SC, Rosendaal FR, Brier E. Thromboembolic and bleeding complications with mechanical heart valve prostheses. *Circulation* 1994;89: 635-41
5. Stein PD, Grandison D, Hua TA, et al. Therapeutic levels of oral anticoagulation with warfarin in patients with mechanical prosthetic heart valves: review of literature and recommendations based on international normalized ratio. *Postgrad Med J* 1994; 70 (Suppl 1): S72-S85
6. Hart RG, Boop BS, Anderson DC, Oral anticoagulants and intracranial hemorrhage. *Stroke* 1995; 26: 13717.
7. Wintzen AR, Tijssen JGP. Subdural hematoma and oral anticoagulant therapy. *Arch Neurol* 1982; 39: 69-72.
8. Mattle H, Kohler S, Huber P, Rohner M, Steinsiepe KF. Anticoagulation related intracranial extracerebral hemorrhage. *J Neurol Neurosurg Psychiatry* 1989; 52: 829-37
9. Synder M, Renaudin J. Intracranial hemorrhage associated with anticoagulation therapy. *Surg Neurol*, 1977; 7: 31-4.
10. Hylek EM, Singer DE. Risk factors for intracranial hemorrhage in outpatients taking warfarin. *Ann Intern Med* 1994; 120: 897-902.
11. Franke CL, De Jonge J, van Swieten JC, Op de Coul AAW, van Gijn J. Intracerebral hematomas during anticoagulant treatment. *Stroke* 1990; 21: 726-30.
12. Wijdicks EFM, Schievink WI, Brown RD, Mullany CJ. The dilemma of discontinuation of anticoagulation therapy for patients with intracranial hemorrhage and mechanical heart valves. *Neurosurgery* 1998; 42: 769-73.
13. Majeed A, Kim YK, Roberts RS, Holmstrom M, Schulman S. Optimal Timing of Resumption of Warfarin After Intracranial Hemorrhage, *Stroke*. 2010; 41:2860-2866.
14. Broderick J, Connolly S, Feldmann E, Hanley D, Kase C, Krieger D, Mayberg M, Morgenstern L, Ogilvy CS, Vespa P, Zuccarello M. Guidelines for the management of spontaneous intracerebral hemorrhage in adults: 2007 update: A guideline from the american heart association/ american stroke association stroke council, high blood pressure research council, and the quality of care and outcomes in research interdisciplinary working group. *Circ*. 2007;116:e391– e413
15. Romualdi E, Micieli E, Ageno W, Squizzato A. Oral anticoagulant therapy in patients with mechanical heart valve and intracranial haemorrhage. A systematic review. *Thromb Haemost*. 2009;101:290 –297.
16. Aguilar MI, Hart RG, Kase CS, Freeman WD, Hoeben BJ, Garcia RC, Ansell JE, Mayer SA, Norrving B, Rosand J, Steiner T, Wijdicks EF, Yamaguchi T, Yasaka M. Treatment of warfarin-associated intracerebral hemorrhage: Literature review and expert opinion. *Mayo Clin Proc*. 2007;82:82–92
17. Crawley F, Bevan D, Wren D. Management of intracranial bleeding associated with anticoagulation: balancing the risk of further bleeding against thromboembolism from prosthetic heart valves. *J Neurol Neurosurg Psychiatry* 2000; 69: 396-8.