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Spontaneous subdural hematoma due to warfarin with normal Prothrombin time

Rudrajit Paul[1], Avishek Das[2], Jayati Mondal[3]

1 Assistant Professor,
2 Junior Resident, Department of Medicine
3 Junior Resident, Department of Gynaecology
The West Bengal University Of Health Sciences, Medical College Kolkata,88, College Street, Kolkata-700073. West Bengal.

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***Corresponding author:**

Email : docr89@gmail.com
Tel : +91 9433824341

ABSTRACT

Spontaneous subdural hematoma (SDH) is a rare entity. It can occur in patients with coagulopathy, hypertension or dehydration. Warfarin use causes inhibition of extrinsic coagulation pathway and predisposes to SDH. We here present a case of spontaneous SDH in a patient taking warfarin with normal Prothrombin time. He presented with seizure and abnormal behaviour. There was no clotting abnormality on routine tests. The importance of brain imaging in evaluating neurological symptoms in warfarinised patients is highlighted. The features of spontaneous SDH have been discussed.

INTRODUCTION

Subdural hematoma commonly occurs after skull injuries, like sports injury. Spontaneous subdural hematoma is a rare clinical entity. Hypertension, alcoholism and intracranial infection are some of the causes of spontaneous subdural hematoma (SDH) [1]. It can also occur as a result of coagulopathy, like thrombocytopenia [2]. However, in many cases, the cause of SDH is unknown. This clinical entity may present with non-specific symptoms like headache or somnolence, and thus, diagnosis may be delayed. We here present a case of spontaneous subdural hematoma in a middle aged male with normal clotting parameters. The case highlights the value of early cerebral imaging in investigating neurological disorders, especially in a patient on susceptible drugs.

THE CASE

A thirty seven year old man was admitted after two episodes of generalized seizure. He had no history of convulsion earlier. On regaining consciousness, he started to behave bizzarely with his family members. He started to call them by different names and sometimes shouted out for no reason. He could sometimes give proper answers to anything said to him, but mostly his behaviour was inappropriate. Also, he complained of dizziness. There was no history of any addiction. He did not have any head trauma in the past. There were no spontaneous bleeding manifestations.

Only history of note was one past episode of atrial fibrillation three years back. Then, he had been prescribed warfarin orally at the dose of 5 mg/day. After that, he did not visit any doctor or did not perform the regular INR assays; but he continued taking the drug on his own. At the time of admission, he was still taking warfarin 5 mg/day, although he had no irregular pulse and the electrocardiogram showed sinus rhythm. He was on no other drugs. His blood pressure was slightly high at 148/98 mm of Hg. Respiratory rate was 18/minute. Ophthalmologic examination revealed bilateral papilledema. There was no focal neurodeficit, as far as the examination could be done.

Laboratory examinations revealed blood hemoglobin 11 gm/dl with normal total leukocyte and platelet counts. Kidney and liver function tests were normal. Serum electrolytes were also normal. A Prothrombin time assay came as 12 seconds with INR of 1.03. Activated partial thromboplastin time was normal. Bleeding and clotting times were also normal. Computed tomography scan of head showed (Fig. 1) a large subdural hematoma in left parietal region with significant (3 mm) midline shift. The hematoma showed signs of chronicity with heterogeneous signal changes. Approximate volume of blood was radiologically estimated to be 60 ml. There were no brain contusions. CT angiography did not show any vascular malformations.

The patient was immediately referred to the neurosurgery

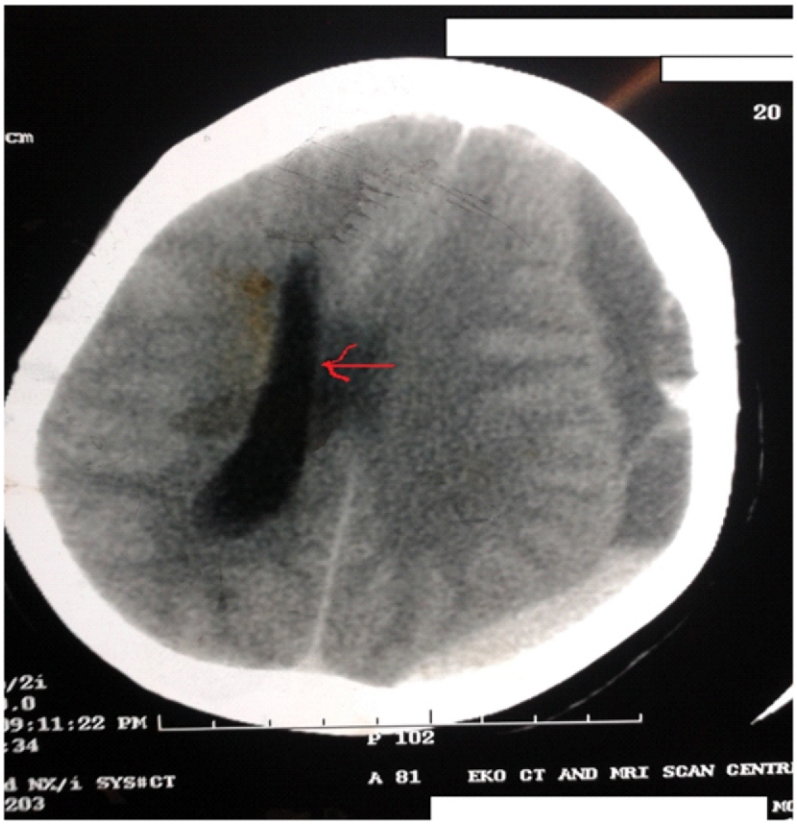

Figure 1: Computed Tomographic scan of brain showing the left sided SDH with midline shift (arrow)

department for evacuation. However, the relatives refused neurosurgical intervention and they discharged the patient on risk bond.

DISCUSSION

SDH occurs due to rupture of subdural portion of cortical bridging veins. These veins are more fragile, compared to subarachnoid portions and any trauma/ sudden movement of brain tissue against dural membranes can cause rupture of the veins [2]. In absence of these mechanical factors, sudden increase in venous pressures can also cause SDH [3]. This increased cerebral venous pressure can occur following weight lifting, prolonged singing, dehydration or cocaine use [2]. Our patient did not have any of these risk factors. Regular use of drugs like anti-cyclooxygenase or oral anti-coagulants can cause spontaneous SDH. However, in these cases, blood tests usually show abnormalities like increased Prothrombin time or thrombocytopenia [4]. In our case, the patient's blood tests were normal.

To diagnose a case of SDH as spontaneous, preceding head injury should be absent, there should be no vascular malformations, and imaging should not show any brain contusions. This is mostly venous, but a study from Japan has shown some cases of SDH with cortical arterial bleeding [5]. Use of anti-platelet agents predisposes to arterial SDH [5].

Warfarin is a drug commonly used in a variety of disorders like venous thrombosis. Use of warfarin may be associated with a variety of intracranial haemorrhages, but usually, the Prothrombin time is prolonged [6]. Rapid reversal of the coagulopathy with fresh frozen plasma is needed. Not only intracranial, but intraspinal hematoma is also reported with warfarin [7]. This may present with sudden onset paraplegia. Warfarin induced spontaneous haemorrhage is increased in presence of hypertension, old age and prior stroke [8]. However, in our patient, the Prothrombin time was normal and none of these risk factors were present except hypertension.

A normal range Prothrombin time can also be associated with haemorrhage in patients taking oral anticoagulants [9]. Even, regular monitoring of INR may not predict the risk of haemorrhage. Thus, any neurological symptom in these patients should be investigated and there should be a low threshold for neuroimaging. Urgent surgical intervention is needed and the reversal of coagulopathy depends on the level of Prothrombin time prolongation. Newer and more sensitive coagulation assays, like measurement of the factor levels, may be helpful in predicting the risk of haemorrhage in patients taking warfarin, when the Prothrombin time is normal. Also, risk factors like recurrent falls and hypertension should be identified and managed early.

Oral anticoagulants are used by a significant fraction of the present day population. These patients need regular follow up for early identification of haemorrhagic complications. SDH and other intracranial bleeding manifestations can occur despite a normal range Prothrombin time. Early imaging will help establish the diagnosis and prompt surgical intervention is needed.

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