# Dorsal Spinal Chronic Subdural Hematoma Complicating Warfarin/Asprin Anticoagulation Therapy: A Case Report Study.

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## Abstract

**Background Data:** Spinal chronic subdural hematoma is an extremely rare condition nevertheless it can results in a disastrous neurological status.

**Purpose:** To report a case of dorsal chronic subdural hematoma with acute paraplegia.

**Study Design:** Case report.

**Methods:** Our 61-year-old female patient presented with a one day history of sudden onset of motor weakness in both lower limbs. The patient had previous cerebrovascular ischemic attack two year earlier and combined aspirin (150 mg per day) and warfarin (10 mg per day) therapy was prescribed as secondary prophylaxis since that time. Dorsal spine MRI was done and it revealed an extensive dorsal spinal chronic subdural hematoma. Bleeding tendency was corrected over 24 hours and then a dorsal laminectomy was performed from D3 level down to D7 with evacuation of the hematoma about 60 hours after the onset of symptoms.

**Results:** The patient showed no significant post operative clinical improvement mostly due to delayed presentation and a concomitant intramedullary bleeding.

**Conclusion:** Delayed management and concomitant intramedullary pathology affect deleteriously the outcome of chronic spinal subdural hematoma.
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**Key words: spinal chronic subdural hematoma, dorsal spine, warfarin.**

## Introduction

Intracranial chronic subdural hematoma is a well-recognized complication of anticoagulant therapy. On the other hand, chronic spinal subdural hematomas (CSSDH) are extremely rare; these hematomas are frequently spontaneous and related to minor trauma.[2] Moreover, spinal subdural hematoma can be caused by abnormalities of coagulation, blood dyscrasias, lumbar puncture or trauma, underlying neoplasm, and arteriovenous malformation. In the absence of these underlying conditions, the occurrence of spinal subdural hematoma is extremely rare.[1]

Under normal conditions there is no evidence of a naturally occurring space being extant at the dura-arachnoid junction. A space may appear at this point subsequent to pathological/traumatic processes that result in tissue damage with a cleaving along the structurally weakest plane in the meninges through the dural border cell layer. Furthermore, when a space does appear, it is not "subdural" in location but rather within a morphologically distinct cell layer. So according to works of these authors, the so-called spinal subdural hematoma could be viewed as a spinal dural border hematoma.[5]

In some patients, compression of the spinal cord by spinal subdural hematoma has led to acute paraplegia. Spontaneous spinal subdural hematomas occur most often in the thoracic spine and are manifested by sudden back pain that radiates to the upper or lower extremities or to the trunk and variable degrees of motor, sensory, and autonomic disturbances.[3]

**Case report:**

A 61-year-old female patient was admitted to the neurology department with sudden onset paraplegia of one day duration. The patient had anti-hypertensive and anti-coagulant medication and she has a history of a previous cerebrovascular ischemic attack two years earlier and combined aspirin (150 mg per day) and warfarin (10 mg per day) therapy was prescribed. However the patient did not follow a regular follow up for her coagulation profile. Neurological examination revealed motor weakness in both lower limbs with loss of all motor and sensory functions below the level of the third dorsal spinal level. In addition, all reflexes were lost below the aforementioned level. Sphincter functions were also completely lost with complete urine and stools incontinence. Her mental status and cognitive functions were normal. The cranial nerve examination disclosed no abnormalities.

As the patients seek neurological advice 24 hours after his symptoms' onset so a dorsal MRI was ordered and patient was transferred to Neurosurgery service 12 hours later. The MRI showed an ill-defined posteriorly compressing lesion at the dorsal portion of spinal cord extending from D2 down to D7 level longitudinally and more to the right side. The lesion was hyperintense on T2-weighted image (figure 1) and isointense on T1-weighted image (figure 2), suggesting chronic stage of hemorrhage. The lesion was located at both the extramedullary and intramedullary compartments. Additionally, a hemangioma was noticed in the body of D5 vertebra but with no intraspinal extension and with normal bone integrity and alignment. All the laboratory studies including complete blood counts, renal functions, liver functions and coagulation profile were done and the only abnormality found was a markedly prolonged prothrombin time (PT over one minute) and an INR of 5.9.

***Figure 1:*** T2-weighted image.

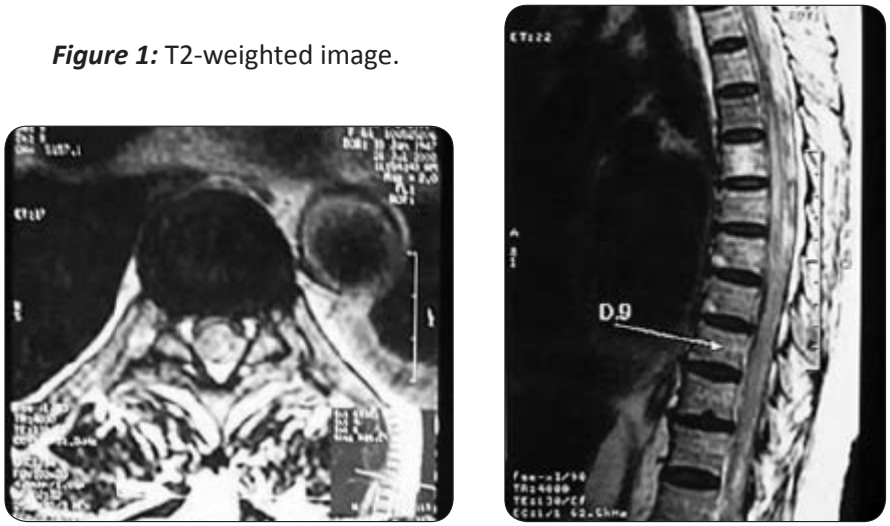
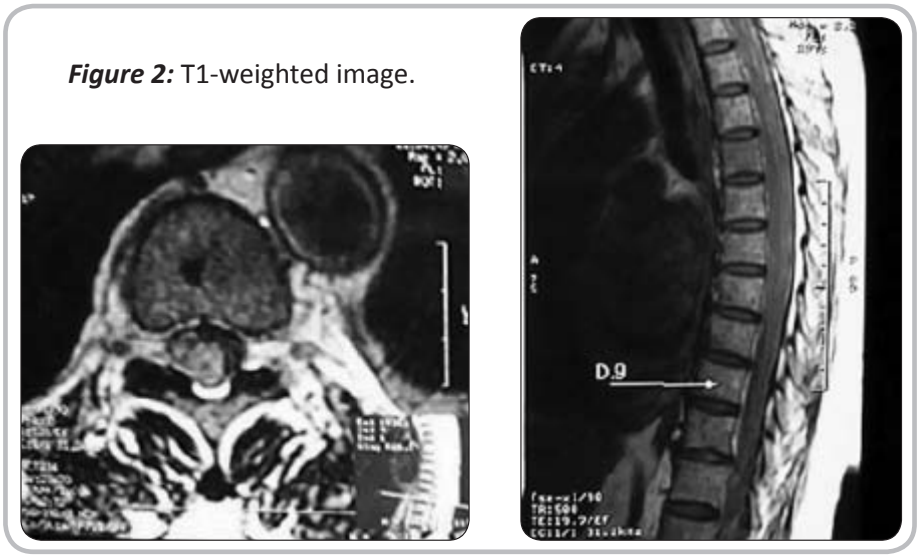



***Figure 2:*** T1-weighted image.



The coagulation defect was reversed by administration of fresh frozen plasma and indeed cessation of the warfarin therapy. After 24 hours the INR was 1.2 and the patient was transferred to the operating room at once.

Dorsal laminectomy was performed from D3 level down to D7. No epidural blood collection was found however, bluish coloration of the dura could be obvious. On opening of the dura matter, a gush of altered blood came out under tension. The appearance of this gushing fluid was identical to that seen during evacuation of cranial chronic subdural hematomas. Irrigation with ringer solution was done until the wash became clear and the underlying arachnoid and clear cerebrospinal fluid was evident. The dura matter was closed and an epidural non suction drain was left.

Unfortunately, the patient showed no significant post operative improvement and was transferred to a rehabilitation centre where she was followed for more than 12 months with no improvement of her neurological status.

## Discussion

Spinal chronic subdural hematoma is an extremely rare condition and most publications were case reports with less than 25 cases reported so far. Usually they were either spontaneous or after minor trauma.[4] In our patient there was no clear history of trauma. However, the bleeding tendency she had can explain the occurrence of such hematoma.

The combined use of warfarin plus aspirin for secondary stroke prevention occurs primarily in patients with atrial fibrillation who have concomitant coronary artery disease. This drug combination is also used in patients with mechanical heart valves or occasionally in stroke/ TIA patients who are deemed to be at high-risk for recurrent events.6 There is mounting evidence of an increased risk for major bleeding side effects with the combination, albeit not from a prospective randomized clinical trial.[6] However, patients on warfarin had a significantly higher rate of hemorrhagic complications, which partly offset the overall benefit of warfarin.[2] In our patient, there was no clear indication for anticoagulation using warfarin. Moreover, the lack of regular follow up of the coagulation profile of the patient ended in her unfavorable condition.

Rapidly evacuated hematomas carry a good prognosis.[7] The lack of significant clinical improvement in our patient can be attributed to two factors. First was the intramedullary component of the bleeding and second due to the time lag between the onset of symptoms and the surgical decompression offered to the patient. The lag was in part due to a delay from the patient to seek medical advice and, partly, due to the inevitable time window necessary to correct the bleeding tendency. However, all cases of clinically and radiologically evident spinal cord compression secondary to extramedullary bleeding should be decompressed surgically as an emergency once possible.

## Conclusion

Although being a rare complication of anticoagulant therapy, spinal chronic subdural hematomas should be suspected in patient receiving anticoagulant medications presenting with sudden onset neurological deficit that may be related to spinal cord dysfunction and its diagnosis should be followed by surgical evacuation as soon as possible. Moreover, anticoagulant therapy should be restricted to patients where the indication for use clearly overweighs the potentially disastrous risk of the complications of the utilized medications.

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## Comment

There is paucity of data to estimate the incidence of spinal hematoma, perhaps due to the rarity of this disorder, which makes this case report a precious addition towards further understanding of the underlying etiology and suggested protocol for monitoring patients on anticoagulant medications. Anticoagulant therapy alone probably does not trigger spinal hemorrhage. It is likely that there is small abnormal locus together with increased pressure in the internal vertebral venous plexus in order to cause spinal hemorrhage. These two factors are thought to be the predisposing factors causing spinal hematoma in patients on anticoagulants. The patients on anticoagulants are usually on drugs for other concurrent or primary illness. Importance of drug interaction with warfarin should always be emphasized. Certain drugs potentiate bleeding risk with warfarin e.g. NSAIDS, antibiotics, alcohol, allopurinol, anabolic steroids, amiodarone, selective serotonin reuptake inhibitors, clofibrate, and to a lesser extent gemfibrozil, antidiabetics, antimalarials, antiplatelets, anxiolytics, disulfiram, levothyroxine, and beta blockers. Awareness of common drug interactions with warfarin, avoiding polypill and proxy prescriptions and the importance of taking a good drug history cannot be overemphasized. Though the management protocol has been universally approved, a detailed drugs history would have been valuable for understanding the exact underlying etiology. The timing of the surgery and the anatomic location of the hematoma determine a patient's functional outcome. Spontaneous remission of an intraspinal hematoma has been reported rarely. The degree of preoperative neurological deficit and the spinal level of the subdural hematoma correlate significantly with early and long-term functional outcome despite prompt evacuation.

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## الملخص العربي

**يعتبر النزيف المزمن تحت الأم الجافية بالعمود الفقاري حالة مرضية نادرة الحدوث. هذه الورقة البحثية هي عرض لحالة مريضة عمرها ١٦ عاما أصيبت بفقدان مفاجئ للقدرة على حركة الأطراف السفلية لمدة يوم واحد. المريضة كانت تعالج بالأسبرين والوارفارين حيث أنها كانت قد أصيبت سابقا بقصور بالدورة الدموية المخية. تم عمل أشعة بالرنين المغناطيسي على الفقرات الظهرية أوضحت وجود نزيف مزمن تحت الأم الجافية ممتد لعدة فقرات ظهرية. تبع ذلك مباشرة تصحيح نسبة سيولة الدم دوائيا على مدار ٤٢ ساعة ثم أجريت جراحة لقطع الصفائح العظمية للفقرات الظهرية من الثالثة حتى السابعة ثم تفريغ النزيف. بعد الجراحة لم تتحسن حالة المريضة نتيجة لعدة أسباب منها تأخر التدخل الجراحي لأسباب خارجة عن الإرادة ووجود نزيف متزامن داخل نسيج الحبل الشوكي.**