

Conservative Approach of Spontaneous Spinal Epidural Haematomas in the Era of Anticoagulant Treatments

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BACKGROUNDS AND AIMS

Anticoagulation and antiplatelet therapy is a widespread management option in various indications, especially in elderly patients who are at greater risk of complications related to any treatment. One of the important and rare complications of anticoagulation and antiplatelet therapy is spontaneous spinal epidural haematoma (SSEH).^{1,2} Surgery remains the gold standard treatment, especially in cases of progressive neurological deficit.³ In this study, a group of 14 patients with SSEH is presented. Additionally, the clinical symptoms of SSEH, diagnostic procedures, conservative and surgical treatments, and different risk factors are discussed.

METHODS

Between 2010 and 2019, 14 patients (age range: 17–89 years; 10 females) were hospitalised with SSEH in two large hospitals in the Czech Republic. **Table 1** presents their demographic and clinical data, including MRI showing haematoma localisation, treatment efficacy, and risk factors with a focus on anticoagulant use. In addition to a detailed clinical neurological examination, the severity of spinal cord disability was assessed using the American Spinal Injury Association (ASIA) Impairment Scale (AIS) classification.

RESULTS

Eight patients received oral anticoagulant therapy (six warfarin, one dabigatran, one apixaban). There was an increase of international normalised ratio values above 3.0 in three patients using warfarin (two cases for atrial fibrillation, one for deep vein thrombosis). Eleven patients experienced arterial hypertension. Two patients were using acetylsalicylic acid of 100 mg/day. In summary, 10 patients out of 14 (71%) were given oral anticoagulant/antiplatelet therapy.

All patients reported acute onset of severe pain as the initial symptom, mostly in the lower cervical spine. Twelve patients reported some degree of neurological deficit accompanying the pain. Only two patients did not develop any neurological deficit. All patients underwent urgent MRI for the detection of SSEH. With respect to the affected level of the spine, the lower cervical/upper thoracic region was the most common site of involvement (n=7; 50%). Six patients (43%) underwent surgery as a result of rapidly developing spinal cord compression. The clinical conditions of the other eight patients (57%) were more favourable, and conservative approaches were chosen. Ten patients showed clinical improvement by more than one point on AIS classification.

Table 1: Demographic and clinical data of spontaneous spinal epidural haematoma group.

Pt	Sex	Age	Hyper tension	AC/AP drugs	Indication for AC/AP drugs	Clinical signs at onset	Clinical neurological status at onset	Onset (AIS)	Level of SSEH at spinal MRI	Time to operation	Type of treatment	Clinical outcome (AIS)
1	M	59	Yes	Warfarin INR 3,2	Atrial fibrillation	Sudden pain in low cervical spine	Hemiparesis with progression to quadriparesis and hypaesthesia	C	C5-T1 ventral	1 day	Operation at C5-T1	E
2	F	68	Yes	Warfarin INR 2,4	Atrial fibrillation	Pain in cervical region	Quadriparesthesia, transient quadriparesis	D	C1-C6 dorsal, C1-C3 ventral	None	Conservative	E
3	F	59	Yes	Warfarin INR 3,4	Atrial fibrillation	Pain in low cervical spine	Quadriparesthesia	D	C6-T1 dorsal	None	Conservative	E
4	F	68	Yes	No	No	Pain in cervical-thoracic region	Slight right-sided hemiparesis	D	C3-T5 dorsal	None	Conservative	E
5	F	64	Yes	ASA 100 mg/day	Atherosclerosis	Sudden pain in thoracic region after Valsalva manoeuvre (sneezing) ²	At onset quadriplegia with anaesthesia and retention of urine	A	T6-T11 dorsal	None	Conservative	E
6	M	89	Yes	Warfarin INR 2,8	Atrial fibrillation	Pain in the lower back	Slight paraparesis with retention of urine	D	L1 ventral	None	Conservative	E
7	F	84	Yes	Dabigatran 220 mg/day	Atrial fibrillation	Pain in the lower back	Normal	E	T12-L1 ventral	None	Conservative	E
8	M	89	Yes	No	No	Pain in the lower back	Normal	E	L2 dorsal	None	Conservative	E
9	F	17	No	No	No	Pain in cervical-thoracic region for a week	Mild paraparesis more pronounced on the left side, loss of sensation from T1	C	C7-T2 dorsal	5 days	Operation at C7-T2	D
10	F	67	Yes	Warfarin INR 5,2	Deep vein thrombosis	Sudden onset of pain in cervical-thoracic region	Mild motor paraparesis	C	T2-T6 dorsal	2 days	Operation at C7-T6	C
11	F	68	Yes	Warfarin INR 1,63	Deep vein thrombosis	Pain in the left hip	Severe motor paraparesis	B	T11-L4 dorsal	4 days	Operation at T11-L4	C
12	F	61	No	No	Pulmonary embolism, deep vein thrombosis	Pain in low cervical spine	Dysesthesia, hypaesthesia on the right hand with slight motor weakness of C7	D	C6-C7 ventral	None	Conservative	D
13	M	42	No	Apixaban 2x5 mg/day	Deep vein thrombosis	Mild pain in cervical region	Mild quadriparesis with hypaesthesia form C7	C	C4-C7 dorsal	1 day	Operation at C3-C6	D
14	F	77	Yes	ASA 100 mg/day	Subrenal aortal aneurysm	Sudden onset of pain in thoracic-lumbar region	Paraplegia with partial loss of sensation from T10	A	T9-T12 dorsal	1 day	Operation at T9-L1	C

Of note, patient 5 developed paraparesis after sneezing,² clinical improvement to normal status was observed after 24 hours, and patient 9 was pregnant.

AC: anticoagulation; AIS: American Spinal Injury Association (ASIA) Impairment Scale (AIS); AP: antiplatelet; ASA: acetylsalicylic acid; INR: international normalised ratio; pt: patient; SSEH: spontaneous spinal epidural haematoma.

CONCLUSION

SSEH is a rare entity concerning the expansion of blood collection in the spinal canal without clear traumatic or iatrogenic causes, with the prognosis affected by the severity of spinal cord compression, delayed final diagnosis, proper timing in surgical intervention, and well-chosen conservative approach in spontaneously improving cases.^{3,4} In this study, one of the most important findings was that 71% of patients (mostly in those who were of an older age) received oral anticoagulation/antiplatelet treatment and 57% of patients with slight or mild

neurological symptoms were successfully treated with a conservative approach.

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