

CASE REPORT

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Supratentorial Hemorrhage Following Spinal Tumor Surgery

SUMMARY

Cerebral parenchymal, epidural, subdural or cerebellar hemorrhage is a rare complication of spinal surgery. Here, it was discussed two cases of spontaneous intracerebral and supratentorial hemorrhage seen after surgery due to two spinal tumors located intradurally and extramedullary.

Key Words: Cerebral Hemorrhage, Spinal Surgery.

Spinal Tümör Cerrahisi sonrasında Gelişen Supratentoryal Kanama

ÖZET

Serebral parankimal, epidural, subdural veya serebellar kanama, spinal cerrahinin nadir görülen bir komplikasyonudur. Burada, intradural ve ekstramedüller yerleşimli spinal tümör nedeni ile cerrahi uygulanan iki vakada cerrahi sonrası gelişen spontan intraserebral ve supratentoryal kanama tartışıldı.

Anahtar Kelimeler: Serebellar Kanama, Spinal Cerrahi.

INTRODUCTION

Many complications like, neuronal structural damage, CSF leakage, meningocele, wound infection, meningitis, hydrocephalus, instability can be seen following spinal surgery. Cerebral intraparenchymal hemorrhage is a rare one of these complications. Authors have mentioned as remote hemorrhage about this kind of hemorrhages (1). The main reason to cause this kind of hemorrhage is thought to be the affected venous circulation due to great amount of CSF leakage during spinal surgery. But the definite mechanism is still in doubt (3).

CASE 1

A 20 year old male patient has attempted to our department with numbness and weakness at lower extremities which has begun six months ago. On his neurological examination we observed weakness at both lower extremities but it was more significant on right side. Deep tendon reflexes were hypoactive. There was hypoesthesia at L3-S1 dermatomes of both lower extremities. We have seen an intradural and extramedullary mass lesion with low contrast enhancement between T10-L2 levels (Figure 1).



Figure 1. intradural and extramedullary mass lesion with low contrast enhancement between T10-L2 levels.

We removed the tumor via posterior laminoplasty at prone position between T9-L3. The pathological nature of the tumor was myxopapillary ependymoma. At early post operative period the patient started to complain about headache. At the second day his headache improved. He had a focal seizure localized on the right side. We performed a brain CT (computerized tomography) and saw a hemorrhage about 1.5 cm. in size in left parietal parenchyma (Figure 2).

We started antiepileptic treatment and on the 12 th day his headache regressed and we discharged the patient with regression of his weakness on both lower extremities and without any neurological deficit.

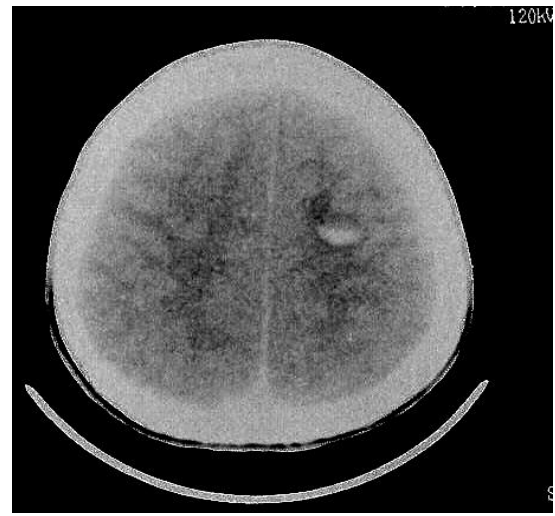


Figure 2. Brain CT (computerized tomography) demonstrated a hemorrhage about 1.5 cm. in size in left parietal parenchyma

CASE 2

A 51 year old female patient has attended to our department with neck pain which has started about two years ago and with weakness at both upper and lower extremities. On her neurological examination we saw quadriparesis more significant on the right side. Her deep tendon reflexes were hyperactive and pathological reflexes were seen. We saw a mass lesion which beginning from C2 corpus and extending towards C3 which shifts the cord to left side with homogeneous contrast enhancement (Figure 3). We removed the tumor totally by performing C2 total laminectomy at sitting position. The pathological nature was meningioma. At post operative period we performed a brain CT because the patient had resistant headache, nausea and vomiting. We saw right sided hemorrhagic area about 2.5*2 cm in diameter with pneumocephalus on the same side (Figure 4). We treated her medically. Her complaints regressed two weeks later and we discharged her without any neurological deficit.

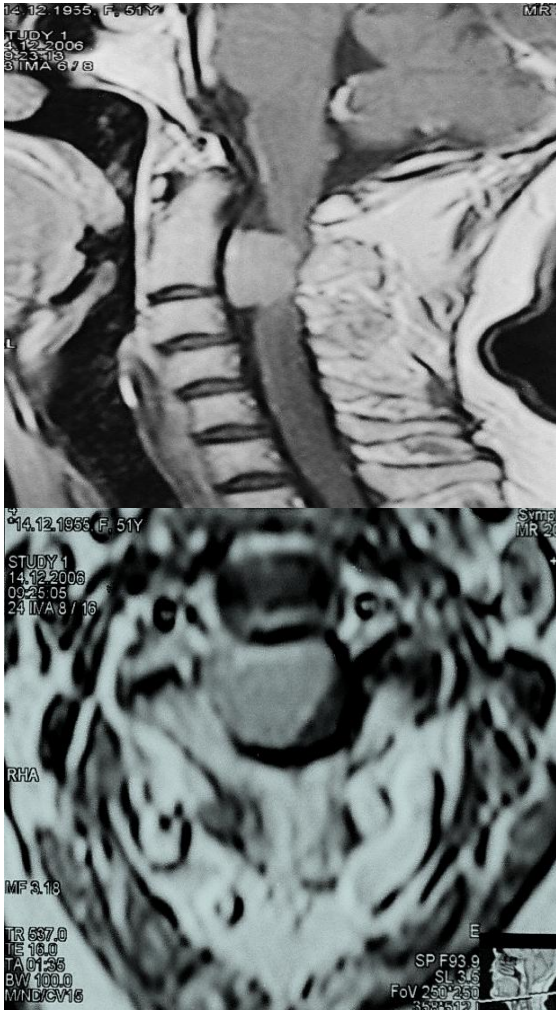


Figure 3. Mass lesion which beginning from C2 corpus and extending towards C3 (on sagittal T2 section) which shifts the cord to left side with homogeneous contrast enhancement (on axial T2 section).

DISCUSSION

After cranial and spinal surgery we can see intracerebral and cerebellar or epidural and subdural hemorrhage (1,2,6). Many authors have mentioned about remote hemorrhage which is a late complication of spinal surgery (2). Chadduck has first reported this in 1981. He has explained one of his patients who are operated because of cervical spondilotic myelopathy presenting with cerebellar hemorrhage after operation in sitting position with the idea that with the increasing blood pressure there becomes a difference between the intra vascular and CSF pressure and this induces the hemorrhage into cerebellar parenchyma. In 1981 Mikawa and friends reported a patient who has presented cerebellar hemorrhage following cervical fusion and revision surgery. Morandi and friends reported cerebellar and supratentorial hemorrhage after removal of cervical schwannoma. Although intracerebral hemorrhage after spinal surgery is a rare complication it can cause serious problems due to the location of the hemorrhage. Although some authors explain that venous infarct

can cause this pathology the exact mechanism is still in doubt (6). With leakage of CSF during surgery or after surgery the cerebellary structures may move downwards and cerebellary veins may stretch and occlude and this may cause hemorrhage or hemorrhagic infarction (2,5). König and friends have suggested that the increase of venous pressure with CSF leakage and with the appearance of an empty space by removing the mass lesion can cause this situation (7).

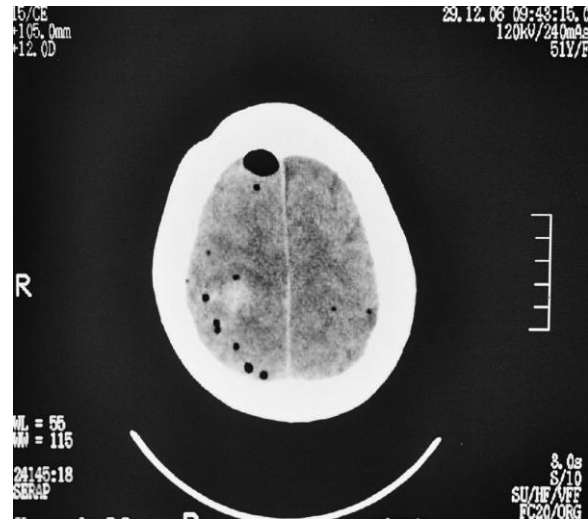


Figure 4. Right sided hemorrhagic area about 2.5*2 cm in diameter on right side with pneumocephalus. Most seen on the same side.

Andrew and friends have suggested that in the cases who present with cerebellar infarction superior cerebellary artery stretches with CSF leakage and with reperfusion hemorrhage can occur. Some others have tried to explain this pathology with the idea that with CSF leakage intracranial structures may move downwards and cerebellary vermician veins may be lacerated because of this and this can cause hemorrhage (4,6). And other possible factors like arterial hypertension, anticoagulant therapy, coagulopathy, vascular malformations can provoke this pathology (1,6). Our patients did not have these factors. And also the position of the patient during surgery has been reported as a provocative factor (4). Both of our patients did not have any provocative pathology that can cause hemorrhage. During surgery of both patients we had too much CSF leakage. This leakage may have provoked the venous hemorrhage. We don't thin that surgical position was a factor because the surgical positions of two patients were different.

The patients mentioned at previous reports were mainly cerebellary hemorrhage but here we reported two supratentorial hemorrhage. We think that excess amount of CSF leakage was the main factor in our patients. Although it is a rare pathology if we see headache, convulsion or neurological deterioration in our patients we must consider about remote intra cranial hemorrhage.

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