

Case	(051) Intraventricular fat deposit after traumatic sacral fracture: a case report
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## CASE PRESENTATION

We would like to report a very rare case of migration of fat inside the brain ventricles and subarachnoid cisterns in a polytraumatized patient with a complex sacral fracture.

Our patient is a 51-years-old female that suffered an intentional fall from a third-story window. After a normal early neurological assessment, she is quickly transferred to the Emergency Department of our hospital, where she suffered a sudden cardiorespiratory arrest. After a successful resuscitation, a whole-body CT was then performed:

Brain-CT showed no signs of haemorrhage or cerebral contusion, but instead revealed several small lesions of low-attenuation inside the frontal horns of lateral ventricles and suprasellar and ambient cisterns. Those images had attenuation values of approximately -90 HU, corresponding with fat deposits (and not pneumocephalus).

Thoracic and abdominal-CT showed fractures in the vertebral body of L5 and compression fracture of S1, as well as multiple sacral fractures along both sacral wings with sacral retrolisthesis and symphysis pubis diastasis.

The patient was taken to the ICU hemodynamically unstable, and the fractures are surgically stabilized. Soon, she developed kidney failure with rhabdomyolysis and mixed shock and distal ischaemia of both lower limbs. Few days after her arrival to ICU, given her precarious situation in a coma state with kidney and liver failure and the very poor prognosis, the medical team agreed with the patient relatives to limitate the therapeutic efforts. The patient passed away that same day.

## DISCUSSION

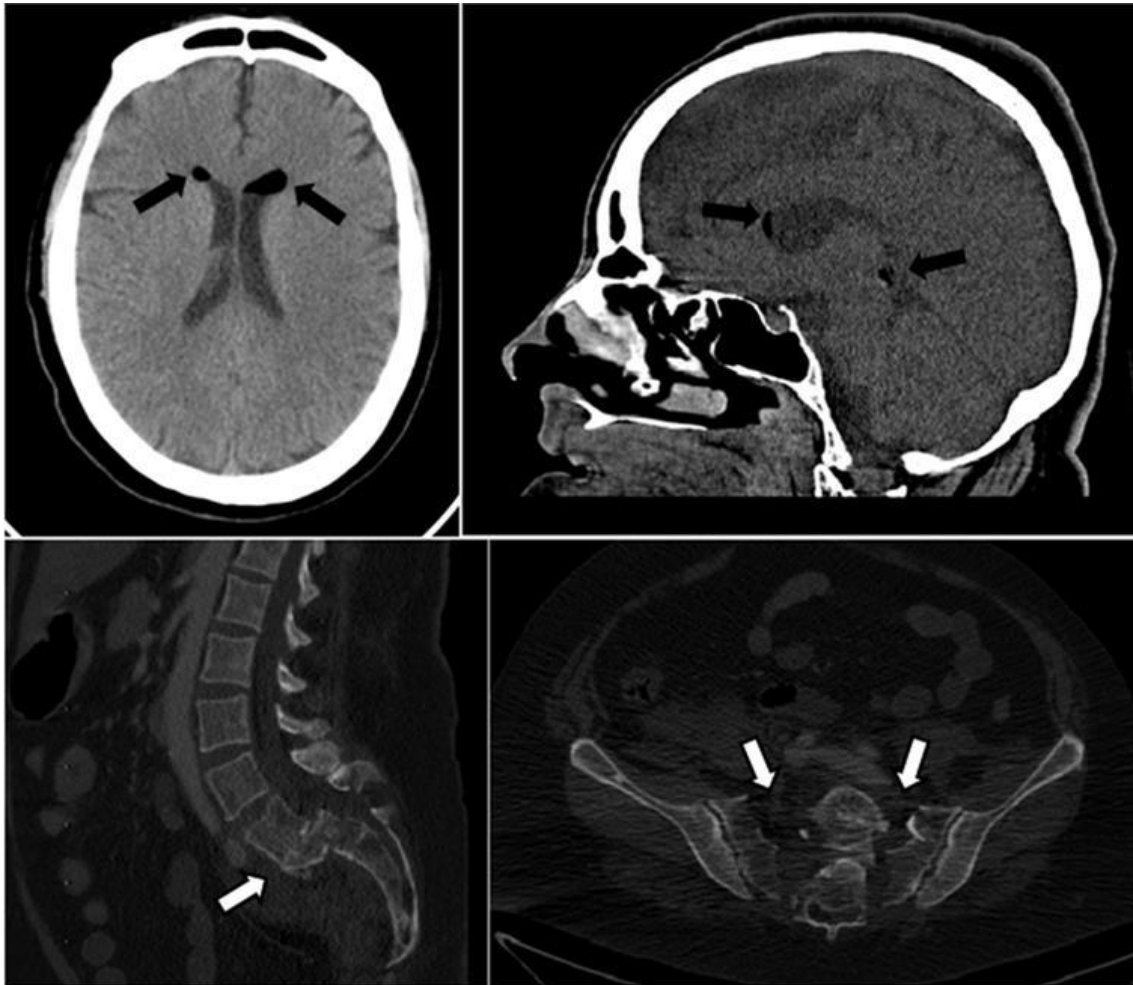
The presence of fat droplets inside the cerebral ventricles and the subarachnoid spaces is a very unusual finding. According to the literature, the most common cause by far is the rupture of dermoid cysts or other fat-containing tumors (such as teratomas) as a result of a traumatic event or surgery. Intraventricular fat has also been described after surgery of meningiomas in the posterior fossa, and it has been thought to be the cause of obstructive hydrocephalus in one of these cases. We have also found one case report of intraventricular fat due to retrograde flow from the abdominal wall through a lumboperitoneal shunt.

As far as we know, there are only 4 cases of intracranial fat arising from a spinal fracture reported in the literature. All those cases involved a sacral fracture, its cause being a fall in three of them and a traffic accident in the remaining one. Intraventricular fat droplets were the only important intracranial finding in each case, except in for one of the patients, that also developed a subarachnoid haemorrhage.

To our knowledge, this reported case presented in this paper is the only one where the cause of the trauma has been an intentional fall in the context of a suspected suicide attempt.

## CONCLUSION

The discovery of intracranial fat coming from the trans-thecal passage of bone marrow after a sacral fracture has rarely been reported in the literature. The presence of this finding after major trauma forces to exclude the existence of pneumocephalus, mainly.



Upper images: Brain-CT of the polytraumatized patient, showing low-attenuation lesions inside the frontal horns of lateral ventricles, corresponding to fat droplets.  
Lower images: Abdominal-CT shows a complex sacral fracture along both wings with sacral retrolisthesis greater than 50% and fractures of L5 and S1.

## BIBLIOGRAPHY

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