

## CAUDA EQUINA SYNDROME DUE TO BLOOD-CLOTTING AFTER USING COVID-19 VACCINE: A RARE CASE REPORT

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### ABSTRACT

**Background:** The Covid-19 epidemic has brought about severe consequences to human lives and societies worldwide. While it is undeniable that vaccines bring great benefits in fighting Covid-19, there are still concerns regarding complications from these urgently circulated vaccines, one of them being blood coagulation. Cauda equina is a rare acute spinal pathology capable of leaving extreme sequelae and even less common when caused by intradural blood-clotting. **Case presentation:** We would like to introduce a 52-year-old male patient with no medical history. 10 days after receiving his second AstraZeneca dose suddenly experienced paralysis in his left leg, urinary retention, and acute lower back pain. The patient underwent treatment at a local hospital for 07 days and was later transferred to our hospital with no improvements. He received emergency laminectomy of L2, remove intradural blood-clotting, and decompression. Although no pain was retained post-surgery and the patient attended physiotherapy, there was no significant progress in urinary functions as well as his left leg mobility. **Discussion and conclusion:** Cauda equina due to intradural blood-clotting is rare but, just like other conditions, requires urgent treatment or will otherwise leave severe consequences. Though vaccines' benefits far outweigh their risks, monitorial and preventive measures should be taken to treat postinoculation blood-clotting.

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### I. BACKGROUND

The global pandemic Covid-19 has brought about serious consequences to nearly all nations around the world. Efforts to fight back include enforcing vaccination, but an increasing number of doses carried out meant a considerable scale of complications after getting vaccinated, among them postinoculation blood-clotting.

Cauda equina is an acute medical condition that bears an emergency nature of spinal diseases, with the prime cause being sudden spinal cord compression. There are many causes of this syndrome, though blood-clotting is less common [1] and the clot being beneath the dura mater is extremely rare. Until now there has been no previous record of cauda equina due to blood-clotting after the use of the Covid-19 vaccine.

### II. CLINICAL CASE DESCRIPTION

A 52-year-old male patient with no medical history, 10 days after receiving his second AstraZeneca vaccine dose, suddenly lost feeling in his left leg while urinating, fell to his knees, and had since been experiencing urinary retention. He had previously received treatment but to no avail and was transferred to our hospital 07 days later with acute lower back pain, complete paralysis in his left leg, urinary retention, and total loss of sensation from his left thigh fold down. After doctors

visits and undergoing MRI, the patient was diagnosed with cauda equina due to a hyper-density mass causing spinal cord compression, spinal stenosis around L2-L3 and was quickly taken to emergency surgery. During the surgery, we observed a mass beneath the dura mater, not a herniated disc causing spinal stenosis; the decision to open the dura led to the discovery of a relatively large dark red mass compressing nerve roots around L2-L3.

After the surgery, the patient experienced no more pain or discomfort, maintained a healthy eating and sleeping routine, left leg's sensation and movement were improved though insignificant, and urinary catheterization was still required. The red mass was sent for a pathological examination and the result indicated it to be a blood clot. While the patient was admitted into physical rehabilitation, his left leg's paralysis and urinary retention remained.



**Fig.1.** Intradural Blood-clotting

### III. DISCUSSION

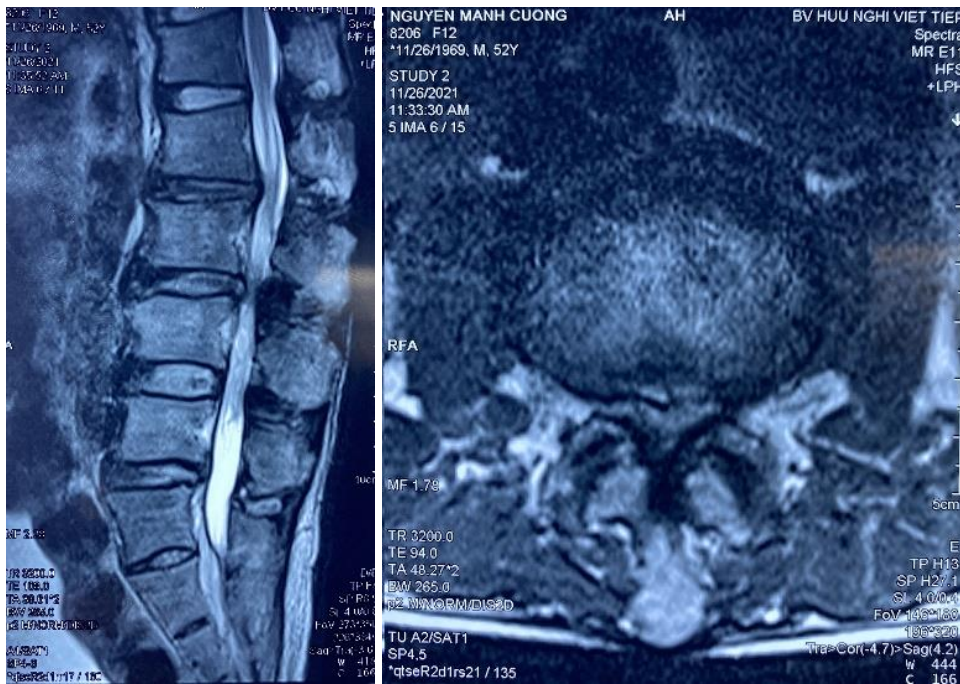
The patient had no previous medical history, and before receiving the Covid-19 vaccine showed no symptoms of backache, leg or thigh numbness, etc. Therefore,

progress of degenerative spinal stenosis was eliminated as a probable cause. Based on the MRI, there was a possibility that a fragment of lumbar discs L2-L3 led to spinal cord compression, causing spinal stenosis. However, after removing the mass, the patient was thoroughly relieved of any pain and able to lie down. For that reason, it is logical to conclude that the mass was the main cause of cauda equina in our patient. Although there was active participation in rehabilitation post-op, few improvements regarding urination ability and left leg's movement were recorded. This is consistent with cauda equina's pathological feature, once the damages by urination disorders set in, decompression surgery does not offer much assistance. Some researches show that after 48 hours, surgery cannot recover established injuries.

At the same time, results from the pathological examination determined the sample to be a blood clot, while the patient had no medical history of any blood clotting disorder, usage of anticoagulants, or previous injury. This brought speculation that the blood clot appeared after the second dose of the AstraZeneca vaccine. This symptom had already been recorded in several reports [2,3,4,5].

Indeed, proving the cause and effect has never been easy, especially with rare cases such as this one. However, a large number of instances where patients experience blood clotting and vascular occlusion after receiving Pfizer, Moderna, or AstraZeneca vaccines have been published in England and Europe [6].

Recent researches have shown that receiving vaccines has similar clinical impacts to using Heparin [7,8].



**Fig.2.** MRI sagittal and Axial at L2-3 level.

However, countless researches have published results in favor of implementing vaccines as their benefits far outweigh their risks, especially to elderly patients. With the ongoing and unpredictable Covid pandemic [6], Public Health England (PHE) recommended that people get vaccinated as soon as possible and monitor their health in case of postinoculation complications, particularly blood coagulation and vascular occlusion based on the symptoms below:

- A new, severe headache which is not helped by usual painkillers or is getting worse
- A headache that seems worse when lying down or bending over
- An unusual headache that may be accompanied by:
  - + Blurred vision, nausea, and vomiting
  - + Difficulty with your speech
  - + Weakness, drowsiness, or seizures
  - + New, unexplained pinprick bruising or bleeding

+ Shortness of breath, chest pain, leg swelling, or persistent abdominal pain.

#### IV. CONCLUSION

Cauda equina needs to be treated urgently regardless of cause, even within the context of the Covid pandemic [12], or it will otherwise lead to severe, irreversible damages. The Covid vaccines bring superior benefits compared to their associated possible dangers. Nonetheless, monitoring postinoculation, following given instructions, is vital, especially with blood coagulation or vascular occlusion.

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