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Case Report

# Astra zeneca Covid vaccination conversion reaction

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## Abstract

**Introduction:** This paper reports a patient who presented with hemiparesis and hemisensory hypo-aesthesia following the AstraZeneca vaccine. Formal neurological assessment diagnosed a conversion reaction.

**Case report:** A 60 year old lady presented with left sided weakness and hypo-aesthesia after her first dose of the AstraZeneca vaccine. She became unable to walk, had blurred vision and a bitter taste. There was no similar previous history. Depression and anxiety were diagnosed in 2007.

Physical examination revealed positive Hoover's signs, without features to suggest either upper or lower motor neurone deficit. She had non-anatomic loss of sensation, across her torso, plus non-anatomical demarcation of decreased trigeminal sensation.

She was advised that her most likely diagnosis was that of a non-organic conversion reaction but she did undergo cerebral imaging together with a psychiatric assessment, prior to discharge.

**Discussion:** The AstraZeneca Covid-19 vaccine has received significant publicity regarding potential for clotting. This case highlights the consequences of this concern. Physical examination suggested a non-organic complaint, allowing the provisional diagnosis of a conversion reaction.

Advising the patient allowed her to accept that, when all the tests came back normal, it did not reflect lack of knowledge to make a correct diagnosis. The correct procedure is to make a provisional diagnosis (namely conversion reaction) and to exclude differential diagnoses, such as clotting. It is believed that this represents the first reported case of an AstraZeneca Covid vaccination conversion reaction but it is highly unlikely that it will be the last one to be encountered.

## Introduction

There are more than a dozen vaccines, designed to protect people against Covid-19 infections, approved for human consumption around the world, in countries such as China, Russia, the United Kingdom, United States of America and Australia [1]. These have not been without adverse event and the US regulators have warned against potential risk of Guillaine Barre Syndrome which may lead to paralysis, associated with the Johnson and Johnson vaccine [2]. It is also not clear whether there will be need for further booster shots required for the Pfizer vaccine [2].

In Australia, most people will be inoculated with the AstraZeneca coronavirus vaccine, a viral vector vaccine, with the second dose being administered between 4 and 12 weeks after the first dose [3,4]. The Australian Technical Advisory Group on Immunisation (ATAGI) has recommended that AstraZeneca is the preferred vaccine for people aged 60 years and older [4]. The Jansen vaccine, the above cited Johnson and Johnson vaccine, also a viral vector vaccine, is not included in the Australian vaccine programme [4]. There has been a delay in supply of the Pfizer vaccine [3], which is an mRNA vaccine, also requiring 2 doses, up to 3 weeks apart, and is the preferred vaccine for those younger than 60 years old [4]. The Australian Government has also entered into agreements to secure the following vaccines, the Moderna vaccine, Novavax and Covax [4].

The most common complications with the AstraZeneca vaccine include: pain, swelling, tenderness, redness or itching at the site of injection; tiredness; headache; muscle



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pain; nausea; fever and rigors; malaise; and joint pain [5]. Less common adverse events include: enlarged lymph nodes; pain in limbs; dizziness or light headedness; anorexia; and abdominal pain [5]. Very rare adverse consequences, from the AstraZeneca vaccination, include: anaphylaxis (said to occur in approximately 1 in a million recipients of the vaccine); and unusual clotting (which may affect various body parts including the brain, possibly causing cerebral venous sinus thrombosis) and low platelet count (which may result in bleeding) which is estimated to occur in 4 to 6 people per million people who receive their first dosage of the AstraZeneca vaccine [5]. These very rare adverse events start about 4 to 20 days after receiving the inoculation with the AstraZeneca vaccine [5].

The paper to follow reports a patient who presented with hemiparesis and hemisensory hypo-aesthesia which she felt was as a consequence of the AstraZeneca vaccine but on formal neurological examination was determined to represent a conversion reaction unrelated to the effects of the Covid-19 inoculation.

## Case report

A 60 year old, Vietnamese lady presented to the Accident and Emergency Department of a teaching hospital, on 7th July, 2021, with very little English, requiring an interpreter to allow the taking of a comprehensive medical history. She was complaining of left sided weakness, including arm and leg, suggested of hemiparesis, and left sided hypo-aesthesia which started on day 4 after receiving her first dose of the AstraZeneca vaccine. She complained of fever and headache commencing on day 1 after the inoculation. She further reported dyspnoea and the onset of watery diarrhoea (with 3 or 4 loose bowel actions on day 3 and 4 post vaccination). She complained of feeling panicky with poor memory following the onset of symptoms.

While waiting, during triage into the Emergency Department, she became unable to walk and noted blurred vision and reported a bitter tase in her mouth. She complained of severe pain involving the whole of the left side, including head, upper and lower limbs and was nauseated once entering the Emergency Department. She could not identify the exact time of onset of these symptoms but they settled while in the Emergency Department. She made reference to 'seizures' referable to left sided symptoms. There was no previous history of similar episodes of weakness nor dysaesthesia.

She denied respiratory symptoms at the time of admission. There was no photophobia, neck stiffness or urinary tract complaints. She had a past history of back surgery. Depression and anxiety were diagnosed in 2007 and she was known to the mental health services, with her last admission, to the psychiatry unit, in 2019. She migrated to Australia in 1991 (30 years earlier) and was a non-consumer of either alcohol or cigarettes. There was no relevant family history.

Physical examination revealed a positive Hoover's sign in both upper and lower limbs [6-8] with lack of a pattern of weakness which would satisfy either upper or lower motor neurone deficit, with weakness in all muscle groups, ignoring the maxim of extensors and abductors in the upper limb and flexors in the lower limb, as referred to as being weakness in the antigravity muscles, together with lack of reflex asymmetry, down going plantar responses and an absence of hand drift, plus evidence of use of antagonistic muscles when testing maximal muscle power [9-12]. She also reported a change in the loss of sensation that ignored the midline and she identified that the increase in sensation occurred in the midclavicular line, well to the right of the midline, across her torso.

When testing cranial nerves, there was a lack of respect for the anatomical demarcation of the trigeminal nerve [13] such that she reported a change in sensation in the middle of the right side of her face, involving the right cheek (disrespecting the midline), together with a change in the loss of sensation at the hairline, rather than the binaural plane, plus a change in sensation at the angle of the jaw, following the mandible.

The patient was reassured that, on clinical grounds, it was felt that her presentation represented a non-organic conversion reaction, rather than the expression of the potential clotting that may be associated with the AstraZeneca vaccine. To reinforce this evaluation, she did undergo cerebral magnetic resonance imaging, including arteriography and venography, together with a psychiatric assessment, prior to her discharge from hospital. She was to be followed by the community psychiatry team, together with a final visit with the neurologist, to reinforce the non-organic nature of her complaints.

## Discussion

The AstraZeneca Covid-19 vaccine has received a significant amount of publicity, regarding the very rare potential for clotting to occur, known as thrombosis in combination with thrombocytopenia [14] which is reported to occur, as a consequence of the first administered dose, in: 3.1/100,000 for those less than 50 years old; 2.7/100,000 in 50-59 year olds; 1.4/100,000 for those aged 60-69; 1.8/100,000 for people aged 70-79; and 1.9/100,000 for those aged 80 and over [14]. This amounts to an uncommon, unwanted effect of the vaccine but it has caused considerable concern and confusion amongst the Australian population. Professor Paul Kelly, the Australian Government Chief Medical Officer, released a statement, on 16 July 2021, which included the following statement, *"Evidence from the UK shows the rate of thrombosis with thrombocytopenia syndrome (TTS) after a second dose of AstraZeneca is significantly lower than for first doses...ATAGI's updated advice is based on new evidence demonstrating a higher risk than originally thought of the rare blood-clotting TTS among people aged 50 to 59. "* [15] . This reassurance offered little comfort to the patient, reported in this presentation, as she developed her symptoms within 4 days of her first dose of the AstraZeneca vaccine and the statement post-dated her discharge from the hospital. It must be reinforced that the various vaccines which are available in Australia have been approved by the Therapeutic Goods Administration for human consumption on the basis that any of the risks, associated with their use, are far outweighed by the potential benefits and they are administered in accordance with the advice from the ATAGI.



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This case does highlight the very real consequences of the concern, raised in the community, regarding the AstraZeneca vaccine and its propensity to cause very serious side effects which this patient believed she had encountered. The case confirms the need to be circumspect regarding those who present with well publicised and widely accepted adverse events, reportedly associated with medical intervention. It also amplifies the approach which was adopted in this case. On the basis of the physical examination, it was felt that her signs provided hard evidence of a non-organic complaint [16-19]. It was also considered that the signs were of sufficient veracity to allow the provisional diagnosis of a conversion reaction, without adopting the approach of insisting that a non-organic diagnosis should be a diagnosis of last resort and a diagnosis of exclusion. It must be stated that the conversion reaction, experienced by this patient, was not caused by the vaccine, per se, but rather by the fear of the vaccine and its potential consequences.

Providing the patient with the provisional diagnosis of a non-organic disease allowed the patient to accept that, when all the tests came back as normal, as was to be expected, it is not a case of the attending physician being too ignorant to make a correct definitive diagnosis [16]. Adopting the approach that the attending doctor will order a large and exhaustive range of tests and, only when they come back as being normal, can the diagnosis of non-organic disease be accepted, suggests to the patient that the doctor expected there to be a serious medical problem for which none of the tests proved helpful [16]. Within the latter scenario, the fact that the tests came back normal does not instil confidence that the doctor can assume that the diagnosis is that of a non-organic problem and may merely reflect that the doctor could not determine the right test to be done, to reach the correct diagnosis [16].

As with all medicine, the correct procedure is to make a provisional diagnosis and then to ensure that the tests exclude alternative differential diagnoses. Dealing with non-organic disease is no different and, where a conversion reaction appears to be the correct diagnosis, it should also constitute the initial provisional diagnosis and be shared with the patient, as was the situation in the present case. She still underwent cerebral imaging, to reassure her that there was no evidence of thrombotic lesions, and she was also seen be the psychiatrist who reaffirmed the provisional diagnosis of conversion reaction. It is believed that this presentation represents the first reported case of an AstraZeneca Covid vaccination conversion reaction but it is highly unlikely that it will be the last one to be encountered.

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