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tions including abscess formation in skin and soft tissues.[4,6,9] *Actinomyces neuii* is a lesser-known species first described in 1994 by Funke et al.[2] It does not cause typical actinomicosis. The infections are related to abscesses, skin lesions, and infections of the genitourinary tract and mostly associated with the use of intrauterine contraceptive devices (IUD).[1,4,7–10] Rare cases of pericarditis, osteomyelitis, breast infections, ophthalmic infections, prostatitis, and bacteraemia have also been previously reported.[1,3,5–8]

Actinomyces neuii has also been involved in causing premature labour, chorioamnionitis, and neonatal sepsis associated with a previous resolution of a vaginal device (IUD or vaginal cerclage).[1,4–10]

In our patient, chorioamnionitis was suspected to be related to the cerclage placement at week 22 of pregnancy. Other authors reported similar conclusions of *Actinomyces neuii* infections associated with the use of this device.[1,8] Only two cases reported the presence of *Actinomyces neuii* in amniotic fluid.[5,10]

This case demonstrates the need to consider *Actinomyces* infection in patients who carried a vaginal device. Amniotic fluid should be examined in patients with suspected chorioamnionitis for an early diagnosis to avoid further complications to the mother and the new-born.

Conflict of interest

The authors declare no conflict of interests.

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https://doi.org/10.1016/j.eimc.2021.06.017

Subacute thyroiditis after anti-SARS-CoV-2 (Ad5-nCoV) vaccine☆

Tiroiditis subaguda después de la vacuna anti-SARS-CoV-2 (Ad5-nCoV)

Subacute thyroiditis (SAT) is a self-limiting inflammatory disease of the thyroid. It is a rare cause of thyrotoxicosis and is also associated with respiratory virus infections in genetically predisposed people, including influenza virus, adenovirus, coxsackie virus, measles virus and Epstein–Barr virus[1]. During the current SARS-CoV-2 pandemic, thyroid disorders related to infection with this virus have been reported, particularly cases of SAT[1,2]. The new SARS-CoV-2 vaccines in use have also had the adverse effects of triggering SAT and Graves' disease[3–5]. These thyroid disorders seem to be independent of the mechanism of action of the SARS-CoV-2 vaccination (cases have been reported with mRNA-based vaccines, inactivated SARS-CoV-2 vaccines and vector-based vaccines)[3–6]. I present a case diagnosed with SAT after receiving the Cansino Biologics single-dose Ad5-nCoV vaccine.

This was a 53-year-old woman with no previous history or illnesses related to the condition reported here, who was given the Cansino Biologics Ad5-nCoV vaccine. Twenty-four hours later, she developed general malaise, asthenia, myalgia, arthralgia and low-grade fever. Fifteen days after being vaccinated, she developed pain at the base of her neck, which increased in intensity, radiating to her right jaw and ear. The initial assessment revealed tachycardia and distal tremor, no eye symptoms, but diffuse goitre with significant pain on palpation. The ultrasound showed an increase in thyroid volume with bilateral diffuse areas of hypoechogenicity and decreased vascularity. The blood results were as follows: TSH 0.095 mIU/l (ref. 0.5–4.5); free T4 1.22 ng/dl (ref. 0.7–1.48); free T3 352 pg/dl (ref. 158–391); ESR 51 mm/h (ref. <15); CRP 10 mg/l (ref. <1.5); anti-TPO antibodies 1.42 IU/ml (ref. <5.61); anti-Tg antibodies 8.4 IU/ml (ref. <4.11); and anti-TSH receptor antibodies (TRAb) 1.0 IU/l (ref. <1.5). The patient was treated solely with non-steroidal anti-inflammatory drugs (NSAID). When the patient returned after four weeks she was asymptomatic, with no goitre and TSH 31.35 mIU/l and free T4 0.7 ng/dl; she remains in follow-up and is currently untreated.

Ad5-nCoV uses the non-replicating adenovirus-5 (HAd5) as a vector, which carries the gene that codes for the SARS-CoV-2 S protein. The vaccine does not contain adjuvants or preservatives. The possible relationship between TSA and Ad5-nCoV is the involvement of a molecular mimicry of the SARS-CoV-2 S glycoprotein, which shares a genetic similarity with human

☆ Please cite this article as: Flores Rebollar A. Tiroiditis subaguda después de la vacuna anti-SARS-CoV-2 (Ad5-nCoV). Enferm Infecc Microbiol Clin. 2022;40:459–460.

protein heptapeptides[7], and the cross-reaction between the antibodies directed against the SARS-CoV-2 S protein and numerous autoimmune target proteins, including thyroid TPO[8]. Furthermore, adenovirus vectors are highly immunogenic *per se*; adenovirus stimulates innate immune cells by activating various innate immune signalling pathways and inducing the secretion of various proinflammatory cytokines and chemokines[9]. This altered innate immune environment effectively induces a robust humoral and cellular adaptive immune response. All of this can stimulate inflammation and autoimmunity in genetically susceptible groups.

Our case was positive for anti-Tg antibodies and the absence of anti-thyroid antibodies was considered typical for SAT. However, due to improvements in the sensitivity of modern equipment it is now common to find them and, in the case of anti-Tg antibodies, 52.5% positivity has been reported in SAT[2].

One particularity of the treatment of SAT triggered by anti SARS-CoV-2 vaccines is the limitation in the use of glucocorticoids (GC) for SAT with pain which does not respond to NSAID. It is possible that the immunosuppressive effect of GC reduces the immunogenicity of the SARS-CoV-2 vaccine used; at least this has been found in patients with autoimmune rheumatic diseases: GC reduce seropositivity (IgG S1/S2) induced by the SARS-CoV-2 mRNA vaccine up to 66% with an average dose of 6.2 mg/day of prednisone[10].

SAT is not a common disorder but it is listed as an undesirable effect in all forms of COVID-19 vaccines. As it is usually self-limiting and mild in terms of symptoms, it can go unnoticed in most patients. The use of glucocorticoids in the management of SAT after these vaccines could be associated with a lower immunogenic response.

Ethics

All the procedures performed in the course of this retrospective study were carried out in accordance with institutional and national research committee ethical standards, and the study was conducted in accordance with World Health Organization (WHO) standards for biomedical and scientific research in humans. Case reports do not require independent ethics committee approval. Informed consent was obtained from and signed by the study participant.

Funding

This study received no specific funding from public, private or non-profit organisations.

Conflicts of interest

The author has no conflict of interest to declare.

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https://doi.org/10.1016/j.eimce.2022.05.008