



Subacute thyroiditis after SARS-CoV2 vaccine: possible relapse after boosting

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Dear Editor,

In their excellent article [1] Ippolito et al. accurately reviewed published data concerning occurrence of subacute thyroiditis (SAT) following SARS-CoV2 vaccination. In addition, in the last number of this Journal, Yorulmaz et al. published a further 11-case series of post-vaccine SAT [2].

As correctly pointed out [1], SAT following SARS-CoV2 vaccination seems anyway a rare event (up to date, about 60 cases recorded worldwide, facing with several billions of vaccine doses administered): the cause–effect relationship with the vaccine is likely, but other unrelated causes are often difficult to be ruled out. On the other hand, the clinical outcome is most frequently favorable, and the symptoms and signs are mild, therefore post-vaccine SAT might be unrecognized and underdiagnosed.

To further support the possible relationship between SAT and SARS-Cov2 vaccination, it seems of interest to report one additive case of SAT occurring following the first administration of Vaxzevria SARS-Cov2 vaccine and relapsed after the second shot.

SAT has been reported both following mRNA, viral vector and inactivated virus vaccines [1, 2]. Different to mRNA, Vaxzevria is administered in 2 doses at 3 month interval. This allowed the observation of relapse after the second dose. To our knowledge, there is poor, if any, evidence of SAT relapsing following the second shot.

A female 72 years woman with no previous relevant history of disease but mild hypertension, on April 2021 underwent SARS-CoV2 vaccination, with no or poor immediate side effect. However, about 6 weeks later, she developed neck pain. Symptoms were mild and seemed to spontaneously resolve, therefore no specific diagnostic procedure was undertaken. In June 2021 the second vaccine dose was administered: a few days after vaccine shot the patient experienced significant symptoms worsening. She came to our observation 1-month later presenting subclinical thyrotoxicosis (TSH 0,140 mIU/L; FT3 3,59 pg/mL; fT4 1,15 ng/dL) with negative thyroid autoantibodies. Ultrasonography showed small (1 cm) hypoechoic areas with reduced blood flow. 99mTc scan showed nearly absent thyroid uptake. No treatment was prescribed. Thyrotoxic phase lasted about 5 weeks, followed by mild hypothyroidism about 2 months after the last vaccination (TSH peak 10.58 mIU/L, September 2021), spontaneously improving without treatment. In January 2022, the patient received the third vaccine dose (mRNA, Comirnaty) with no adverse effect. Thyroid function remained stable up to date (TSH 5,2 mIU/L; fT4 0,95 ng/dL) and ultrasonography showed disappearance of hypoechoic areas.

The clinical presentation of this case was typical, and the clear worsening of clinical picture following the second vaccine shot strengthens the possible causal relationship between SAT and vaccination by itself.

As in many cases described, spontaneous remission occurred without need of therapy (notably corticosteroids, potentially affecting vaccination effectiveness). Although it is likely the most frequent thyroid side effect of SARS-Cov2 vaccination [3], post-vaccine SAT is rare and most often mild: relapses following vaccine boosting are possible but infrequent. It seems strongly advisable not to withdraw the vaccination program in patients experiencing post-vaccine

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SAT due to its benign outcome compared to the possible risks of incomplete SARS-Cov2 vaccination.

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Declarations

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Ethical approval All procedures involving human participants performed were in accordance with the ethical standards of institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The ethical committee approval is not required for systematic reviews nor for case report.

Informed consent Written informed consent for publication was obtained from patient.

References

1. Ippolito S, Gallo D, Rossini A, Patera B, Lanzo N, Fazzino GFM, Piantanida E, Tanda ML (2022) SARS-CoV-2 vaccine-associated subacute thyroiditis: insights from a systematic review. *J Endocrinol Invest* 45(6):1189–1200. <https://doi.org/10.1007/s40618-022-01747-0>
2. Yorulmaz G (2022) Sahin Tekin M (2022) SARS-CoV-2 vaccine-associated subacute thyroiditis *J Endocrinol Invest*; 45(7): 1341–1347. Publ online. <https://doi.org/10.1007/s40618-022-01767-w> [PMCID:PMC8857746](https://pubmed.ncbi.nlm.nih.gov/38857746/)
3. Jafarzadeh A, Nemati M, Jafarzadeh S, Nozari P, Mortazavi SMJ (2022) Thyroid dysfunction following vaccination with COVID-19 vaccines: a basic review of the preliminary evidence. *J Endocrinol Invest* 26:1–29. <https://doi.org/10.1007/s40618-022-01786-7>

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