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Letter to the Editor

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Letter to the Editor From Raven et al: "Three Cases of Subacute Thyroiditis Following SARS-CoV-2 Vaccine"

Lisa M. Raven,[1,2] Ann I. McCormack,[1,2,3] Jerry R. Greenfield[1,2,3]

[1]Department of Endocrinology, St Vincent's Hospital, Sydney 2010, Australia; [2]St Vincent's Clinical School, Faculty of Medicine, the University of New South Wales, Sydney 2010, Australia; and [3]Garvan Institute of Medical Research, Sydney 2010, Australia

ORCiD numbers: 0000-0001-7048-2955 (L. M. Raven); 0000-0002-2859-5566 (A. I. McCormack); 0000-0002-0866-0973 (J. R. Greenfield).

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We read with interest the report in the *Journal* by Iremli et al ("Three Cases of Subacute Thyroiditis Following SARS-CoV-2 Vaccine") (1). Here, we report a case of Graves' disease following adenovirus-vectored SARS-CoV-2 vaccination (AZD1222) and a case of focal painful thyroiditis following SARS-CoV-2 mRNA vaccination (COMIRNATY – BNT162b2).

A 35-year-old Brazilian female presented with palpitations, hyperphagia, heat intolerance, and tremor. She had received the first dose of AZD1222 5 days before the onset of symptoms. There was no history of thyroid disease, although a positive family history with both grandmothers having hyperthyroidism. Hyperthyroidism was biochemically confirmed with TSH < 0.02 mIU/L (0.5-4.0), free triiodothyronine > 30 pmol/L (3.5-6), and free thyroxine 64 pmol/L (10-20). Thyroid antibodies were positive with thyroid-stimulating immunoglobulin 24 IU/L (< 0.55), anti-thyroid peroxidase antibody titer > 1300 IU/mL, and anti-thyroglobulin antibody 33 IU/mL (< 4.5). Neck ultrasound demonstrated a diffusely heterogeneous thyroid, with a marked increase in vascularity. These results confirmed a diagnosis of Graves' disease and the patient was commenced on carbimazole.

A 35-year-old Caucasian female presented with right-sided neck pain, which developed 4 days after receiving the first dose of the Comirnaty vaccination. She had a previous history of left hemithyroidectomy 3 years prior for a benign 31-mm thyroid nodule. Thyroid function was normal with TSH 2.03 mIU/L and free thyroxine 11.4 pmol/L. Thyroid ultrasound demonstrated a new 11-mm thyroid imaging reporting and data system 4 lesion in the right lobe. Fine-needle aspirate biopsy reported Atypia of Undetermined Significance (Bethesda reporting system). Aspirate was described as paucicellular with scattered follicular cells, macrophages, and fragments of thick colloid but absent thin colloid. A second dose of Comirnaty was given 3 weeks following the first; over the next month, neck pain increased with radiation to the right ear along and development of fevers, night sweats, and fatigue. Repeat neck ultrasound revealed an ill-defined hypoechoic region, now measuring 21 mm, associated with increased vascularity. A further biopsy was attempted with the area of interest described as firm and the result nondiagnostic containing just a small cluster of follicular cells, sparse thin colloid, and blood. Progress thyroid function remained normal. Over the following 2 weeks, the pain resolved and a diagnosis of focal painful thyroiditis was made.

SARS-CoV-2 can cause systemic inflammation, and several cases of thyroid dysfunction have been associated

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with SARS-CoV-2 infection (2). Additionally, there are emerging reports of an association between thyroid dysfunction and several SARS-CoV-2 vaccines, attributed to immunogenicity-enhancing agents resulting in autoimmune/inflammatory syndrome induced by adjuvants (ASIA syndrome) (1, 3-7). This case of rapid-onset Graves' disease following adenovirus-vectored SARS-CoV-2 vaccination adds to the literature of previous reports following SARS-CoV-2 mRNA vaccination, and exacerbation of preexisting Graves' disease following adenovirus-vectored SARS-CoV-2 vaccination (3, 4, 8). Our case of focal painful thyroiditis complements the increasing number of cases of subacute thyroiditis following the administration of a range of SARS-CoV-2 vaccines (1, 5-7). Although the benefit of SARS-CoV-2 vaccination is undeniable, clinicians should be aware of the rare thyroid pathologies following vaccination.

Additional Information

Correspondence: Lisa Mary Raven, MBBS, Department of Endocrinology, St Vincent's Hospital, 390 Victoria Street, Darlinghurst NSW 2010, Australia. Email: lisa.raven@svha.org.au.

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