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Colchicine Treatment in Recurrent Subacute Thyroiditis After Covid-19 and mRNA Vaccination

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Dear Editor,

Subacute thyroiditis (SAT) is an inflammatory disease of the thyroid gland that usually develops after a viral upper respiratory infection. Recently, many cases have been reported following both Covid-19 infection and Covid-19 vaccination (1,2). It is often self-limited, but about 20% of cases are steroid refractory. Steroid therapy is the first-line treatment for recurrent SAT. The use of colchicine therapy (CT) in the treatment of recurrent SAT has been reported in the literature (3).

In this letter, we report that CT may be beneficial in two cases of recurrent SAT after covid-19 infection and after mRNA vaccination.

A 27-year-old female patient presented with a 2-week history of neck pain and palpitation. She had no known thyroid disease and had a covid-19 infection 3 weeks ago. On physical examination, the thyroid was grade 1b and tender to palpation. The laboratory and clinical findings are summarised in the Table. The patient was diagnosed with SAT and started on methylprednisolone (MP) 32mg/day, which was tapered down to 4mg per week after 8 weeks. Two weeks after stopping MP, the neck pain recurred. Recurrent SAT was considered. A higher dose of steroid therapy (MP 40mg/day) was started. The steroid dose was then gradually tapered and stopped after 8 weeks. The patient's neck pain recurred 3 weeks later. Recurrent SAT was considered for the second time and the patient didn't want to use steroid therapy. CT was started at a dose of 1 mg/day. The neck pain improved after a few days. CT was stopped after 2 months.

A 53-year-old man presented with severe neck pain. He had no known thyroid disease and no history of covid-19 infection. The patient stated that his complaints started 2 weeks after the first dose of the covid-19 mRNA vaccine

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(Biontech). On physical examination, the fever was 37.1 ^{0}C and the thyroid was grade 1b. The laboratory and clinical findings are summarised in the table. SAT was diagnosed and the patient was started on MP 32mg/day. It was stopped after 8 weeks by tapering 4 mg per week. Ten days after stopping MP, the patient returned to the outpatient clinic with neck pain and tenderness. The patient was considered to have recurrent SAT. MP 40 mg/day and colchicine 1 mg/day were started. The patient's symptoms resolved within 24 hours. The steroid dose was then gradually reduced once a week and stopped after 8 weeks. CT was also stopped after 8 weeks.

Both patients are still being followed as asymptomatic.

In conclusion, we have shown that colchicine, alone or in combination with steroid therapy, can be effective in the treatment of SAT relapse following covid-19 infection and mRNA vaccination. Colchicine is an anti-inflammatory agent that inhibits microtubule polymerisation. First, Tian et al (3) showed that colchicine was effective in 3 cases that relapsed or were resistant after steroid treatment. Second, in a series of 5 cases, Bahcecioglu et al (4) suggested that colchicine treatment was effective in subacute thyroiditis refractory to steroid therapy. However, the optimal dose and duration of CT for recurrent SAT after covid-19 remains to be determined. Patients who develop SAT after covid-19 or vaccination may be resistant to steroids and CT may be beneficial. However, prospective studies are needed to confirm our findings.

Table 1. Clinical and laboratory features of Case 1 and 2

	Laboratory Findings	**Thyroid USG**	**Treatment**	
			Steroid	**Colchicine**
	Case 1			
Initial	TSH:0.08µIU/mL,FT3:4.88pg/mL, FT4:1.6ng/dL, AntiTG:10.5 IU/mL AntiTPO:2.5IU/mL, ESR:65mm/h, CRP:32mg/L, PCR: positive(12.02.2021)	Bilateral hypoechoic lesions, CFD:0	32mg/day	-
8th week	TSH:0.41µIU/mL FT3:3.69pg/mL, FT4:1.13ng/dL, ESR:28mm/h,CRP:1.79mg/L		Discontinued	-
Relaps(1st)	TSH:0.2µIU/mL FT3:4.7pg/mL, FT4:1.65ng/dL, ESR:34mm/h, CRP:19mg/L	Hypoechoic lesions in the right lobe, CFD:0	40mg/day	-
8th week	TSH:1.32µIU/mL FT3:2.7pg/mL, FT4:1.0ng/dL, ESR:5mm/h, CRP:1.0mg/L		Discontinued	-
Relaps(2nd)	TSH:0.07µIU/mL FT3:4.06 pg/mL, FT4:1.7ng/dL, ESR:34mm/h, CRP:25mg/L		-	1mg/day
8th week	TSH:1,5µIU/Ml,FT3:3.2pg/mL,FT4:1.1ng/dL, ESR:6mm/h, CRP:2.3mg/L		-	Discontinued

Case 2

Initial	TSH:0.1µIU/mL, FT3:4.52pg/mL, FT4:1.85ng/dL, AntiTG:6.45 IU/mL AntiTPO:1.0IU/mL ESR:66mm/h, CRP:54mg/L, SARS-Cov PCR: negatif	Hypoechoic lesions in the left lobe, CFD:0	32 mg/day	-
8th week	TSH:1.22µIU/mL FT3:3.55pg/mL, FT4:1.2ng/dL, ESR:9mm/h, CRP:1.29mg/L		Discontinued	-
Relaps	TSH:0.6µIU/mL FT3:4pg/mL, FT4:1.4ng/dL, ESR:48mm/h,CRP:35.9mg/L	Bilateral hypoechoic lesions, CFD:0	40mg/day	1 mg/day
8th week	TSH:2.1µIU/mL FT3:2.5pg/mL, FT4:1.0ng/dL, ESR:5mm/h, CRP:1.2mg/L		Discontinued	Discontinued

TSH, thyroid stimulating hormone; FT4, free thyroxine; FT3, free triiodothyronine; antiTG, thyroglobulin antibodies; antiTPO, thyroid peroxidase antibodies; ESR, erythrocyte sedimentation rate; CRP, C-reactive protein; PCR, Polymerase Chain Reaction; US, ultrasonography

Conflicts of Interest
The authors declare no conflicts of interest.

Ethical Approval
This article is a case report and written with the consent of the patient. Since this article is a case report, it does not contain any studies with animal or human participants performed by any of the authors.

Informed consent
Informed consent has been obtained from the patient for publication of the case report.

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