



# Further information on dose of minocycline, black thyroid and metastatic lymph node from papillary thyroid cancer

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*Response to:* Li R, Li X. Questions about the paper 'Papillary thyroid cancer in black thyroid: a case report and literature review'. *Gland Surg* 2023;12:867-68.

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We thank Li *et al.* for their congratulatory remarks and questions (1). We appreciate this opportunity to further clarify the causal relationship between the black pigmentation and the usage of minocycline, which have caused the black thyroid in our patient. Moreover, we would like to share detailed information about our case. Here we respond to their queries.

First, the black pigmentation caused by prolonged minocycline use has been consistently reported in the previous literature. Our comment on the minocycline use at cumulative dose of >100 g has been mentioned in the previous article, which we have cited as 'the reference 6' in the original manuscript (2). In the discussion, they mentioned the previous article by Eisen and Hakim, which have suggest that pigmentation occurs most often in those patients who have taken minocycline over long periods of time at cumulative doses of greater than 100 g, although skin and oral pigmentation may occur regardless of time or amount of drug administration (3). According to our sentence of "Pigmentation can occur more frequently in patients who have taken minocycline for more than one year at cumulative doses of >100 g, although the duration of minocycline use prior to black thyroid discovery varies from 27 days to 20 years", the pigmentation caused by minocycline use at cumulative doses of >100 g refers to the pigmentation in the "various tissues" which have been mentioned in the previous sentence, not in the thyroid. As the questioners' comment, we have already mentioned the various periods reported related to the black thyroid, from

27 days to 20 years.

Second, we have already mentioned that there was no pigmentation in the metastatic lymph nodes (LNs), normal LNs, or background adipose tissue in the Pathology section of the Results. Unlike our macroscopic finding (with naked eye), no pigment has been found in the central and lateral neck LNs or surrounding adipose tissues, including the neck level IV. According to the *Fig. 3*, the histologic slides for the LNs have been made by the pathologists, which are significant findings for the final pathology. No further pathologic slides have been made for the surrounding adipose tissues of neck level IV.

We believe that our response would clarify the meaning of the above-mentioned sentences and could give more precise information about this article to the future readers.

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## References

1. Li R, Li X. Questions about the paper ‘Papillary thyroid cancer in black thyroid: a case report and literature review’. *Gland Surg* 2023;12:867-68.
2. Birkedal C, Tapscott WJ, Giadrosich K, et al. Minocycline-induced black thyroid gland: Medical curiosity or a marker for papillary cancer? *Curr Surg* 2001;58:470-1.
3. Eisen D, Hakim MD. Minocycline-induced pigmentation. Incidence, prevention and management. *Drug Saf* 1998;18:431-40.

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