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# Onycholysis Associated with Graves' Disease

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**ABSTRACT.** This paper presents a case of onycholysis associated with Graves' disease. Onycholysis in association with Graves' disease is rarely seen in Japan. The patient is a twenty-two-year-old female with a half year history of receiving antithyroid treatment for Graves' disease. An initial physical examination revealed onycholysis in the right ring finger, although she achieved euthyroid state.

**Key words : onycholysis — Graves' disease**

In the patient with Graves' disease, cutaneous manifestations are nearly always present.[1] However, onycholysis (Plummer's nail) and pretibial myxedema are seldom observed in Japan, although both of them have been described in most textbooks. Some authors consider onycholysis to be a valuable diagnostic aid.[2] This communication presents a case of onycholysis developing in a 22-year-old female with Graves' disease.

## CASE REPORT

The patient (N.O.), a twenty-two-year-old unmarried woman, was first seen at our outpatient clinic on December 23, 1987. She had been treated with propylthiouracil for half a year by a nearby doctor because of thyroid enlargement associated with finger tremor and short breath. Physical examination revealed a well developed woman with a diffusely enlarged thyroid measuring 5 by 3 cm on the bilateral lobes. Her pulse rate was 67/min. There were no signs referable to the eye and skin. However, separation of the nail plate from the nail bed at its distal and lateral attachment was seen on the right ring finger (Fig. 1). According to her, this phenomenon was more remarkable before treatment was begun and the same condition was also seen on the left ring finger which had recovered following treatment. Thyroid function tests revealed serum thyroxin of 11.7 $\mu$g/dl (normal range: 6-11), triiodothyronine 235 ng/dl (75-175), free thyroxin of 3.01 ng/dl (0.80-1.80), free triiodothyronine of 9.65 pg/dl (2.50-5.00) and TSH of below 0.05 $\mu$I.U./ml (0.30-5.00). Antithyroglobulin antibody and antimicrosomal antibody were not elevated. TBII was 49.0% (below 15%). Examination of the blood disclosed red blood cells 4.80 million, hemoglobulin 13.0 g/dl, hematocrit 39.7% and white blood cells 8,100. The blood chemistry was all within normal limits. At present, the patient is being treated with 20 mg of propylthiouracil a day and has achieved euthyroid status.

原田種一，片桐　誠，山根康彦，大久保茂樹，一本杉聡，三宅一昌，保田健太郎

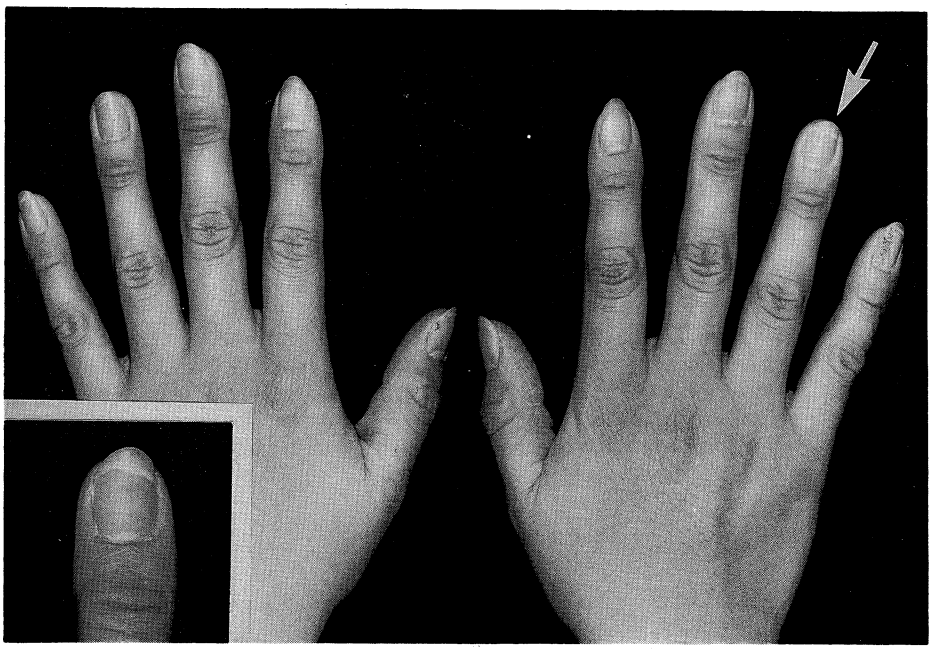

Fig. 1. Onycholysis observed on the right ring finger.

## DISCUSSION

Hyperthyroidism is one of the systemic disease in which cutaneous manifestations may offer characteristic findings. The incidence of cutaneous manifestations due to hyperthyroidism has been reported to be 94.8%.[3] As specific thyroid-related cutaneous disorders, acropathy, atopic eczema, localized myxedema and nail changes are associated with Graves' disease, although the mechanism of thyroid hormone activity on the cutaneous tissue is unknown.[4] Regarding nail change, onycholysis (the separation of the distal nail plate from the nail bed) has been described as fairly common sign in Western textbooks. This sign is observed only in hyperthyroid with diffuse goiter.[5] The incidence of onycholysis reported by Caravati *et al.* was 5.2%.[3] However, in Japan, it and myxedema are rarely seen. This is the first case we have experienced among 1,004 cases with Graves' disease treated in our clinic. The mechanism of nail plate separation is as yet unknown. However, onycholysis is not characteristic of hyperthyroidism since a similar finding has been made in patients with other systemic disease, such as syphilis, hypothyroidism, chronic thyroiditis, anemia, and in house-wives and industrial workers with traumatized nails.[5] Onycholysis is also seen in association with phototoxic reaction due to administration of tetracycline derivatives.[6] Plummer's nail may involve all the fingers and toes, but occurs most frequently in the ring finger.[5] In the present case, such systemic diseases were ruled out and onycholysis was manifested in the fourth finger. According to Luina *et al.* there appears to be no apparent age or sex prediction.[5] Recovery of nail growth after treatment has been reported by Cooke and Luty.[7] In the presented case, the patient was seen in our clinic

after achieving an euthyroid state by means of antithyroid drug administration. Therefore, we were unable to observe the nail in the initial stage of the disease.

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