



Curvature Index of Pincer Nail

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Summary: Pincer nails are a common problem, and various treatments have been reported. However, there is no simple assessment of severity. We designed a curvature index for the nail plate to assess the severity of pincer nail. Measurement of the curvature index was as follows. The apparent width of the nail tip was defined as A, and the traced length of the nail tip was defined as B. The curvature index was defined as B divided by A (B/A). With this curvature index, it is easy to describe the severity of the pincer nail and to compare the improvement before and after treatment. (*Plast Reconstr Surg Glob Open* 2013;1:e49; doi: 10.1097/GOX.0b013e3182a9647a; Published online 1 October 2013.)

Pincer nails are a common problem and often cause significant disability to patients. However, there is no way to simply and correctly express severity of it. We present a curvature index that can be used to easily assess the severity of the pincer nail.

MEASUREMENT OF THE CURVATURE INDEX

Practical measurement was performed on the patient's photograph, taken by axial view of the nail plate. We used free image measurement software found on the Web. The apparent width of the nail tip was defined as A, and the traced length of the nail tip was defined as B. The curvature index was defined as B divided by A (B/A) (Fig. 1). For example, the curvature index of the nail in Figure 1 was 1.65.

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If needed, it was possible to measure a half of the nail. Unfortunately, when both sides of the nail were cut or buried in the lateral nail fold, measurement was impossible.

CASE REPORT

A 51-year-old woman had suffered a pincer nail deformity of her right great toe for more than 10 years. The severity of the deformity progressively worsened. Preoperative curvature index was 2.23 (Fig. 2). Surgical treatment was performed. The deformed nail plate was removed, and the nail bed with a periosteum was raised as a flap. Protrusion of the distal phalanx was resected, and it was flattened. The excessive skin was trimmed from both sides of the nail, and the nail bed was sutured. Postoperative course was uneventful, and the curvature of the nail plate has been improved. After 6 months postoperatively, the curvature index was 1.12 (Fig. 3).

This article conforms to the Declaration of Helsinki.

DISCUSSION

Pincer nails are a common problem, and various treatments have been reported.^{1–4} However, as there is no simple assessment system of curvature severity, the indication of treatment is unclear and subjective, regardless of disease severity.

Kosaka and Kamiishi⁴ first reported the assessment system of the curvature severity, measuring

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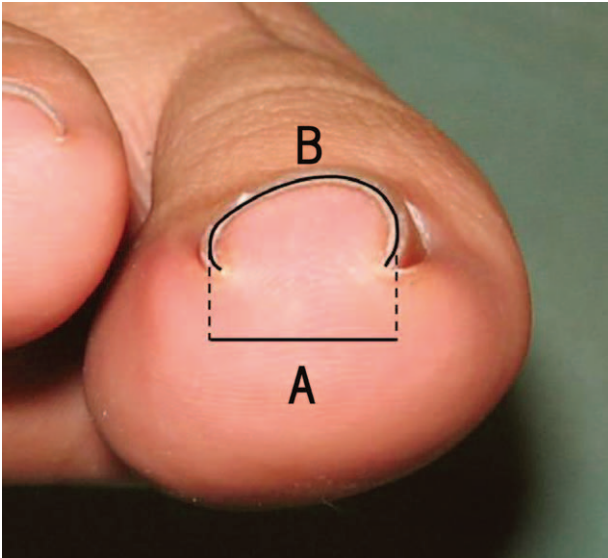


Fig. 1. Measurement of the curvature index. The apparent width of the nail tip was defined as A, and the traced length of the nail tip was defined as B. The curvature index was defined as B divided by A (B/A). Curvature index of this case was 1.65.



Fig. 3. Postoperative view. The curvature of the nail plate has been improved. Six months after operation, curvature index was 1.12.



Fig. 2. Pincer nail deformity of the right great toe. Preoperative view. Curvature index was 2.23.



Fig. 4. Representative case of a trumpet nail. By using the curvature index, the severity of the deformity can be expressed simply and correctly. Curvature index of this case was 2.86.

the width index and height index. This system expressed the curvature degree of the nail objectively for the first time. However, as both sides of the nail root are buried subcutaneously, the correct measurement of the width index is impossible. In addition, if the shape of the nail is curled, the height index cannot be used to correctly evaluate severity because both the width and the height are reduced.

By using the curvature index that we present here, it is possible to evaluate severity of curvature simply and correctly, even if the shape of the nail is curled (Fig. 4). Moreover, it is easy to describe or compare

the progression of disease and improvement before and after treatment.

Ingrown nails are classified by the staging system developed by Heifetz⁵; however, pincer nails do not have a stage classification to date. Instead of a stage classification, various names such as incurved nail, pincer nail, trumpet nail, or omega nail are used to express severity.^{6,7} These names do not have clear divisions and are often confused. Moreover, various treatments vaguely report that they are effective for pincer nails, without accurate evaluation. By using the curvature index reported here, it will be possible to compare the effectiveness among various treatments objectively to choose a treatment method based on the disease severity.

CONCLUSION

A curvature index for pincer nails has been presented. I hope that it will be used for assessment of disease severity and comparison among various treatments and for selection of treatment.

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