

# Nailing the Nail Biopsy: Surgical Instruments and Their Function in Nail Biopsy Procedures

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Nail surgeries, including nail biopsies (NBs), are performed relatively infrequently—perhaps due to dermatologists' unfamiliarity with nail unit anatomy and lack of formal NB training during residency. To address this educational gap, we sought to create a guide that details the surgical instruments used for the nail matrix tangential excision (shave) biopsy technique—the most common technique used in our nail specialty clinic.

## Practice Gap

The term *nail biopsy* (NB) may refer to a punch, excisional, shave, or longitudinal biopsy of the nail matrix and/or nail bed.<sup>1</sup> Nail surgeries, including NBs, are performed relatively infrequently. In a study using data from the Medicare Provider Utilization and Payment Database 2012-2017, only 1.01% of Mohs surgeons and 0.28% of general dermatologists in the United States performed NBs. Thirty-one states had no dermatologist-performed NBs, while 3 states had no nail biopsies performed by any physician, podiatrist, nurse practitioner, or physician assistant, indicating that there is a shortage of dermatology clinicians performing nail surgeries.<sup>2</sup>

Dermatologists may not be performing NBs due to unfamiliarity with nail unit anatomy and lack of formal NB training during residency.<sup>3</sup> In a survey of 240 dermatology residents in the United States, 58% reported performing fewer than 10 nail procedures during residency, with 25% observing only.<sup>4</sup> Of those surveyed, 1% had no exposure to nail procedures during 3 years of residency. Furthermore, when asked to assess their competency in nail surgery on a scale of not competent, competent, and

very competent, approximately 30% responded that they were not competent.<sup>4</sup> Without sufficient education on procedures involving the nail unit, residents may be reluctant to incorporate nail surgery into their clinical practice.

Due to their complexity, NBs require the use of several specialized surgical instruments that are not used for other dermatologic procedures, and residents and attending physicians who have limited nail training may be unfamiliar with these tools. To address this educational gap, we sought to create a guide that details the surgical instruments used for the nail matrix tangential excision (shave) biopsy technique—the most common technique used in our nail specialty clinic. This guide is intended for educational use by dermatologists who wish to incorporate NB as part of their practice.

## Tools and Technique

As a major referral center, our New York City-based nail specialty clinic performs a large volume of NBs, many of them performed for clinically concerning longitudinal melanonychias for which a nail matrix shave biopsy most often is performed. We utilize a standardized tray consisting of 12 surgical instruments that are needed to successfully perform a NB from start to finish (Figure). In addition to standard surgical tray items, such as sutures and tissue scissors, additional specialized instruments are necessary for NB procedures, including a nail elevator, an English nail splitter, and skin hook.

After the initial incisions are made at 45° angles to the proximal nail fold surrounding the longitudinal band, the

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## PEARLS

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Surgical instruments utilized during a nail biopsy procedure: 1, #15 Teflon-coated surgical blade; 2, needle driver; 3, forceps with teeth; 4, scalpel handle; 5, Mayo scissors; 6, nail elevator; 7, skin hook; 8, clamp; 9, suture scissors; 10, tissue scissors; 11, English nail splitter; 12, absorbable suture polyglactin 910 on a P3 needle.

nail elevator is used to separate the proximal nail plate from the underlying nail bed. The English nail splitter is used to create a transverse split separating the proximal from the distal nail plate, and the proximal nail plate then is retracted using a clamp. The skin hook is used to retract the proximal nail fold to expose the pigment in the nail matrix, which is biopsied using the #15 blade and sent for

histopathology. The proximal nail fold and retracted nail plate then are put back in place, and absorbable sutures are used to repair the defect. In certain cases, a 3-mm punch biopsy may be used to sample the nail plate and/or the surrounding soft tissue.

### Practice Implications

A guide to surgical tools used during NB procedures, including less commonly encountered tools such as a nail elevator and English nail splitter, helps to close the educational gap of NB procedures among dermatology trainees and attending physicians. In conjunction with practical training with cadavers and models, a guide to surgical tools can be reviewed by trainees before hands-on exposure to nail surgery in a clinical setting. By increasing awareness of the tools needed to complete the procedure from start to finish, dermatologists may feel more prepared and confident in their ability to perform NBs, ultimately allowing for more rapid diagnosis of nail malignancies.

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