Biopsy Techniques for Skin Disease and Skin Cancer: A New Approach

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Abstract

Skin biopsies provide physicians with valuable information in the evaluation of many dermatologic diseases. It becomes increasingly important for physicians to be proficient at performing skin biopsies because of the prevalence of skin malignancies and other dermatologic diseases in general population. The most common techniques include the punch, shave, excisional, and incisional biopsies. Each procedure has advantages and disadvantages, depending on the dermatologic diseases. The choice of biopsy type depends on the suspected disease's pathology and lesion location. Performing time-saving and economically convenient techniques is more favorable for both physicians and patients. For this purpose, for the past 10 years, we used a technique that provides hemostasis and substitute suturing without using any suture material for patients who are suitable for punch and incisional biopsies. We aim to share this easy, cheap, and time-saving procedure.

Keywords: Biopsy, easy technique, sutureless closure

Introduction

Biopsy of the skin is becoming a more common procedure in medicine with the increasing incidence of skin diseases and skin cancer. Clinicians should be skilled at performing biopsies.[1] Skin biopsies can be performed readily, given the easy accessibility of the skin, with relatively easy application of local anesthesia, and generally well-accepted cosmetic result. Facilitating biopsy procedures will save time for the practitioner and provide good cosmetic results. Incisional and excisional biopsies do require more preparation, time, and skill. Care must be taken not to distort anatomic structures either during the removal process or after healing.

In this article, we tried to describe a novel, fast, and cheap biopsy technique.

Description of the Technique

A 35-year-old man presented with a complaint of a nevus on the left subcostal abdominal skin [Figure 1]. Incisional biopsy of the lesion was planned. An informed consent was obtained from the patient. Adequate asepsis was taken before the procedure. Local anesthesia was performed with a tuberculin syringe having a 30-G needle diameter and a 13-mm needle length. Biopsy was performed by a wedge incision [Figure 2].

After resection, the needle by which the local anesthesia was performed was used as a suture material and was passed on both sides of the wound at equal intervals and depths, and the wound was closed [Figure 3]. As the needle of the syringe used for local anesthesia in this technique was used as wound closure material, small tuberculin injectors were generally preferred for small incisional biopsies. If the length of the biopsy area increases, a slightly longer needle may be preferred. The wound was followed up for 24 h, and after 3 days, the needle was extracted [Figure 4]. Histopathological examination revealed dysplastic nevus.

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Figure 1: Image of excised nevus

Figure 2: Image of 30-G needle tuberculin syringe used after excision

Figure 3: The needle was left in the incision line for 3 days

Figure 4: Image of the scar in the postopertative first month

Subsequent excisional biopsy was performed, and the wound was aesthetically closed.

A biopsy is usually performed in several occasions: to remove a lesion for cosmetic and therapeutic purposes; to diagnose a suspected lesion; and to present a sample for techniques such as immunofluorescence, polymerase chain reaction, culture, special stains, or electron microscopy.

Punch, incisional, or excisional biopsy is suitable for possible dermal or subcutaneous invasion.[1,2]

Punch biopsy is more suitable for providing a sample of the entire dermis and superficial subcutis for the pathologist in improving diagnostic outcome. An incisional or excisional biopsy is best for evaluating suspected cutaneous and subcutaneous lesions. The punch biopsy is a routinely performed procedure, which allows clinicians to sample all levels of the skin. Although sizes range from 2 to more than 8 mm in diameter, 3–4 mm punches are often used, providing adequate tissue for pathologic evaluation. Depending on the size, the lesion may be removed or a sampling of a larger lesion may be performed with biopsy.[3]

Punch instrument is a circular blade, which can be used for many diagnostic and therapeutic purposes in different medical and surgical specialties. Punch surgery (or biopsy) is achieved by using punch blade under local anesthesia. Basic punch biopsy is quick and easy to learn with very few complications such as bleeding and infections.[4] Applying pressure, Gelfoam bandages, or simple stitching with nonabsorbable suture can be used for hemostasis.[5]

Incisional and excisional biopsies are typically performed when a larger or deeper tissue specimen is required. These biopsies are favored over punch or shave biopsies for inflammatory conditions deep in the subcutaneous fat, lesion suspected as melanoma, ulcerative conditions in which the ulcerative process and normal skin are required as a continuum, and for hypertrophic skin processes.

In the case of suspected melanoma, if an excisional biopsy is unable to be performed due to the size or location of the lesion, a punch or incisional biopsy may be used to sample the thickest part of the lesion. No data are available to indicate that a punch or incisional biopsy of melanoma increases the chance of metastasis.[6]

Local anesthesia is sufficient for most skin biopsies. Lidocaine (Xylocaine) 1% or 2%, an amide-type anesthetic, is widely available, inexpensive, and safe for most patients. Rare cases of acute allergic reactions to lidocaine have been described. In these cases, a careful history or background check and occasional allergy testing are helpful. Single-dose paraben-free vials of lidocaine can be used in patient who is allergic to this substance.[7]

A 30-G needle with a tuberculin syringe is usually adequate for the injection. Punch biopsies usually do not require the use of a hemostatic agent unless the area is not sutured. Compression and sutures are often adequate, whereas electric- or battery-powered cautery is occasionally useful if bleeding persists.[8]

Incisional biopsy requires more preparation, time, and skill. The shape of the incision is truly fusiform, with angles of 30° at the wound tips. To minimize redundant tissue at the ends of the sutured wound, the length of the surgical wound should be approximately three times the width. It is important to plan the direction of the excision by following the relaxed skin tension lines and anatomic landmarks and by examining the skin at rest and with movement. Optimal cosmetic outcomes can be achieved if the incision falls into anatomic creases or wrinkles.[9] Anesthesia is often applied subdermal and lateral to the area to be excised to avoid distorting the fusiform design.

In biopsy applications, wound closures may differ depending on whether they are incisional or excisional. If excisional biopsy is performed, scar formation is considered and suturing is applied with aesthetic concern. In incisional biopsy cases, as the method of surgical procedure will be decided according to the pathology result, wound closure is performed considering prevention of contamination and bleeding, and without considering aesthetic concern.

This technique can be applied to any part of the body, but it is easier to apply where the skin is lax (especially the skin of the extremities, abdomen, etc.). The most important advantage of the closure technique that we have described is that the procedure time is quite short because of the absence of suturing and no extra cost has been incurred for the suture material. In this technique, there is no serious risk to the procedure as the needle of the syringe is placed in the skin and subcutaneous tissues, and both ends are on the skin. When applied to stretched areas (skin areas above the bones), pain may occur for the first 12 h. This can be controlled by ordinary analgesics.

This procedure allowed us to close the wound easily, and it reduced bleeding. Re-excision is commonly performed for suspicious lesions, especially in punch or incisional biopsy. Usually bad scar tissue occurs after these re-excisions. In our series, we encountered well healed and cosmetically good scar tissues because no bleeding was seen, and the suture material was extracted in 3 or 4 days.

We did not perform our technique for wounds that needed primary sutures or wounds that were greater than the needle. The 30-G needle was only used in punch or incisional biopsies that were shorter than the needle. This technique allowed the scar to heal with no complications, and it was cheaper, easier, and faster to perform.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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