A RAPID AND SIMPLE METHOD FOR OBTAINING PUNCH BIOPSIES WITHOUT ANESTHESIA*

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In the course of histochemical studies carried out in our laboratories (1), it became necessary to obtain serial skin biopsies without the use of local anesthetics. The motor-driven rotary punch described by E. Urbach (2—4) has been utilized for this purpose and has been found so useful that it was adapted for most biopsy procedures performed in our dermatologic outpatient department.

With the motor-driven rotary punch it is possible to obtain biopsies almost painlessly *without local anesthesia*. The procedure can be rapidly performed at the bedside, in the home or in the physician’s office. The biopsy specimens include the full thickness of the skin down to the subcutaneous fat and are entirely adequate for histopathologic examinations.

METHOD

The punch used in our laboratories is essentially that described by E. Urbach (2—4). It consists of a chrome steel tube, 5 mm. in diameter and 10 mm. long, sharpened to a knife edge at the open end, and attached to a thin steel rod at the closed end.† This punch is inserted into the chuck of a small electric motor of the kind ordinarily used in hand drills which operates on 110 Volts AC or DC and rotates at 2000 to 3000 RPM‡. The punch must be inserted into the chuck of the motor as far as possible in order to minimize eccentric rotation and vibration which tends to cause undue pain and tearing of the tissue. A 5 cm.³ plate of clear Lucite with a central hole slightly larger than the outside diameter of the punch is used as a guard. Depending on the thickness of the skin of the prospective biopsy site and on the proximity of underlying structures such as bone, blood-vessels and tendons, a Lucite plate of the appropriate thickness is selected (⅛ to ⅜ inch) (figure 1).

The actual biopsy is performed as follows: The biopsy site is swabbed with 70% Alcohol. A Lucite guard plate of the proper thickness is placed in direct contact with the skin and positioned so that the site to be biopsied is seen in the central hole. The guard is held down firmly with the left hand. After starting the motor, the rotary punch is rapidly inserted vertically into the central opening of the guard until the chuck comes to a stop against the Lucite and then immediately withdrawn. The guard is removed. The circular plug of skin cut by the punch is gently lifted from its bed with a small pair of tooth forceps and the base snipped off as deeply as possible in the biopsy well with manicure scissors.

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† Made for us by George Pilling and Sons, 3451 Walnut Street, Philadelphia, Pa.

‡ Hand-EE $13aAB. Manufactured by the Chicago Wheel and Manufacturing Company, Chicago, Ill.
Pressure is exerted on the wound for a few seconds with a sterile gauze sponge. This is ordinarily enough to stop any bleeding from the edge of the skin. The wound is swabbed with a 2% aqueous solution of gentian violet and dressed.

RESULTS

With this method we have obtained skin biopsies without the use of local anesthesia from almost every area of the body, including the face. Healing has been rapid, infection rare and scarring minimal. The procedure is not much more painful than the injection of 4% Novocaine® solution ordinarily used for local anesthesia; such pain as does occur is of so brief duration that patients actually prefer this method to conventional biopsy procedures. Some slight additional pain may arise on snipping off the base of the specimen, but this also is of very brief duration and not severe.

Using a guard of the proper thickness, we have had no difficulty in avoiding injury to underlying structures. As a rule, a Lucite plate of ¼ inch thickness is used in biopsies of the face, scalp, hands, feet and over the tibia, and one of ⅜ inch thickness over fleshy areas such as arms, thighs, buttocks, abdomen and back. In the occasional case where bleeding has not stopped spontaneously after a few seconds of pressure, insertion of a small plug of Gelfoam® into the biopsy well has prevented any further hemorrhage.

For routine biopsies, a punch of 5 mm. diameter has been used, but for most histochemical work and for use on the face a 3 mm. punch is quite satisfactory. The latter leaves only a minimal and almost invisible scar. Sections cut from

Fig. 1. The rotary biopsy punch. (Drill motor, wrench used to tighten chuck, Lucite guards and biopsy punches).
biopsy specimens obtained with the rotary punch compared favorably with the best control specimens obtained by surgical methods (figure 2).

Fig. 2. Low power view of section cut from a biopsy specimen obtained with the motor driven, rotary punch. Note that the section includes the full thickness of the skin and the upper portion of the subcutaneous fat, and is entirely satisfactory for histopathologic examination.

DISCUSSION

Since its description in 1924, the motor-driven rotary punch of E. Urbach has been used extensively for biopsy purposes in the major dermatologic clinics of Europe (5-7). Surprisingly, it has been virtually unknown in the United States.

The advantages of the rotary punch method for biopsy are obvious—it is rapid, simple, requires a minimum of equipment, and is extremely flexible in its application. The routine use of this biopsy method has been found to be time and labor saving for the attending and nursing staffs of our outpatient department. It is particularly useful in the laboratory, where it enables the investigator
to obtain multiple simultaneous or serial specimens with a minimum of dis-
comfort and disfigurement to the patient. Biopsies obtained in this way are
eminently suited for histochemical study, since there is no tissue distortion or
chemical interference from locally injected anesthetics.

SUMMARY

1. A rapid and simple method for obtaining punch biopsies without anesthesia
is described.
2. The biopsy specimens are of uniform size, extend in depth into the subcu-
taneous fat and are entirely adequate for histologic and histochemical examina-
tion.
3. While this method is of particular usefulness to the research worker in
quantitative chemical and histochemical studies of the skin, it is also a practical
tool for obtaining routine biopsies in clinic and office.

REFERENCES

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