Procedures in Practice

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SKIN BIOPSY (1)

Skin biopsy is an extremely valuable diagnostic technique. The rules are simple, but unless they are followed the results may be disappointing. Histological appearance is the final arbiter in diagnosing few skin disorders. It is not a substitute for clinical assessment but is complementary to it.

The implications of the procedure and the likely consequences (for example, scarring) should be discussed with the patient beforehand.

Aseptic precautions should be similar to those for any other minor surgical procedure.

Preliminary procedure

A local anaesthetic is injected just under the skin. Superficial blebs resulting from injecting fluid into the skin itself must be avoided at the biopsy site. Occasionally it is necessary to avoid the biopsy site itself and to inject the anaesthetic in a ring around it—for example, to preserve mast cells.

Vasoconstrictors such as adrenaline and felypressin reduce bleeding but must not be used in fingers, toes, ears, or penis because intense vasospasm may result in tissue necrosis.

Basic techniques

Elliptical excision biopsy—The standard method of skin biopsy is to excise by scalpel an ellipse of skin. Necessary instruments include fine-toothed forceps, needle holder, scalpel, scissors, skin hook, and eyeless needle with suture.

The ellipse should normally measure about 12×4 mm, but smaller specimens may be adequate if required for cosmetic or other reasons. The ends of the ellipse should be pointed to aid closure of the wound. When two specimens are needed from the same site—for example, one for routine histological examination and one for immunofluorescence—two longitudinal halves of the excised ellipse are convenient. It is easier to make the central incision first.

Incisions should always be made vertical to the skin surface. Incisions slanted inwards result in an unsatisfactory, wedge-shaped specimen and imperfect apposition of the wound edges. The full thickness of skin is incised. The elliptical island of skin, now attached only by the subcutaneous tissue, is lifted by one corner, ideally with a skin hook or needle, and separated, by scalpel or scissors, from the deep tissue to leave attached to the underside of the dermis a thin layer of subcutaneous fat. If pathological changes in the fat are suspected a deeper specimen will be necessary.

Compression by forceps causes tissue distortion. If used at all the forceps should grasp the specimen at one corner only.

Interrupted non-absorbable sutures (for example, silk) are usually used. Equal bites are made on each side of the wound, the needle piercing the skin 2-3 mm from the cut edge. Sutures should be removed after four or five days for the face, 10 days for the leg, and seven days for most other sites. Sometimes adequate closure of the wound may be attained with sterile adhesive tape (Steristrips).

An occlusive dressing kept in place for several days may enhance bacterial growth. The initial dressing should be discarded after a day. If continued cover is desired the dressing should be changed daily.

Punch biopsy—The punch is a metal cylinder with a sharp cutting edge at one end. A 6-mm-diameter instrument is preferred for most work, but smaller and larger sizes are available. The punch is pushed with a downward and twisting movement (imparted either by hand or by motor) into the skin, then removed. The specimen is lifted and separated by scissors from the underlying tissue. The wound may be left unsutured or the base cauterised for haemostasis, but inserting one or two stitches gives a better result. Scarring is further minimised by using the punch while traction is applied outwards across the wrinkle lines; when the traction is released the open wound takes up an oval shape.

This method has the advantage of saving time, but most pathologists prefer the elliptical excision method.

Curettage with a sharp-edged spoon curette followed by cautery may be used to remove certain skin lesions including warts, basal-cell carcinomas, seborrhoeic keratoses, and actinic keratoses. Though generally satisfactory for histological examination, curetted specimens are usually incomplete or fragmented (although with care this may be minimised). Curettage, therefore, is mainly a therapeutic procedure and is only indirectly a biopsy technique.

Epidermal (shave) biopsy—Superficial lesions (for example, cellular naevi and largely epidermal disorders) may be shaved off by horizontal cutting with a scalpel, the skin being raised if necessary by gentle pinching. The defect may be cauterised for haemostasis.

Needle biopsy—Biopsy needles, like those used for liver biopsy, have been used but are not generally satisfactory.

Skin surface biopsy—A layer of stratum corneum may be removed, attached by adhesive to a glass slide.

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