A punch biopsy specimen allows assessment of pathology within the epidermis, the dermis and in subcutaneous fat, but may limit assessment of lesions whose diagnosis depends on assessment of architecture. Melanocytic lesions and proliferations of squamous epithelium may be difficult to assess when insufficient breadth of tissue is submitted for histological examination. Other techniques, such as excisional or shave biopsy are often preferable.

Partial biopsy of a suspected malignant melanoma using a biopsy punch may be dangerous as there is a significant rate of false negative diagnosis.

The biopsy punch is a disposable instrument with a sharp circular cutting edge and a handle, and is available in diameters from 2mm to 8mm. The 3mm and 4mm punches are generally the most useful, and biopsies less than 4mm in diameter are often unsatisfactory for assessment of inflammatory dermatoses.

Clinical correlation is especially important in dermatopathology, and the provision of a detailed history may be crucial to the correct interpretation of histopathological findings. Important information includes distribution, appearance and duration of lesions, exposure to chemicals, allergens and drugs, any previous local therapy of the lesion, and any relevant systemic diseases.
Select a suitable site for biopsy. Early invasive malignancy is more likely to be sampled if the centre of a keratosis is biopsied. A fully-developed inflammatory lesion will give more information than an early or an involuting lesion, but an early lesion is preferable if the inflammatory process is blistering, ulcerative or pustular.

If there are multiple lesions, avoid those which are altered by trauma or treatment, or old “burnt out” lesions of an inflammatory process. Choose a lesion above the knees, if possible, as biopsies of the lower legs and feet heal more slowly, especially if the circulation is poor.

In vesiculo-bullous diseases, choose the earliest lesion available, and take care to keep the roof of the blister intact. A biopsy of perilesional skin is preferred for direct immunofluorescence testing.

Cleanse the selected site gently with alcohol. Measure and outline the lesion before the swelling from local anaesthetic injection distorts and blanches the site.

Inject the area to be biopsied with local anaesthetic according to guidelines. Do not use adrenaline-containing solutions on distal fingers, toes or the penis.

Stretch the skin taut (A), perpendicular to the wrinkle lines, before inserting the biopsy punch blade. This will ensure an elliptical, rather than round, defect after the procedure (C).

Press the punch firmly down into the skin with a rotary back-and-forth cutting motion until the blade is felt to sink into the softer subcutaneous fat. Better closure and improved wound healing is obtained by full-thickness skin biopsy, and the plug of skin and subcutis is easier to remove.

Withdraw the instrument. The skin plug will either pop up or lie free within the wound. Lift the specimen gently with fingers or forceps and sever the base with scissors or a scalpel blade, including as much subcutaneous fat as possible (B).

Place the tissue in 10% neutral buffered formalin for fixation. (Note: biopsies for direct immunofluorescence examination should be submitted unfixed, either in special transport medium, or wrapped in saline-moistened gauze to prevent drying out, and delivered to the laboratory as quickly as is feasible.)

Apply pressure to the biopsy site for haemostasis. Suture of the wound is often not necessary with smaller punch biopsies, but healing of a 5mm or larger punch biopsy site will be more rapid and leave a finer linear scar if sutured.