

• **Jaw punch biopsies** are obtained using instruments with alligator-like jaws that remove a portion of tissue that includes the outer surface of the tissue sampled. Examples include the:

- » **Endoscopic biopsy forceps**, which seldom obtains enough tissue for accurate interpretation (Figure 13.4).
- » **Mare uterine biopsy forceps**, which is used not only for biopsy of endometrium, but also for biopsy of rectal mucosa and tissue in the nasal cavity (Figures 1.10, 17.1).

To avoid histological artifacts, tissue should be removed from biopsy needles with a hypodermic needle rather than by using fingers (Figure 1.11).

• **Exfoliative cytology** refers to study of cells obtained from skin, mucosa, internal organs, or body cavities. Exfoliated cells are obtained by 1) scraping tissue, 2) pressing a microscope slide against tissue (i.e., direct impression smear), 3) pressing a swab against a lesion, and then to a microscope slide (i.e., an indirect impression smear). Moistening a swab with saline before a smear is obtained indirectly may improve the quality of the smear.



Figure 1.10A & B

By using a mare endometrial biopsy forceps for endoscopic guided biopsy of nasal tumors rather than an endoscopic biopsy forceps, adequate tissue for histological diagnosis is more likely to be obtained.

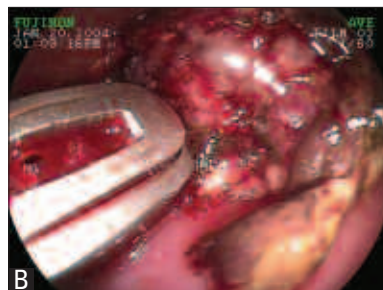
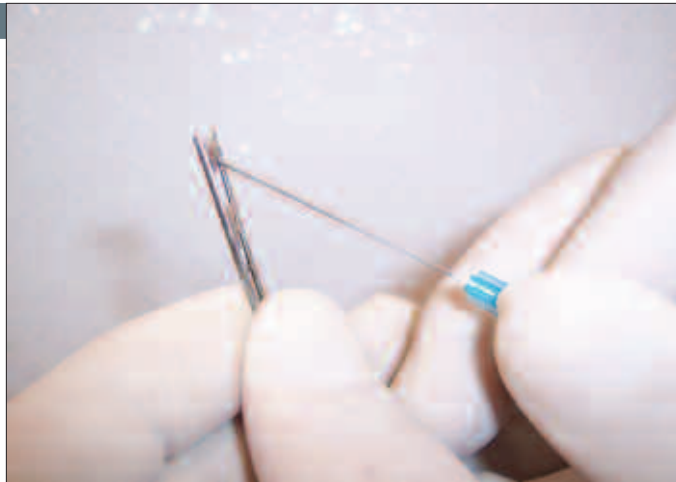


Figure 1.11

To avoid histological artifacts, tissue should be removed from biopsy needles with a hypodermic needle rather than using fingers).



HANDLING OF SPECIMENS FOR HISTOLOGICAL EXAMINATION

- Cores of tissue can be removed from the biopsy needle with forceps, a hypodermic needle, or by agitation of the biopsy needle in fixative (or a transport medium).
- Impression smears for cytological examination can be made before the tissue is submitted for histological examination (although this may decrease the quality of the specimen for histological examination) (Figure 1.12).
- Tissue can be placed in a commercially available transport medium for culture. Alternatively, tissue for culture can be transported in sterile, physiological saline solution for up to 24 hours.
- Tissue is placed in a fixative. Rule of thumb: **use 10-15 volumes of fixative to one volume of tissue.**
- **10% formalin** is the most commonly used fixative. Neutral buffered formalin is preferred over plain formalin.
- **Bouin's solution** is often used to fix intestinal mucosa, endometrium, and endocrine tissue. It provides excellent preservation of cellular detail, but tissue fixed in this solution for over 24 hours becomes brittle and difficult to section. When delay of tissue processing is anticipated, tissue can be allowed to fix in Bouin's solution (for at least 2 hours and no longer than 24 hours) and then transferred to 70% ethyl alcohol or formalin.
- **3 or 4% buffered glutaraldehyde** (made from a refrigerated 25% stock solution just before use) is used to fix tissue for electron microscopy.

Figure 1.12

Impression smears for cytological examination can be made before the tissue is submitted for histological examination.

