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Preparation techniques

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Summary

In this chapter you should have picked up the following points:

- A properly collected specimen by a well-trained clinician is the first step towards a clinically useful cytological diagnosis.
- Clinicians and cytologists must work together to procure the best possible samples for cytological assessment.
- Techniques for specimen collection can be grouped into exfoliative methods or aspiration methods. Both methods take advantage of the tendency of neoplasms to shed cells, thereby aiding cell collection.
- Sampling error is the failure to collect a sufficient quantity of diagnostically relevant cells, thus leading to the problem of false negative reporting.
- Fixation is the process by which cells and their constituents are chemically changed to preserve their morphology and to facilitate subsequent demonstration techniques.
- Specimen processing aims to maximize the chances of making clinically useful cytological diagnoses. Almost all techniques rely on methods that concentrate a cell population onto a relatively small area of a glass slide.
- Slide preparations should contain cells that are *representative* of the site being examined or, better still, should be *enriched* with diagnostically relevant cellular material. Membrane filtration and density gradient centrifugation are the most widely used enrichment techniques.
- Methods for the demonstration of cells or their constituents range from sublimely simple staining procedures to advanced molecular techniques.
- All preparation and demonstration techniques, as well as the process of waste disposal, demand due attention to health and safety legislation and require a full risk assessment. Risks must be controlled as far as is reasonably practicable.