

Histology

Histology

Specimens for histology are classified as biopsies and resections, although strictly speaking all samples are biopsies. The reasons for taking small biopsies include diagnosis, further assessment and prognostic prediction. Types of small biopsy include punch biopsy, needle core biopsy and mucosal biopsy (Summary box 11.2). The purpose of a resection is usually treatment of a lesion (e.g. a tumour) by removing it. Other reasons for a resection exist, e.g. sleeve gastrectomy for obesity or creation of an ileostomy or colostomy. The pathologist's approach depends on the reason for surgery. For example, assessment of a cancer resection has multiple purposes, including confirmation of the diagnosis, classification, grading, staging, determination of further management and prediction of outcome. An excision biopsy is larger than the common types of small biopsy and serves as both a diagnostic biopsy and as a resection. For example, excision of a small skin lesion achieves its removal and also allows histological diagnosis and classification. Ultrasound-guided and computed tomography (CT)-guided biopsies of focal and less accessible lesions have become more common and may pose challenges to the pathologist because of limited sample size. Material from biopsies or resections is usually suitable for molecular analysis. Increasingly, the role of pathologists includes the identification of appropriate material for various molecular tests and assessment of tissue suitability for molecular testing. For example, some tumour biopsies may contain insufficient tumour for molecular testing. Of course, correct diagnosis and grading are essential before molecular testing occurs, and attempts to bypass this step and take tissue for molecular testing without including the step of histological assessment run many unnecessary risks such as absence of tumour in the sample or the presence of a tumour that is different from that expected clinically. All samples for routine histology are immediately placed in a fixative, usually formalin (10% formaldehyde), by the surgical team or by other clinical staff to preserve morphology. This usually happens before delivery to the pathology laboratory.

Histology Formalin-fixed tissue Biopsy Mucosal, e.g. gastrointestinal, bronchial, oral Punch, e.g. skin Needle (core), e.g. liver Curettings, e.g. endometrium, prostate Excision biopsy Resection Fresh tissue Frozen section diagnosis Research Tissue banking Occasional special stains that require fresh tissue Cytology Cervical Washings, brushings, scrapes Fine-needle aspirate Fluids, e.g. ascites, pleural fluid Sputum

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