

Technical Note

Grossing biopsies: an introduction to general principles and techniques

Izak B. Dimenstein, MD, PhD

Department of Pathology, Loyola University Medical Center, Maywood, IL 60153, USA

Abstract

Representation of grossing biopsies methodology is minimal in the surgical pathology literature. The present review is an attempt to provide an update on general principles and common techniques for grossing small biopsies. Biopsy triage is the first step of grossing that facilitates optimal handling of the specimen. It includes determination of the specimen's category, priority for processing, and adequacy of the specimen's preservation. New requirements of modern biopsy processing, such as the numerous modern ancillary studies and increased expectations for rapid turnaround time, make this often underestimated preanalytical phase more significant. This article discusses general requirements for biopsy grossing techniques that include completeness of submission, selecting for microscopy the most diagnostically valuable parts of the biopsy specimen, and specific instructions for further histology processing.

© 2009 Elsevier Inc. All rights reserved.

Keywords: Grossing; Biopsies; Surgical pathology

1. Introduction

Representation of grossing biopsies methodology in the surgical pathology literature is scarce. Lester's *Manual of Surgical Pathology* [1], one of the most popular grossing manuals, allots 2½ pages (chapter 13, "Biopsies, small") to the grossing of small biopsies. Neither this chapter nor others discuss technical issues involved in grossing biopsies in detail. Many teaching hospitals have local, homegrown manuals; but they are usually restricted for internal use only.

The present material does not intend to substitute existing gross pathology manuals but rather to supplement, for pathologists and pathology residents, information on several practical issues of biopsy grossing techniques. The goal of this article is to bring a comprehensive approach to biopsy grossing based on personal experience at the grossing bench. Some notions expressed in this article reflect personal views developed in a concrete working environment, although different approaches might be equally valid.

1.1. Types of biopsies

Biopsies may fall into several different categories. Defining the type of a biopsy is not merely an academic

exercise. This classification has a practical implication for accession/grossing triage and especially for processing. Table 1 summarizes the 4 different types of biopsies commonly performed in clinical practice.

Obviously, all biopsies are taken to obtain a tissue diagnosis. Most types of biopsies are self-explanatory. There is a practical reason, however, for distinguishing incisional and excisional biopsies. The purpose of an incisional biopsy is to confirm the clinical diagnosis and to obtain prognostic markers, although a small lesion can sometimes be removed completely by an incisional biopsy. An excisional biopsy, on the other hand, requires in addition to a diagnosis the determination of the status of the margins. An example of an incisional biopsy is the removal of a limited sample of tissue, for instance, in advanced breast cancer. An example of an excisional biopsy is the removal of tissue containing the entire lesion, for instance, a lumpectomy for a palpable mass in the breast. A biopsy of the bladder during transurethral resection can be very voluminous, but its approach to grossing is closer to an incisional biopsy than to a resection specimen. These examples illustrate the difficulty for strictly segregating some types of biopsies into the various classification types.

A punch/excision is sometimes used in dermatology for cases in which examination of the margins is required, as opposed, for example to the case of alopecia or vasculitis, in

E-mail address: idimenstein@hotmail.com.

Table 1
Types of biopsies

Biopsy type	Modality/technique	Typical examples
Simple directed biopsies	Scraping/brushing	Skin, nail, bronchus
	Aspiration	Sinuses, endometrium
	Curettag	Endometrium, cervix, bone, etc
Needle biopsies	Endoscopic bx	GI, GYN, endomyocardial, bladder, etc
	Shave/punch bx	Skin
Incisional biopsies	Aspirate (FNA); core	Breast, prostate, liver, kidney, bone, soft tissue, etc
	Scalpel	Skin, oral cavity, larynx, lung, liver, brain, breast, vulva, soft tissue, muscle, nerve, artery, etc
Excisional biopsies	Scalpel	All organs
	Punch	Skin

Bx indicates biopsy; GI, gastrointestinal; GYN, gynecologic; FNA, fine needle aspiration.

which evaluation of the margins is not required. Punch biopsy of pigmented lesions and punch/excision should therefore be treated as an excisional biopsy.

Gastrointestinal tract biopsies are now predominantly of the pinching type (hot and cold), as well as aspirates (in polyp cases). Endoscopic mucosal resection of the gastrointestinal tract is closer to a biopsy. A giant or fragmented colon polyp is a biopsy. Size is not a determining factor for classifying the procedure as a biopsy, but the purpose of the procedure is.

1.2. Biopsy triage

The biopsy grossing triage facilitates optimal handling of processing starting at specimen receipt. Many grave mistakes, besides specimen misidentification, occur at the initial preanalytical phase during specimen accession. The grossing person is instrumental in managing the accession process. Although very often neither pathologists nor pathology residents are closely involved in biopsy triage, it is important to understand the process for effective control of this phase of grossing.

Besides “separation of workload” [2] when a laboratory directs different case types, there are 3 main points for considerations during biopsy grossing triage that are presented on Diagram 1: the specimen’s category (ie, whether it is a cytology or a surgical pathology sample), determination of the priority for processing, and securing appropriate specimen preservation for processing.

Effective triaging of the specimen requires knowledge, experience, and common sense. The main cause of the specimen being incorrectly directed is that the clinics sometimes assume that the pathology department is a monolithic entity without subdivisions, such as surgical pathology, cytology, and microbiology. This is why clear and appropriate labeling in the operating room (OR) is critical for successful and timely processing of biopsy material.

“Rush,” “stat,” “expedite,” or “urgent” orders are a reality of biopsy grossing triage. Perhaps, similar to critical values in clinical pathology, a critical diagnosis that requires urgent contact with clinicians to facilitate rapid intervention or treatment will change the entire definition of a “rush” biopsy in surgical pathology in the near future [3]. The input of the clinicians is indispensable for proper triaging of cases. Samples submitted to the pathology laboratory should be clearly marked as “rush” by the OR for proper triaging. Gross laboratory personnel should also be trained to identify when potential mistakes can take place by having a list of specimens that are commonly submitted as “rush” or “urgent,” such as transplant biopsies. The current trend for turnaround time acceleration also requires triage for prioritization of different kinds of specimens for processing depending on size and preliminary preservation/fixation.

One of the factors in biopsy triage is the status of preservation and its main variable, fixation. Evaluation of the specimen’s preservation status is an important task during grossing triage that should go parallel with the determination of the direction of processing. Table 2 presents, in the author’s experience, the most frequently used reagents for specimen preservation in anatomical pathology.

Specimens are susceptible to drying artifacts, especially before fixation. The amount of time the tissue is left in contact with air, outside of a preservation solution, should be reduced to a minimum [4]. For example, if a scarce material such as a vocal cord biopsy is placed on a dry napkin, there will be a definite tissue loss when the dried-out tissue is processed. To prevent the tissue from drying out, the specimen should be placed on a gauze pad dampened with

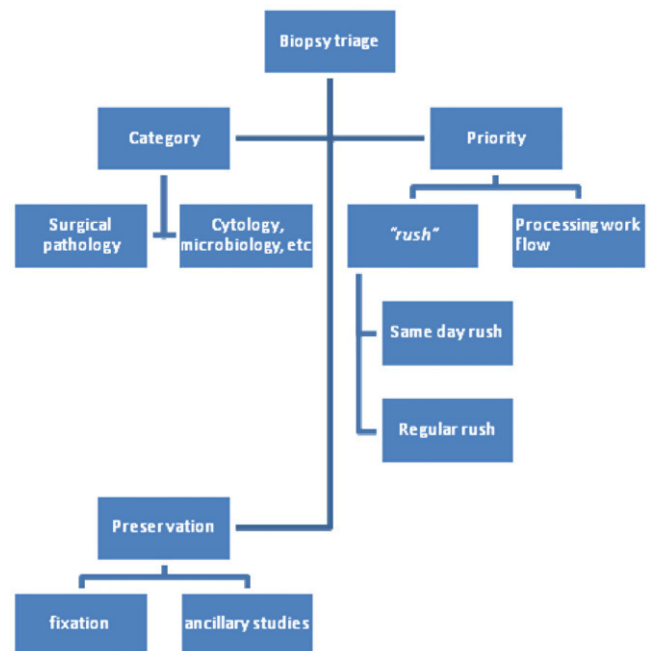


Diagram 1. Biopsy triage.

Download English Version:

<https://daneshyari.com/en/article/4130435>

Download Persian Version:

<https://daneshyari.com/article/4130435>

[Daneshyari.com](https://daneshyari.com)