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Standard operating protocol in Histopathology Collection, Handling, and Transport of Postmortem Specimens

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We use this protocol and it's working

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Abstract

Specimens collected during autopsy are routinely sent to the histopathology laboratory for histological assessment. The preparation of these specimens for transport involves a sequence of critical steps to maintain tissue integrity from the time of collection until laboratory reception. These steps include proper specimen collection, placement in an appropriate container with the correct type and volume of fixative, accurate labelling, and complete documentation on the requisition form. Timely and appropriate transport is essential to ensure optimal preservation, with large specimens requiring prompt attention by the pathologist for early slicing and fixation, thereby facilitating accurate pathological diagnosis.

Guidelines

Introduction

Types of specimens taken at autopsy will be sent to the histopathology laboratory for histological assessment. Preparation of these specimens for transport for histopathological examination involves a series of essential steps from the time it is taken from the deceased up to its reception in the Pathology laboratory. These include proper collection of specimens, placing the specimen in an appropriate container immersed in an appropriate type and amount of fixative; accurate identification and labelling of the specimen container with corresponding details in the requisition form; and completeness of information in the requisition form. It is important to transport specimens for histopathological examination to the laboratory in an appropriate manner in order to optimally preserve tissue integrity for pathological diagnosis. Immediate transport to the laboratory is also important as the pathologist should attend large specimens as early as possible for slicing in order to ensure optimum fixation.

Specimen collection

- Human tissue is considered precious and potentially hazardous, and relevant precautions should be followed to protect the specimen as well as the handlers
- When whole organs are preserved, an appropriately sized container should be used, and the exact area of suspected lesion must be marked or clearly documented in the autopsy report.
- The adequate and representative tissue should be collected.
- When portions of organs are preserved, adjacent anatomical landmarks should be included, or other orientation markers should be placed.
- When sampling of skin of soft tissue lesions is done, the normal-abnormal tissue junction must be included for differentiation with the normal tissue serving as a negative control for any microscopic finding in the lesion.
- When natural death is suspected to be the cause of death; relevant organs need to be preserved in 10% formalin solution for histopathological examination; and the same may be forwarded to Professor 26 Head of Pathology of the concerned Medical College.
- Air-drying of tissue should be avoided.

Container

- All tissue submitted for histopathological examination must be in leak proof, wide mouthed containers with a well-fitting lid which will not be dislodged during transport and handling.
- The container/s should be kept ready with fixatives to ensure the direct transfer of specimen to the container immediately after removal.
- The container must be large enough to hold the specimen and an adequate volume of fixative (see section on fixation), with adequate space for the fixative to move freely around the specimen. This is in order for the fixative to be able to penetrate from all sides of the specimen
- The container should be unbreakable.
- Specimens from different anatomical sites should be sent in separate containers accompanied by a single requisition form.

Labelling

All the samples kept during autopsy examination should be properly labelled seal. The following should be clearly and indelibly stated on each container label.

- Date
- PM no.
- Name of the Deceased
- Fathers Name
- Age /Sex
- Police station
- Description of the sample
- Signature of the Autopsy Surgeon

- This information should correlate with the information provided in the requisition form.
- The label should be firmly attached to the container to prevent removal during transport.
- Labelling or writing on the lid should be avoided.
- Never pre label specimen containers.
- The labelling of specimen containers prior to the sample being taken is a well-established pre analytical error.
- All containers should carry a formalin warning label.

Instructions for packaging specimens

- Ensure all container lids are tightly secured before packaging.
- All specimens must be packaged carefully to avoid breakage of the container or leakage of fixative.
- The rigid outer packaging should contain absorbent packing material to absorb any accidental leakage.
- Wrapping the specimen container with the requisition form is not recommended.
- Clear instruction should be given to the investigating officer on handling of specimen in case of damage during transport, as histopathology specimens are irretrievable.

Requisition form (request form)

The tissue specimen should be accompanied by a requisition form specially designed for histopathology examination.

The following information should be included.

- Date
- PM no.
- Name of the Deceased
- Fathers Name
- Age /Sex
- Police station
- Brief History
- Relevant Postmortem Finding
- Description of the sample

- Signature of the Autopsy Surgeon
- Only one completed histopathology requisition form is adequate for any number of tissue specimens of the same patient collected during the same procedure submitted at a time.
- The postmortem report should not be attached to the requisition form, as it is a legally confidential document.

Chain of Custody

The chain of custody is a critical process in managing samples, particularly in legal or forensic cases, to ensure the integrity, security, and traceability of the samples from collection through to analysis and storage.

- Each time the sample is transferred from one person to another, a Chain of Custody form must be completed. This form should include:
  - Names of individuals involved in the transfer.
  - Date and time of the transfer.
  - Condition of the sample at the time of transfer.
- A sample of seal used to preserve the samples is given so as to maintain the proper chain of custody.
- The receiving individual must sign the form to acknowledge receipt of the sample and its condition.

Transportation of Samples

- All samples collected during the autopsy examination must be properly labelled, sealed, and securely handled.
- After sealing, the samples should be handed over to the Investigating Officer (IO), who must provide a receipt acknowledging the transfer.
- A sample of the seal used for preserving the samples should also be provided to the IO to ensure the proper maintenance of the chain of custody.
- This process is essential to preserve the integrity and authenticity of the samples.

Delivery of Sample

- The Investigating Officer (IO) is responsible for delivering the sealed and labeled samples to the laboratory.
- This ensures the integrity of the chain of custody from the collection during the autopsy to the analysis in the laboratory.

Collection of Histopathology Report

- The Histopathology Department should hand over the final report to the Investigating Officer (IO) in a properly sealed manner to ensure confidentiality and maintain the integrity of the chain of custody.
- The Investigating Officer (IO) should bring the sealed report from the Pathology Department to the autopsy surgeon for the final opinion.

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