



UNC Nephropathology Laboratory

Volker Nickleit, M.D., Director
Harsharan Singh, M.D., Associate Director
J. Charles Jennette, M.D., Executive Director

University of North Carolina School of Medicine
Department of Pathology & Laboratory Medicine
409 Brinkhous-Bullitt, CB#7525
Chapel Hill, NC 27599-7525

Telephone: (919) 966-2421
FAX: (919) 966-4542

<http://www.uncnephropathology.org>

MEMORANDUM

TO: Physicians submitting renal biopsies to the Nephropathology Laboratory of the Department of Pathology and Laboratory Medicine, University of North Carolina at Chapel Hill

FROM: Volker Nickleit, M.D. (Director), Sharan Singh, M.D. (Associate Director), J. Charles Jennette, M.D. (Executive Director)

SUBJECT: Submission of Renal Biopsy Specimens to UNC Nephropathology Laboratory

DATE: February 27, 2008

The UNC Nephropathology Laboratory evaluates approximately two thousand renal biopsy specimens per year. Most are referred from nephrologists in community practice via their community hospital and local pathologist. Final reports along with histologic preparations and relevant immunofluorescence and electron micrographs are sent to the referring local pathologist. Most preliminary diagnoses are communicated by telephone to the nephrologist within 24 hours; a detailed final report is faxed and mailed to the nephrologist after completion of all studies. The Nephropathology Laboratory is CAP and CLIA approved. The Laboratory only bills institutions (usually the community hospital or consulting pathology laboratory). Because this service functions as a consultation service and not a primary care service, the Laboratory does not bill patients directly or file insurance companies (see section #6 on page 4 for detailed billing information).

MEMO CONTENTS:

Section	Topic	Page
1	Preparation of Tissue - <i>Obtaining, Partitioning, Fixing for Evaluation</i>	page 2
2	Specimen and Patient Identification - <i>Labeling and Referral Form</i>	page 3
3	Submission of Tissue - <i>Where and How</i>	page 3
4	Reporting of Results	page 3
5	Billing for Procedures - <i>Charges and CPT codes</i>	page 4
6	Glomerular Disease Collaborative Network	page 4
7	Inquiries	page 4

The Nephropathology Laboratory will supply mailing kits that contain fixatives for light microscopy (buffered formalin), immunofluorescence microscopy (Michel's IF Transport Medium) and electron microscopy (2.5% Buffered Glutaraldehyde). Kits must be stored in a refrigerator or cold room prior to use. Stored correctly, the kits have a shelf life noted on the outside of the box. Kits are mailed in groups of 3 or 6, bundled with a copy of this memo and material safety data sheets. Call 919-966-2421 to order free kits.

Each kit contains a referral form for both native and transplant biopsies (2 separate forms) as well as the fixatives. The outer covers and plastic bags should be reused for submitting the biopsy specimen. It is very important to replace the cap on the same vial it was taken from. Please be sure caps are tight on vials before placing in plastic bags. Gauze pads or a paper towel will provide additional security for shipping. **Be sure to provide material for all three microscopy procedures (i.e., light, immunofluorescence and electron). Sending partial specimens is strongly discouraged. Please notify UNC Nephropathology at (919) 966-2421 prior to sending a biopsy specimen.**

The nephropathology laboratory does not pay the cost of shipping the biopsy specimens back to UNC. Cost of shipping is the responsibility of the sender.

1. PREPARATION OF TISSUE:

Needle or wedge biopsy tissue should be processed immediately after excision. Never allow the tissue to dry out. If there is any delay, keep the tissue on saline-moistened gauze. Do not use IF Transport Medium or any other fixative as a holding solution prior to partitioning the sample.

Examining needle biopsy tissue with a 10X to 15X hand lens or dissecting microscope may be useful in distinguishing adipose (clusters of fat droplets) and skeletal muscle (darker color and easily disrupted into fascicles when prodded) from renal tissue. Sometimes, renal tissue can be differentiated with magnification as either cortical (punctate glomerular blushes or raised hemispheres) or medullary (vascular striations).

Appropriation of tissue for light, immunofluorescence (IF) and electron microscopy (EM) may vary according to the amount of tissue available, and the clinical differential diagnosis. For evaluation of glomerulopathies, cortical tissue is required and can sometimes be identified by magnification or can be assumed to be present in the most proximal (superficial) part of the needle core. Of note: only a small segment of cortex (approximately 3mm) is required for EM analysis. We recommend using 15 gauge biopsy needles and to obtain 2 or 3 long cores. The use of 18 gauge needles often results in inadequate tissue samples.

Tissue for the three methods of examination can be obtained in a number of ways: 1. three separate cores, one for each procedure; or 2. two cores, one for light microscopy, small segments from both ends of the other for electron microscopy and the remainder for immunofluorescence microscopy. For renal transplant biopsies, 2 cores are recommended for light microscopy, and one smaller core for IF. Allograft biopsy tissue in glutaraldehyde for EM studies is only required a) if a glomerular disease is suspected or b) > 1 year post transplantation.

If very limited tissue is available, more than one procedure can be performed on tissue optimally prepared for one method of study, e.g.: 1. tissue submitted in transport medium for immunofluorescence microscopy can also be processed for light and electron microscopy (this introduces technical artifacts), or 2. tissue fixed in formalin for light microscopy can also be processed for EM. For suspected glomerular diseases, if there is only one small piece of tissue, it is usually best to submit all of the tissue in IF Transport Medium.

Following are directions for using the kits supplied by the UNC Nephropathology Laboratory. If you have chosen not to use our kits be sure to label your containers with the fixative as well as the name of the patient and a second identifier. **Please be sure to provide material for all three microscopy procedures (i.e., light, immunofluorescence and electron). Sending partial specimens is strongly discouraged. Please notify UNC Nephropathology at (919) 966-2421 prior to submitting a biopsy specimen.**

UNC RENAL BIOPSY KITS

Kits contain separate fixatives for light, immunofluorescence and electron microscopy. **Be sure to replace the same cap on the vial it was taken from. Even a small amount of transport medium mixed into the glutaraldehyde will result in less than optimum fixation.**

LIGHT MICROSCOPY:

10% fresh (non-recycled), neutral buffered formalin is supplied as the fixative for light microscopy. Place the tissue in the vial. Replace the cap tightly and invert several times to be sure the tissue floats freely in the liquid and is not stuck to the lid.

IMMUNOFLUORESCENCE MICROSCOPY:

A room temperature holding and transport medium (Michel's solution, IF transport medium) for immunofluorescence microscopy is supplied ready for use. Place tissue in vial, cap tightly and invert several times to assure the tissue is floating freely.

Tissue can be kept in this medium for at least 5 days prior to processing, and in most cases much longer. **This medium is for immunofluorescence only. Tissue that has been placed (even briefly) in this medium will interfere with both the glutaraldehyde and formalin fixative causing poor fixation.**

ELECTRON MICROSCOPY:

2.5% Buffered Glutaraldehyde in an ampoule is supplied in the kits. Break the ampoule and shake the contents into the container labeled 2.5% Glutaraldehyde. Place tissue in vial and cap tightly. Invert the vial several times to assure that tissue is floating freely in the fixative.

2. SPECIMEN AND PATIENT IDENTIFICATION:

Referral forms to be submitted with each biopsy specimen are included in the kit or can be requested from the Nephropathology Laboratory or can be downloaded from our website (<http://www.uncnephropathology.org>). We kindly request you use the appropriate form for native kidney biopsies and renal allograft biopsies. Please be sure the information is legible and complete. Specimen should be labeled with the patient's name and a second identifier. Adequate clinical data is crucial for optimum pathological evaluation.

At a minimum we must have:

- 1) patient's full and correct name, date of birth, sex, and race for identification purposes,
- 2) the date of the biopsy
- 3) underlying clinical problems
- 4) name, address, and phone number of the institution that will receive the report and the bill, and
- 5) name, address, and phone number of the nephrologist who did the biopsy and who will get a report directly from this lab.

3. SUBMISSION OF TISSUE:

Specimens, with completed referral form, can be sent by FedEx, other commercial carriers, or the US Postal Service to:

**UNC Nephropathology Laboratory
409 Brinkhous-Bullitt Bldg. CB# 7525
Department of Pathology and Laboratory Medicine
UNC School of Medicine
Chapel Hill, NC 27599-7525.**

Overnight Priority (Deliver Weekday) service by FedEx (approximate UNC delivery time 10:00am) has been the most effective means of transporting specimens. The UNC Nephropathology Laboratory is closed Saturdays and Sundays, so please do not check "Saturday Delivery" on your airbill. Please retain your copy of the airbill with the package tracking number in case of delayed delivery. Other commercial carriers deliver later in the day and US Mail Overnight service is often not received until 3:30 pm. Refer to Commercial carrier policies for further information on packaging and delivery procedures.

If you are using a local courier, specifically instruct them to have someone in 409 Brinkhous-Bullitt Bldg sign for receipt of package.

4. REPORTING OF RESULTS:

All three modes of examination (LM, IF and EM) will be completed within 3 working days of receipt of a specimen unless special processing (e.g., reprocessing of LM tissue for EM) is required (note: written reports may require additional time). Telephone reports with preliminary findings will be made to the referring nephrologist in most cases within 24 hours of receipt and in all cases showing clinically critical findings, e.g. crescentic glomerulonephritis.

Written reports are faxed and mailed to the nephrologist indicated on the referral form and additionally mailed to the referring pathologist. A number of days are required to prepare the typed report and photographs for mailing (at least 90% of reports are sent within 7 days of receipt).

Reports include descriptions of light, immunofluorescence and electron microscopy findings and an interpretation.

Histologic preparations, electron micrographs (when available) and, in selected cases, L.M. or I.F. images will be sent to the referring pathologist. Additional digital images of interesting cases will be supplied when requested.

5. BILLING FOR PROCEDURES:

Billing for specimens will be directed to the institution submitting the specimen and not to the patient or insurance company. The Nephropathology Laboratory cannot bill patients directly. The bill will request payment to

Nephropathology Service, UNC. Checks should indicate that payment is for renal biopsy interpretation and mailed to Nephropathology Services, Department of Pathology CB#7525, UNC School of Medicine, Chapel Hill, NC 27599-7525.

Charge for light microscopic interpretation is \$225, and is the same whether histologic sections or fixed tissue is submitted. When tissue is submitted, the specimen will usually be examined at 10 levels of section, and the referring pathologist will be provided with representative histologic sections. Suggested *CPT codes for the light microscopy*: 88305 (for routine stain - H&E) plus 88313 times 2 (for special stains - PAS, Masson). For nonrenal tissue there is no charge.

Charge for immunofluorescence microscopy is \$275 if glomeruli are present in the submitted tissue. Suggested *CPT codes for the immunofluorescence microscopy*: 88346 times 7 (for each of the antisera used to detect immune deposits). For nonrenal tissue there is no charge.

Charge for electron microscopy is \$450 if glomeruli are present, and no charge if glomeruli are not found. Suggested *CPT code for the electron microscopy*: 88348

If nonrenal tissue is present and no diagnosis is determined, there will be no charge for the interpretation. When all three procedures are done the **total consultation charge is \$950**. These charges have been determined to be justifiable based on the expense of the procedures, reasonable based on charges from other institutions, and are low enough for appropriate recovery of costs through primary site patient billing for the multiple procedures (i.e., LM with special stains, multiple IF, and EM) and for handling.

Laboratory Certification Numbers: CAP 13992-01, CLIA # 34D0655124.

Federal Tax ID# 56-6001393. **Important:** the name of the entity for reporting tax information is **The University of North Carolina** not the Nephropathology Laboratory.

UPIN: E29975 for Dr. Jennette, F43998 for Dr. Nickleit, and F80182 for Dr. Singh.

NPI: 1881788511 for Dr. Jennette, 1598851990 for Dr. Nickleit, and 1154417806 for Dr. Singh.

6. GLOMERULAR DISEASE COLLABORATIVE NETWORK (GDCN):

All nephrologists who submit renal biopsies to the UNC Nephropathology Laboratory are invited to participate in the GDCN, which is co-directed by Dr. Ronald J. Falk, Chief, Division of Nephrology and Hypertension and Dr. J. Charles Jennette, Professor and Chair of Pathology and Laboratory Medicine. The GDCN participants are approximately 200 nephrologists, most in private practice, from throughout North Carolina, Virginia, South Carolina, Georgia, and Florida. This group meets annually for a CME meeting and social event. Members can choose to participate on an individual voluntary basis in prospective clinical trials that are designed by the group as a whole. This group has a great resource from which to derive useful information. Please call Susan Hogan at (919) 966-2561, FAX (919) 966-4251 or send e-mail to slh@med.unc.edu for more information.

7. INQUIRIES:

Please feel free to contact the Laboratory if you have any questions or suggestions. We look forward to assisting you.

Hours Weekdays (except major holidays) 8am-5pm Eastern Time
Tel: 919-966-2421
Fax: 910-966-4542
e-mail: [jcyj@med.unc.edu](mailto:jcj@med.unc.edu)

For further detailed information, including downloadable referral forms, please visit our website at <http://www.uncnephropathology.org>