

Micro Morphs



Smallpox Laboratory Diagnostics

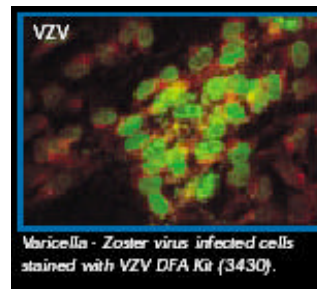
Submitted by Susie Zanto, CLS(NCA)
Montana Public Health Laboratory

The November issue of *Micro Morphs* had a comprehensive overview of Smallpox disease. This issue will address laboratory diagnostics, and the next issue will discuss vaccination.

In the absence of an overt smallpox release, the most likely cause of viral vesicular disease will be Herpes Simplex Virus, Varicella Zoster Virus, and Enterovirus. Public health response dictates rapid diagnosis of these diseases – to “rule-in” these agents and to “rule-out” the possibility of smallpox (variola) disease.

This week in Montana, the Public Health Laboratory (PHL) had an opportunity to see first hand whether our planning efforts are effective in responding to a vesicular rash illness. A 40 year old male was seen in the Emergency Department of a local hospital with an unexplained rash illness which the doctor did not think looked typical of chicken pox. He inquired of his local clinical laboratory scientist, who also works in Infection Control, on how he should proceed and she contacted the PHL.

The patient was placed into a negative pressure isolation room as a precaution, even though his lesions were in different stages of development, which is not characteristic of smallpox infection. An assessment of risk for smallpox was performed based on history and examination, and this man’s risk was considered to be low. Skin scraping samples were submitted, along with culture to the PHL for analysis. The Health Department’s Epidemiology staff was notified, as well as the county Health Department. Testing at the PHL identified the causative agent of this patient’s rash illness to be Varicella Zoster Virus.



This case illustrates the teamwork and communication that is necessary to respond to potential threats of Bioterrorism.

The physician needed to inform the local laboratory professionals, which started the entire thread of communication throughout the public health network – involving county and state health professionals - including the PHL who performed the referral work.

When risk for smallpox is considered to be Low or Moderate risk, testing may be safely performed in local or state laboratories. However, highly suspect cases should not be attempted to be tested locally and should be immediately referred to CDC or a regional laboratory capable of identifying smallpox (variola).

There are three routine testing methods available to “rule-in” the common causes of vesicular rash illness.

Direct Fluorescent Microscopy

The most rapid method of identification of Varicella Zoster Virus (VZV) and Herpes Simplex Virus (HSV) is a fluorescent antibody test performed directly on skin scrapings of the lesion(s). The results can be available in less than 1 hour and experienced fluorescent microscopists have a high degree of accuracy when an adequate specimen has been collected. This test can be performed in any

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Susie Zanto



Inside this issue:

Smallpox Lab Diagnostics	1
Abstract Proposal Forms	3
Submission Instructions	4

Smallpox Laboratory Diagnostics cont'd.....

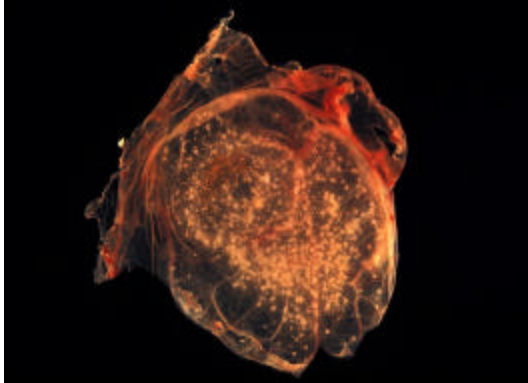
with proficiency in fluorescent microscopy.

Real Time PCR

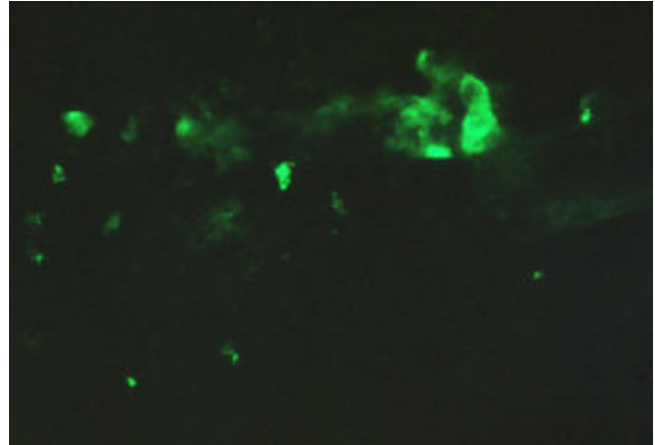
This is another rapid method for detection of VZV, HSV or Enterovirus and can be performed on the lesion vesicles or a swab of the lesion. Results can be obtained in approximately 4 hours, including preparation time. This technology is rapidly becoming the method of choice for amplification assays – either through the use of fluorochrome labeled probes and primers or with molecular beacons. Many large hospital and reference laboratories currently perform these assays as well as state public health laboratories.

Cell Culture

VZV, HSV and Enteroviruses grow readily in standard cell culture and can be easily identified. This presents somewhat of a dilemma, however, since Variola virus is also easily grown in standard cell culture. Each laboratory performing cell culture should consider employing an algorithm to ensure that specimens do not get placed into cell culture inappropriately. In the case of the PHL patient above, we did not routinely culture the specimen until the results of the VZV DFA were determined.



A photograph revealing smallpox virus pocks on the chorioallantoic membrane of a developing embryonic chick.



A photomicrograph of a chick chorioallantoic membrane; fluorescent antibody staining was done after smallpox virus inoculation.

(1962)

In conclusion, I would like to emphasize that each local clinical laboratory needs to be aware of their capacity to respond to an acute, generalized vesicular or pustular rash illness. Know what tests you will offer and which you will refer, and when and where you will refer them. Nurture the communication link between your laboratory and your local or state laboratory, and include your local or county health professionals. This communication and referral system doesn't pertain to just agents of Bioterrorism, but any agent that impacts public health. So, when you identify that first case of Influenza Virus – practice your communication and referral procedure. You are the first link in the public health system response.



Call for Abstracts

2003 ASCLS Annual Meeting
July 22-26, 2003
Philadelphia, PA



ABSTRACT PROPOSAL FORM

Please complete all the requested information on this form. This form must accompany all submitted abstracts. Abstracts must be postmarked by January 15, 2003.

Title: _____

Contact/Presenting Author:
NAME: _____
DEGREE: _____ CREDENTIAL: _____

Address: _____

City/State/Zip: _____

Home phone: (_____) _____

Work phone: (_____) _____

Fax: (_____) _____

E-mail address: _____

ASCLS Member Number: _____

Signature of contact/presenting author:

DISCIPLINE

Check only **ONE**:

- Administration
- Biochemistry/Urinalysis/Ligand Immunoassay
- Consultants' Forum
- Education
- Hematology/Hemostasis
- Immunology/Immunohematology
- Microbiology
- Other (please specify)

PRESENTATION

Check only **ONE**:

- Abstract for **oral presentation** only
- Abstract for **poster presentation** only
- Abstract for either **oral or poster presentation**
- Abstract for **case study presentation**

Before mailing information, enclose the following:

- Abstract typed in appropriate format
- Disk containing abstract
- Completed Abstract Proposal Form
- Signature of presenting author
- Discipline specified
- Type presentation specified
- Questions/Answer key (posters only)
- Original and one copy of all materials

Mail all materials to:

**ASCLS 2002 Abstract Review Committee
6701 Democracy Blvd Suite 300
Bethesda, MD 20817**



ABSTRACT SUBMISSION INFORMATION AND INSTRUCTIONS 2003

I. General Information

A. Presentation Categories

Clinical Case Study

A case study is a presentation that describes a problem and the means used to resolve the situation. The case may involve a patient or in rare cases, more than one patient, who presents with an unusual disease or a common disease with unusual clinical presentation, complication or outcome. The clinical diagnosis requires an extended battery of tests to confirm. Clinical diagnosis and laboratory findings relate to the patient's symptoms.

Abstracts for a clinical case study should include:

- a short description of the patient history/presentation/problem
- significant diagnostic laboratory tests results
- patient outcome
- and a short description of the disease/condition

Management/Education Case Study

A case in management may involve creative scheduling, compliance or personnel issues or an ethical dilemma. Problems encountered in CLS/CLT education may involve issues such as admission/dismissal policy, competency testing, or recruitment and retention. The case describes the significance and implication of the problem to the clinical laboratory practice. The case presents strategies utilized to resolve the dilemma.

Abstracts for a management or education case study should include:

- a short description of the problem or dilemma
- underlying principle for resolving the issue
- brief description of the strategy used
- outcome or resolution

Research

A research presentation characterizes a structured investigation of a specific problem. The research investigation presents the

- Nature of the problem investigated
- Reasons for investigating
- Scope of the problem
- Brief review of pertinent literature
- Research hypothesis
- Brief description of materials and methods used, representative data
- Conclusion

The abstract must:

- State the nature of the problem investigated
- Provide reasons for investigating
- Describe the methodology
- Summarize the results
- State the conclusion

B. Submission Information

1. Abstracts must be submitted according to instructions below and **must be postmarked by January 15.**
2. An individual's name may appear as an author in no more than 2 abstracts.
3. An author may present only one oral presentation and one poster presentation at the same meeting.
4. A nonmember may submit an abstract for presentation if an ASCLS member is a coauthor.
5. All presenting authors must register for the meeting.
6. All abstracts must be original and not submitted for presentation at any other meeting(s).
7. All abstracts, case study or research, may be accepted for either oral or poster presentation.

II. Preparation and Submission Instructions

A.I. Preparation of abstracts

All abstracts must be typed double-spaced on plain, white 8 1/2 x 11-inch paper with 1 inch margins. Recommended typeface is Courier, 10-point type. Abstract text format is flush left. Text length (not including title and author information) must be 100 to 150 words, not to exceed 200 words. A single-space-return should be used to separate title, author information, and the abstract. (See sample abstract below for reference.) To encourage consistency in style, refer to guidelines in *Scientific Style and Format – The Council of Biology Editors Manual for Authors, Editors, and Publishers*, 6th Edition.

1. A. **Title:** Use concise title (5 or 6 words, if possible) that reflects abstract content. Capitalize the first letter of first word and all other words except prepositions, conjunctions, and articles. Underline scientific genus and species names of organisms. Do not use acronyms, abbreviations, and initials in a title.
2. B. **Author/Institution:** List the presenting author must be listed first, in **boldface** type. When multiple authors submit an abstract, clearly identify **one** contact author and provide complete contact information. must be clearly identified on the submission form. **Complete** contact information must be provided on the form for the contact author. All communication will be transmitted to this individual, and the contact author is responsible for communicating with co-authors. Authors should use NCA credential (when applicable). Limit academic degrees are limited to to highest degree earned, master and doctoral degrees only. List aAuthor institution affiliation (excluding department or division information) must be listed below each author's name, followed by the city and state of the institution, except when authors . The exception is a multiple listing of authors who share the same institutional affiliation. (See sample abstract below for reference.)
3. C. **Abstract:** All abstracts must be typed double-spaced on plain, white 8 1/2 x 11-inch paper with 1 inch margins. Courier is the recommended font, 10-point type. Abstract text format is flush left. Text length (not including title and author information) must be at least 100, not to exceed 200 words. Use a single-space-return to separate title, author information, and the abstract. (See sample abstract below for reference.) To encourage consistency in style, refer to guidelines in *Scientific Style and Format – The Council of Biology Editors Manual for Authors, Editors, and Publishers*, 6th Edition.

Authors of abstracts for poster presentations must follow the same guidelines for oral presentations. In addition, poster presenters are required to submit three (3) multiple-choice questions. Each question should have four (4) response choices. Authors must provide an answer key. The presenter will post these questions as part of the poster display. ASCLS members who visit and review five posters and answer the questions from those posters may receive 1.0 contact hour of P.A.C.E. credit.



B. Abstract Proposal Submission

1. All abstract proposals must be submitted with a fully completed proposal form.
2. Send the fully completed and signed abstract submission form with the following:
 - One original abstract
 - One hard copy of the abstract
 - One copy of the abstract on computer disk (MS Word). Disk label must clearly indicate author's name and phone number (s), abstract title, current date and year. Label the disk with the author's name, title of presentation and text file, and computer used, and name/version of word processing program.
3. The abstract proposal form is also available at www.ascls.org. Follow above instructions for submission.

C. Review, Acceptance, and Notification

Members of the ASCLS Abstract Review Committee review all abstract submissions. Authors will receive written notification of abstract acceptance/rejection in mid-March. The letter of acceptance will include information on the presentation date and time of the presentation. Accepted abstracts are edited for publication in *CLS*

D. Presentations and Poster display provisions

Each oral presentation is limited to 15 minutes. Authors of poster presentations are provided with an approximately 4-foot-high x 8-foot-wide bulletin board to display a summary of the paper. Exact poster specifications will be included in the abstract acceptance letter.

Accepted abstracts are edited for publication in *CLS*. Galley proofs are **not** available for author review. All abstracts containing more than 200 words are edited for length.

E. Questions

Questions regarding these instructions should be directed to Joan Polancic, ASCLS Director of Education and Project Planning. joanp@ascls.org.



Korean Memorial
Washington DC