

Digital Telepathology Results Mixed in Small Study

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SAN FRANCISCO — Remote review of digital immunohistochemistry slides by pathologists seemed to be as accurate as in-person evaluations by light microscopy for diagnosis of dysplastic nevi, but was less successful for diagnosing early malignant melanoma.

Three pathologists viewed 55-60 cases of dysplastic nevi with varying atypia

and early melanomas on hematoxylin and eosin- and immunohistochemical-stained slides via telepathology. A remote site hosted the digital slides, and the consulting pathologists evaluated them via a Java-enabled Web browser. The pathologists also evaluated a glass set of slides for the cases.

Preliminary results showed that there was a high concordance rate between digital and light microscopic diagnoses for dysplastic nevi, but a few diagnostic

discrepancies were seen between telepathology and microscopy when early malignant melanomas were evaluated, Dr. Jill Buckthal-McCuin of the University of Pittsburgh reported in a poster that was presented at the annual meeting of the American Society of Dermatopathology.

Evaluations by telepathology took more than twice as long to perform as microscopy evaluations, mainly because focusing was slow during telepathology. If

the time spent on shipping the glass slides for microscopic evaluation were included, however, telepathology was faster, Dr. Buckthal-McCuin added.

An individual evaluator's level of experience in dermatopathology and experience with telepathology may have been a factor in diagnostic accuracy, she suggested.

A dermatopathology fellow made the correct diagnosis in 21 (36%) of 59 cases evaluated with digital telepathology. A staff dermatologist with 1 year of experience was correct in 19 (45%) of 42 diagnoses via telepathology, and said he was not comfortable evaluating 18 other cases, including 8 cases of suspected melanoma.

An attending dermatopathologist with more than 5 years' experience was correct in 23 (42%) of 55 diagnoses via telepathology.

Each of the evaluators misgraded some dysplastic nevi by one degree, which would not affect decisions regarding treatment.

Overall, the diagnoses that were made via telepathology would have resulted in correct treatment in 90% of the cases evaluated by the fellow, 76% of cases that the junior attending dermatopathologist agreed to evaluate, and 67% of the cases reviewed by the senior attending dermatopathologist.

Increasing demands are being placed on pathologists, and in some settings a trained pathologist in a specific subspecialty is not available on site, Dr. Buckthal-McCuin noted.

Digital telepathology might contribute to the more efficient use of pathologists by allowing real-time review of remote cases, delayed image review, subspecialty reviews, and second opinions in a timely fashion, but more study is needed to confirm the utility of this diagnostic method, she said.

The three pathologists in the study reported not feeling comfortable when the slide was moved at the remote site, because an area of interest often was omitted or out of focus. They agreed that the robotic microscope provided excellent detail and would be useful in nonprimary diagnosis.

The fellow complained that the inability to evaluate the immunohistochemical and hematoxylin and eosin slides together hampered the remote diagnosis by telepathology.

Dr. Buckthal-McCuin and her associates plan to study telepathology evaluation of hematoxylin and eosin and immunohistochemical slides together, and said that they expect the degree of concordance with glass-based evaluation to be similar to the findings in this preliminary study. ■

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PROGRAM DESCRIPTION

The natural aging process—when fat and collagen under the skin begins to diminish—affects each individual differently. Many people find that the impact of aging negatively impacts their quality of life; therefore, they seek treatment to improve their appearance.

Physicians have many treatment options, surgical and non-surgical, when addressing aging of the skin. Soft tissue fillers, which are among the non-surgical group, are often considered the first line in the treatment of aging skin and are frequently used in combinations or with other techniques for facial rejuvenation. A variety of filler substances exist that address a wide range of cosmetic flaws, each bringing subtle, distinctive benefits. In some patients, more than one filler may be used to achieve the best results as some fillers.

With several filler options available physicians need to be aware of the benefits and potential risks of each. Filling substances commonly used by dermatologists include collagen, autologous fat, poly-L-lactic acid, calcium hydroxyapatite, and hyaluronic acid. Hyaluronic acid replaces lost volume and restores youthful contours to the skin to smooth away moderate to severe facial wrinkles and folds. Hyaluronic acid is a natural component of human skin and is the framework in which skin cells live. There are several hyaluronic acid products available with each having various characteristics, although all hyaluronic acid products bind water and give the skin volume.

Since each patient needs to be treated individually, physicians need to tailor their choice of dermal filler to the patient as well as learn proper injection techniques to avoid complications. To do so, dermatologists, plastic surgeons, and other health care professionals need to stay up-to-date on the latest innovations in the filler arena, as well as be proficient in injection technique.

INTENDED AUDIENCE

This activity has been developed for dermatologists, plastic surgeons, fellows and residents in plastic surgery and dermatology.

FACULTY DISCLOSURES

Disclosures are available on the educational webcast located at www.advancedfacialfillers.com and www.sdefderm.com.

EDUCATIONAL OBJECTIVES

At the conclusion of this activity, participants should be prepared to:

- Discuss the causes, processes, and sites of facial biometric volume loss.
- Demonstrate knowledge of the treatment options for correcting facial biometric volume loss, including recently approved and investigational agents, and state the differences between stimulatory and replacement fillers.
- Compare the indications, side effects, and contraindications of the different filler options.
- Describe as well as employ the various injections techniques and the benefits and potential risks of each.

ACCREDITATION STATEMENT

This activity has been planned and implemented in accordance with the Essential Areas and Policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint sponsorship of the Elsevier Office of Continuing Medical Education (EOCME) and Skin Disease Education Foundation (SDEF). The EOCME is accredited by the ACCME to provide continuing medical education (CME) for physicians.

CME CREDIT STATEMENT

The EOCME designates this educational activity for a maximum of 1.0 *AMA PRA Category 1 Credit(s)*™. Physicians should only claim credit commensurate with the extent of their participation in the activity.

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