

## SOFTWARE REVIEW

### MGH E-Case Series on CD-ROM.

Mehta A, Dreyer KJ, Wittenberg J, Weissleder R, Thrall JH, eds. Login Brothers Book Company, Chicago, IL; 800.621.4249; www.lb.com; 2000. ISBN 1-929987-11-0 (complete 5-title series). Individual titles: Breast Imaging: Pearls & Pointers, ISBN 1-929987-09-9; CT of Acute Gastrointestinal Disease, ISBN 1-929987-06-4; Emergency Neuroradiology, ISBN 1-929987-07-2; Head & Neck Radiology, ISBN 1-929987-08-0; Interventional Gastrointestinal Radiology, ISBN 1-929987-10-2. System requirements: 486 IBM PC or compatible; Windows 95, 98, or NT; 2X CD-ROM drive; 24-bit color; 16 MB free RAM; 10 MB free disk space. Price for the single-seat non-networkable institutional version for the series is \$995; individual titles may be purchased separately (price varies); networkable versions are available for site licensing with price determined by number of workstations or users.

As a case-based clinical radiology review, this software series from the Massachusetts General Hospital (MGH) and Harvard Medical School offers a multipurpose instructional tool aimed at residents and practicing radiologists, but is suitable for other clinicians, faculty, and medical students as well.

Each of the series' five programs contains approximately 120 cases; each case includes a presentation of images, history, relevant findings, and a discussion. The wide range of both common and uncommon cases makes for a well-documented resource for clinicians as well as for students in problem-based learning (PBL) programs. The healthy radiographic anatomy at the beginning of the Breast Imaging: Pearls & Pointers program and the Head & Neck Radiology program is valuable for comparison study with the pathologic case studies; additional healthy anatomy in future programs would be welcome. Students

may also find the quiz mode and user notes helpful. Most clinicians will appreciate the contributions from MGH affiliations, such as the Massachusetts Eye and Ear Infirmary, which provide exposure to unusual cases and pathologies.

The program design offers a simple organized interface through keyword searching and easy access to the table of contents. The screen display is well arranged, is free of clutter, and requires very little scrolling. A limited number of navigational icons and a consistent format throughout the series make for a short learning curve and encourage immediate use.

Tables of contents, continually displayed in review mode, highlight the current topic and are color coded by categories, subcategories, and search results. Instructional use is enhanced by a feature that allows image contrast manipulation and enlargement and by an export feature that allows downloading into other applications.

The following observations relate to the Breast Imaging program, which this reviewer randomly selected from the series. Dragging the mouse pointer over the table of contents temporarily expands the window and reveals the categories and number of topics; cases appear within each topic. Indicator arrows at the bottom of the table of contents provide another method of selection. Breast Imaging offers the following categories: anatomy and histology (11 topics), screening (11 topics), triangulation (2 topics), calcification (20 topics), analyzing lesions (44 topics), the axilla (4 topics), ultrasound (27 topics), and implants (9 topics). Clicking on a category reveals the topics; clicking on a specific topic displays an image that initiates the first case study associated with that topic. The case history is presented beneath the image. Pressing the Findings or Discussion button replaces the history with more detailed informa-

tion, including the appearance of image labels as dictated by the text. Advancing from one image to the next or from one case to the next is simply a matter of clicking on the current radiograph. Thumbnail images of each case appear across the bottom of the screen and provide an alternate method of navigation.

For a less structured and more personalized approach, the user may conduct a keyword search. Keyword searching allows one to investigate relationships between cases. In the Breast Imaging program, the term "cancer" retrieves fifty-four hits. A color-coded table of contents automatically highlights all matching entries. Clicking on the search results offers more sub-topics to explore.

Four mechanical features stood out for the students and faculty who tested this program. Both groups appreciated the ability to enlarge the image. The program cycles through three magnifications and then displays the image again at its original size. Additionally, a spyglass icon can be dragged over the image to enlarge a specific area. This feature may be useful for instructors in a classroom setting. The image may also be manipulated for brightness and contrast through the Window/Level button. This control is particularly useful in radiology. Medical photographers have long suffered the difficulty of producing prints or slides from radiographs at specific levels of contrast. This feature, which allows the user to adjust the "grays" to their liking, should be well received by faculty wishing to customize an image prior to downloading it into another application. The ability to export images for instructional use is a major bonus of this software. An MGH watermark appears on downloaded images, freeing presenters from having to otherwise document the source. Finally, favorable mention must be given to the font or text enlarge-

ment option. Text in the history, findings, and discussion sections can be enlarged several times for improved legibility. This option is also a handy way to customize the font size before downloading.

A word should be said about photographic quality. As mentioned above, radiographic images can present some difficulty in reproduction via traditional methods or by scanning. Rather than trying to repurpose film into digital files, MGH made the commitment to use only images that originated in digital format. The result is a high-quality set of more than 2,000 images that can be appreciated by medical photographers as well as by radiologists.

The "quiz mode" may not satisfy students expecting the traditional multiple-choice format. Quiz selection automatically hides the table of contents to avoid giving away the answer—normally the table of contents would highlight categories and topics. Users receive the case history and are expected to work out a diagnosis. Clicking on Findings and Discussion provides an explanation of the case. When queried, a Login Brothers marketing representative stated that the quiz was "designed to be simplistic and straightforward. It presents the cas-

es in the same manner as the review mode, but in random order without the benefit of the table of contents." The quiz mode is useful for classroom testing—for residents, radiologists (the intended audience), and PBL students—but some students may require a little more guidance in the form of questions directed toward each case.

For preview purposes, the program was installed with a single-station, institutional license on a Pentium II personal computer (PC) running Windows 95. No technical difficulties were experienced with either installation or operation. A MAC/PC hybrid version would be a welcome addition to future editions or revisions, especially for academic learning resource facilities.

This reviewer enthusiastically recommends MGH E-Case Series on CD-ROM. According to a Login Brothers representative, MGH has the necessary infrastructure to continue this project and expects to publish the next installment in this series just prior to the fall 2000 annual conference of the Radiological Society of North America. Login Brothers and MGH anticipate that with the publication of this second set of cases, the MGH E-Case Series will cover 90% of the material in the oral boards for radiology resi-

dents. Working titles for the upcoming offerings in the MGH E-Case series are: Thoracic Imaging, ER GYN, Pediatric Radiology: Focus on Abdomen, ER Radiology (by Robert A. Novelline, author of *Squire's Fundamentals of Radiology*), and Musculoskeletal Imaging.

Finally, Login Brothers is to be commended for its responsive customer support and marketing services departments. The customer support telephone number is prominently displayed on the inside cover of the CD case. Testing the service, this reviewer was promptly connected to an *actual* person, who understood the questions and answered them cheerfully and without any "tech expert" condescension. Curious about future developments in the series, this reviewer left a message with marketing and within the hour *another* real person—who was extremely knowledgeable about the product, its development, expectations, and history—returned the call. What a breath of fresh air!

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