# PEDIATRIC RADIOLOGY WEB PAGES

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## ABSTRACT

Nowadays information technology is a vital part of everyone's daily life; it is also becoming an increasingly vital part of the daily practice of radiologists. The Pediatric Radiology Web Pages went online at the Faculty of Medicine, Chiang Mai University in December 1998. Their purpose has been to help medical students and radiology residents learn more by themselves about the fascinating field of pediatric radiology. These web pages have 3 sections: Pediatric Abdomen, PED-RAD Review, and Publications. The first section is about common abnormalities of the pediatric abdomen such as duodenal atresia, necrotizing enterocolitis, and intussusception. In the second section there are interesting cases and a list of topics in pediatric radiology. The third section has abstracts of articles about various research topics; all this research was done at the Department of Radiology, Faculty of Medicine, Chiang Mai University. For more details visit the web pages at <http://www.medicine.cmu.ac.th/dept/radiology/pedrad/pedrad.htm>.

## BACKGROUND

Teaching files are important in teaching and studying radiology; however there are many problems with film-based files such as limited access, high cost of reproduction, ease with which they are lost or damaged, and difficulty when searching through the file.[1] We tried to eliminate these problems by the use of information technology, which has become a vital part of everyone's daily life and the daily practice of radiologists. We started to create our Pediatric Radiology Web Pages in December 1998. The purpose of these web pages has been to help medical students and radiology residents learn more by themselves about the fascinating field of pediatric radiology.

## METHODS

Our Pediatric Radiology Web Pages were done on an IBM-compatible personal computer, which was used to both acquire images and create text files. Each web page was created in HyperText Markup Language (HTML) format with Netscape Composer versions 4.5-4.6 (Netscape Communications, Mountain View, CA). Images were entered into the computer with either a 35-mm slide scanner or a digital camera. Once the images were in the computer, they were cropped and labeled using Adobe Photoshop version 5.0 (Adobe Systems, Cupertino, CA). The images, which ranged from 5.2 to 63.2 kilobytes, were saved in Joint Photographic Experts Group (JPEG) format or Graphics Interchange Format (GIF). For one particular image GIF Animator (Microsoft, Redmond, WA) was used to create a cine MRI, which was 130 kilobytes, to show aortic regurgitation in a patient with Marfan syndrome.

The completed HTML files and the corresponding image files were transferred over a local area network from our computer to our

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Faculty's World-Wide-Web server for storage. Our web pages can be found at <http://www.medicine.cmu.ac.th/dept/radiology/pedrad/pedrad.htm>. At present we have 120 pages and 138 images, including radiographs, ultrasonograms, computed tomographic scans, and magnetic resonance images.

## DESCRIPTION OF THE WEB PAGES

The web pages (Fig. 1) are divided into 3 sections: Pediatric Abdomen, PED-RAD Review, and Publications. The first section, Pediatric Abdomen, is about common abnormalities of the pediatric abdomen such as duodenal atresia (Fig. 2), necrotizing enterocolitis, and intussusception. The objective of this section is to get medical students to review these abnormalities by themselves. There are short explanations of each abnormality with illustrative images.

In the second section, PED-RAD Review, there are interesting cases and a list of topics in pediatric radiology. Each case has a short clinical history, one or several pertinent "unknown" images, a discussion of the pertinent findings with appropriately labeled images, a short discussion of the diseases, and references (Fig. 3). Some cases also have images of other patients with the same disease. For each topic, there are a short discussion of the disease, a short discussion of the imaging findings, and relevant images (Fig. 4).

The third section has abstracts of articles about various research topics (Fig. 5); all this research was done at the Department of Radiology, Faculty of Medicine, Chiang Mai University.

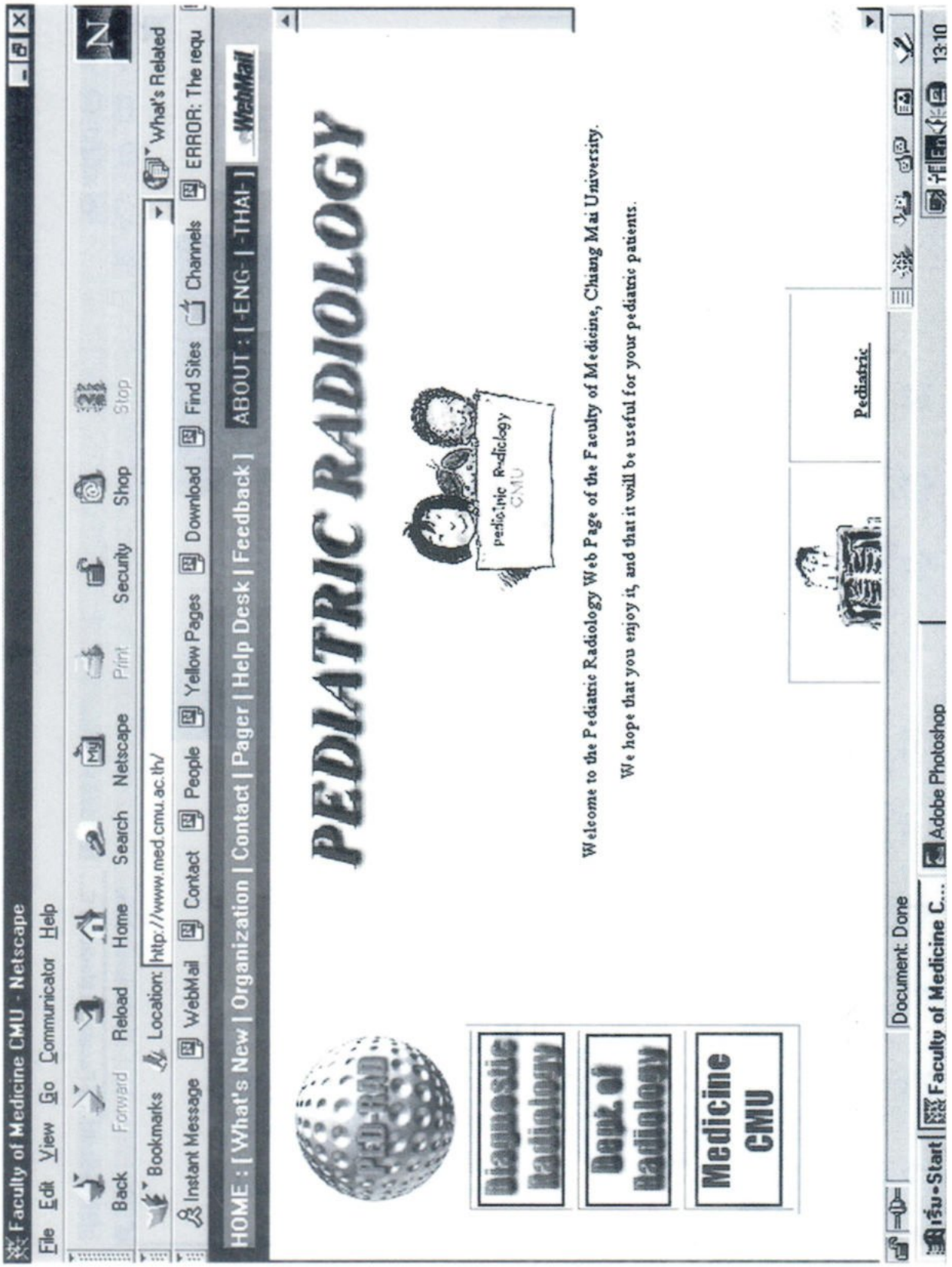


**Fig. 1.** The first page of our Pediatric Radiology Web Pages.

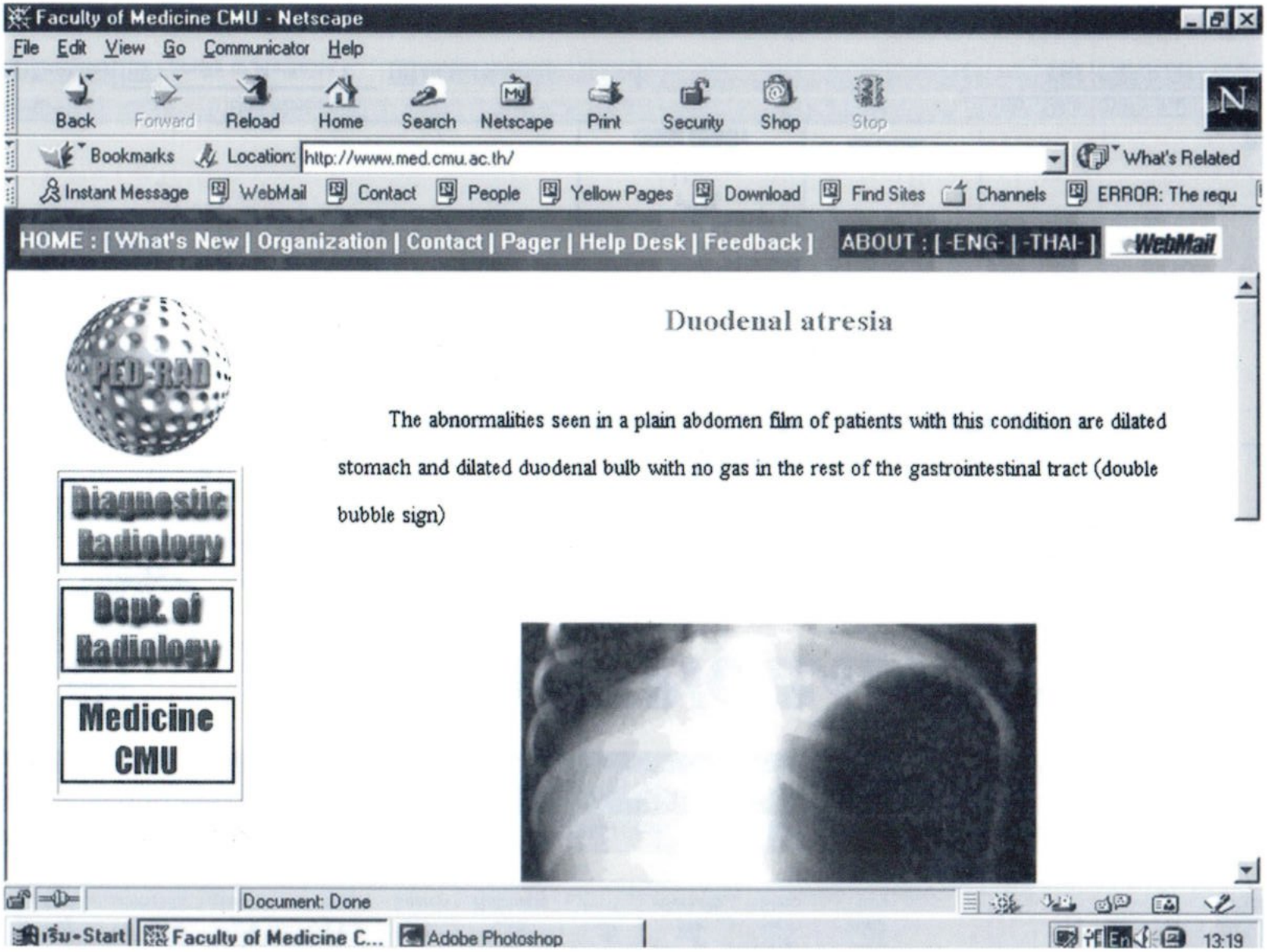


**Fig. 2.** A sample page from Pediatric Abdomen.

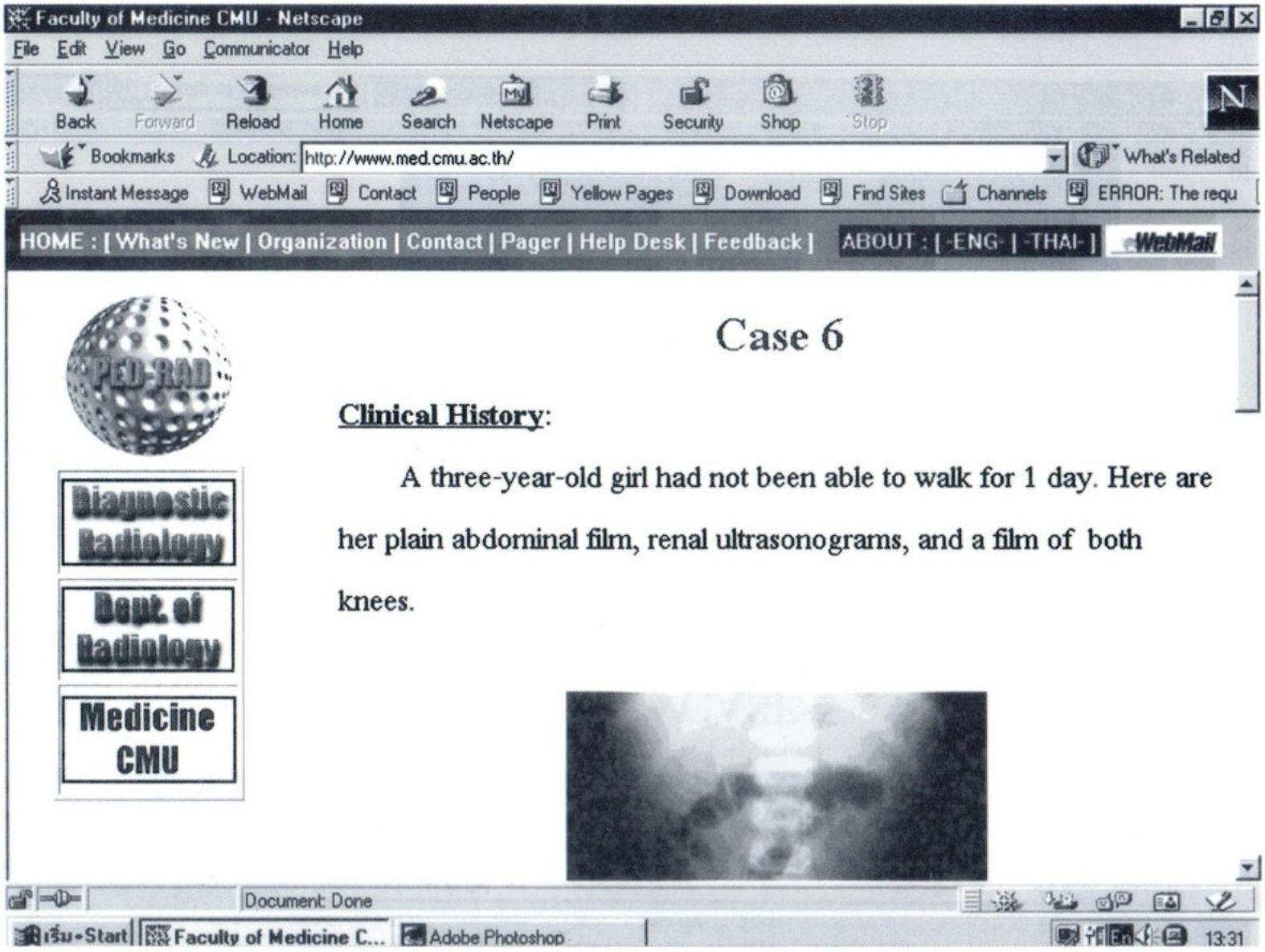


**Fig. 3** Case 6 from Interesting Cases.

**Fig. 3A** Short clinical history and pertinent unknown image.

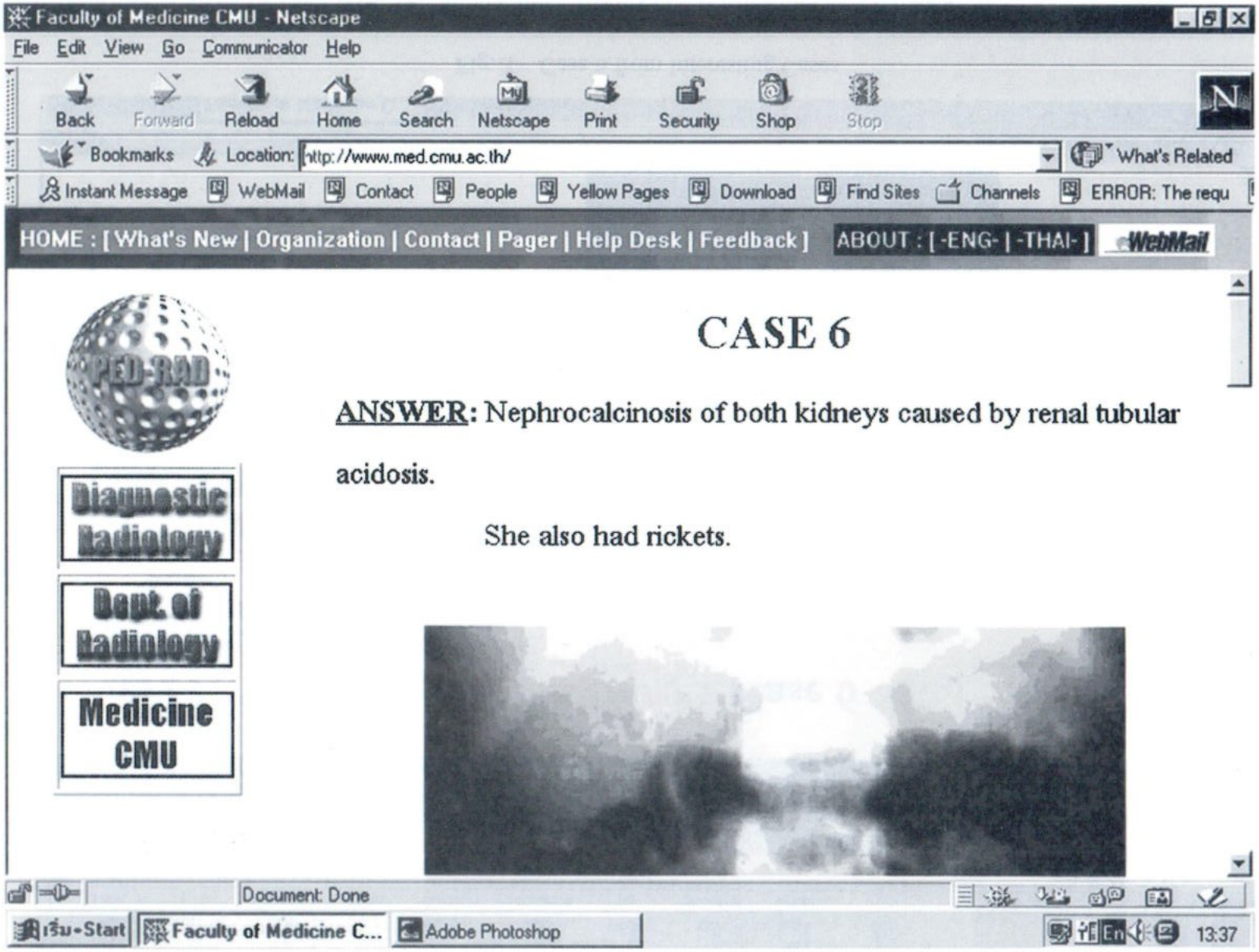


**Fig. 3B** Answer.

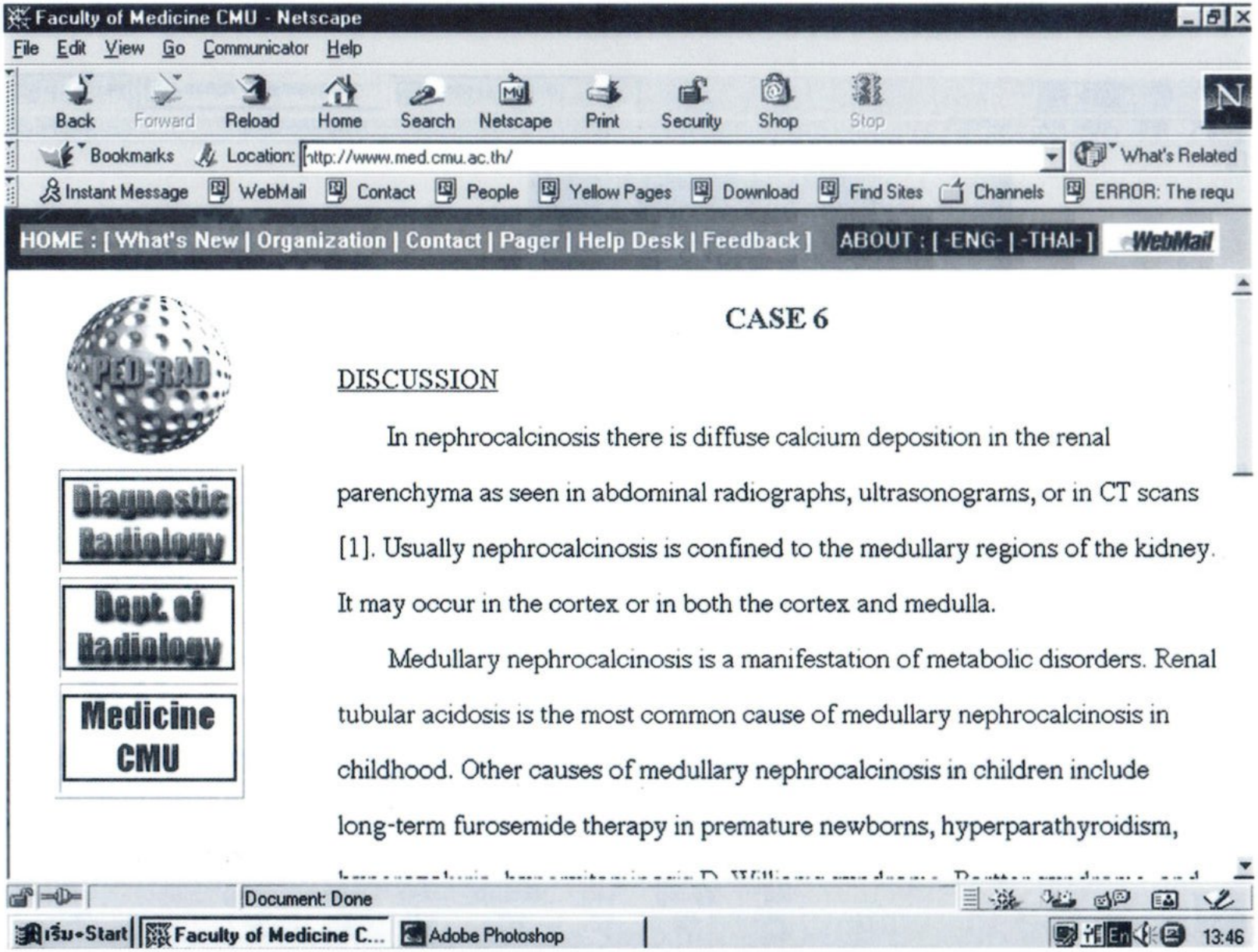


**Fig. 3C** Short discussion of the disease .

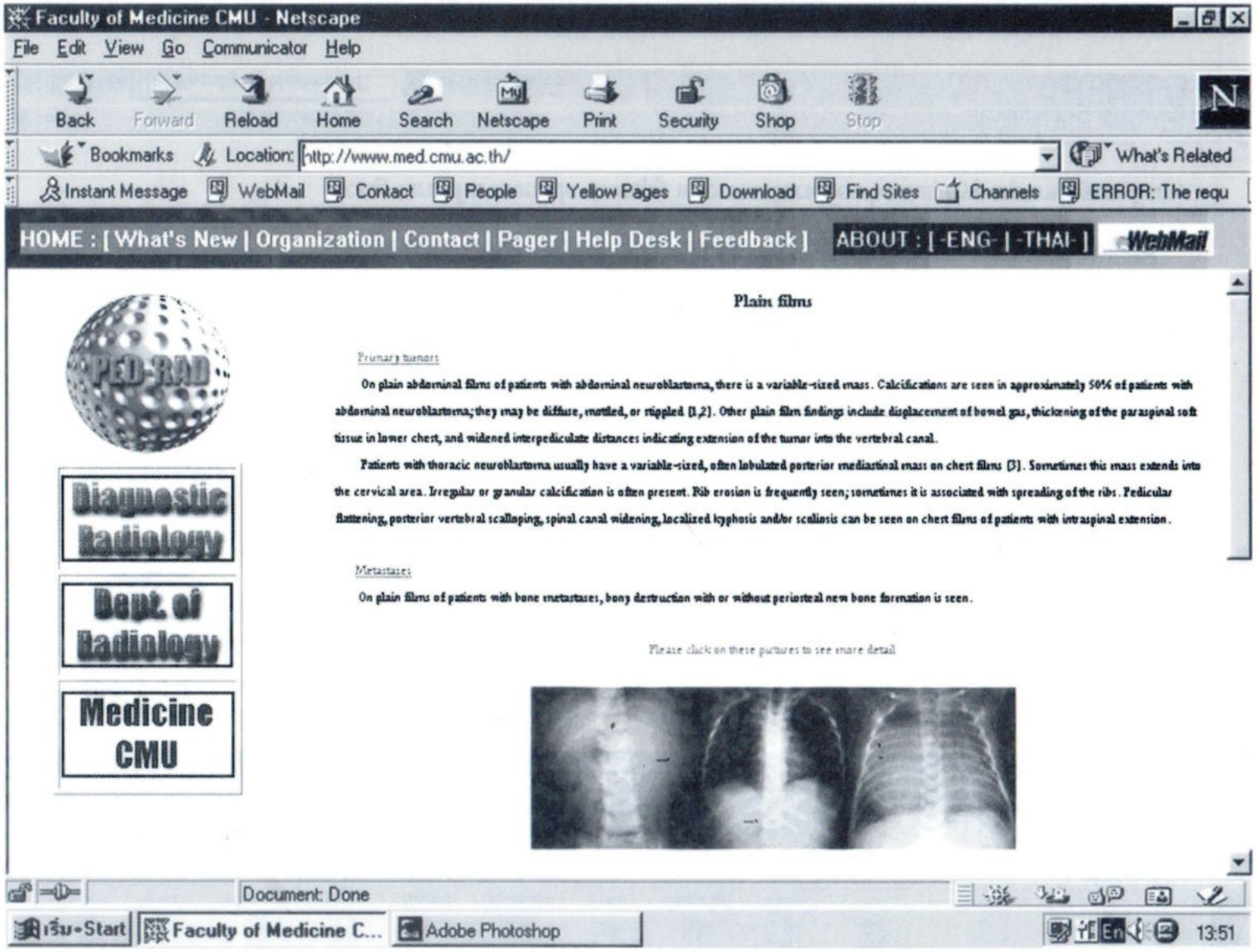


**Fig. 4.** A sample page from Interesting Topics.

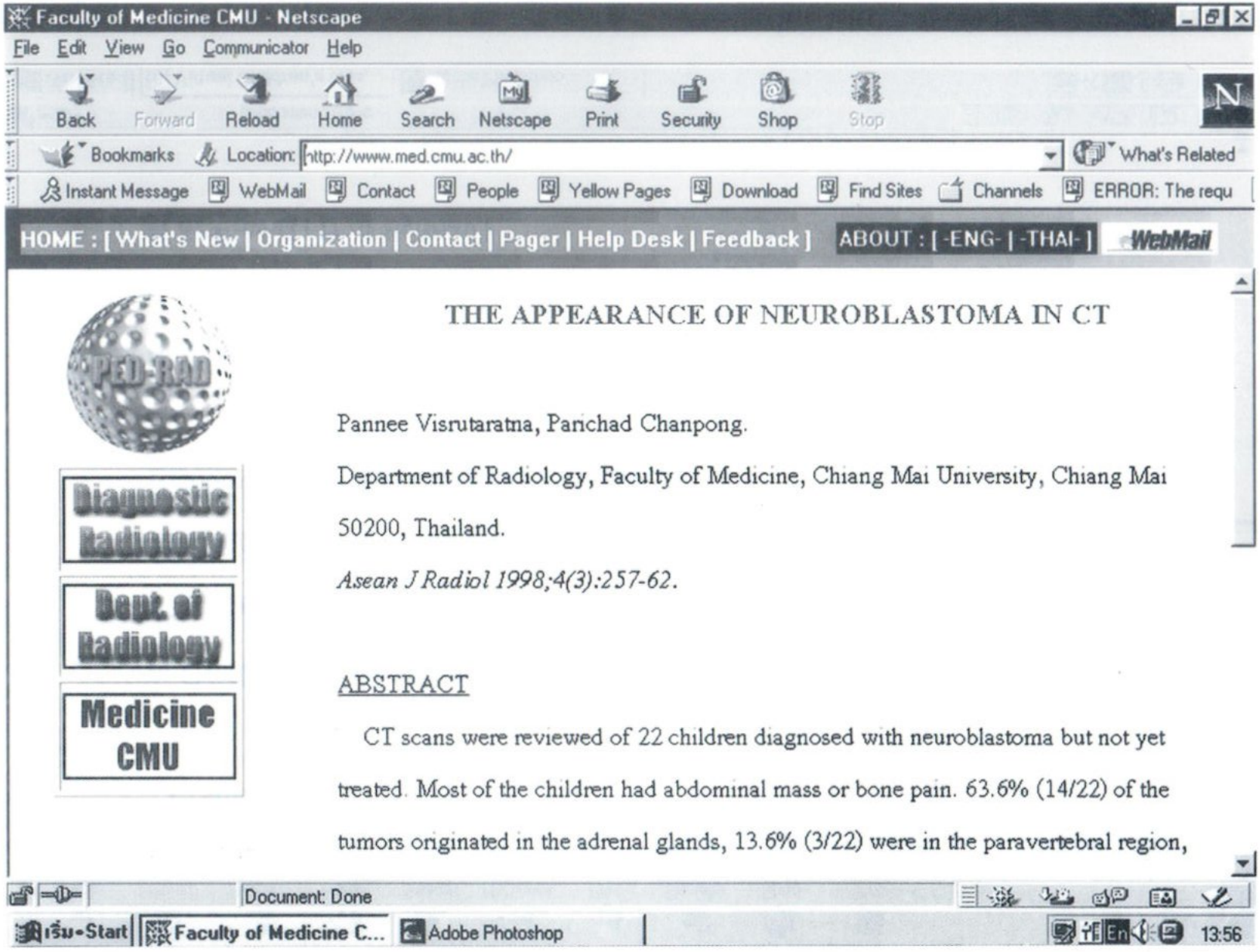


**Fig. 5.** A sample page from Publications.

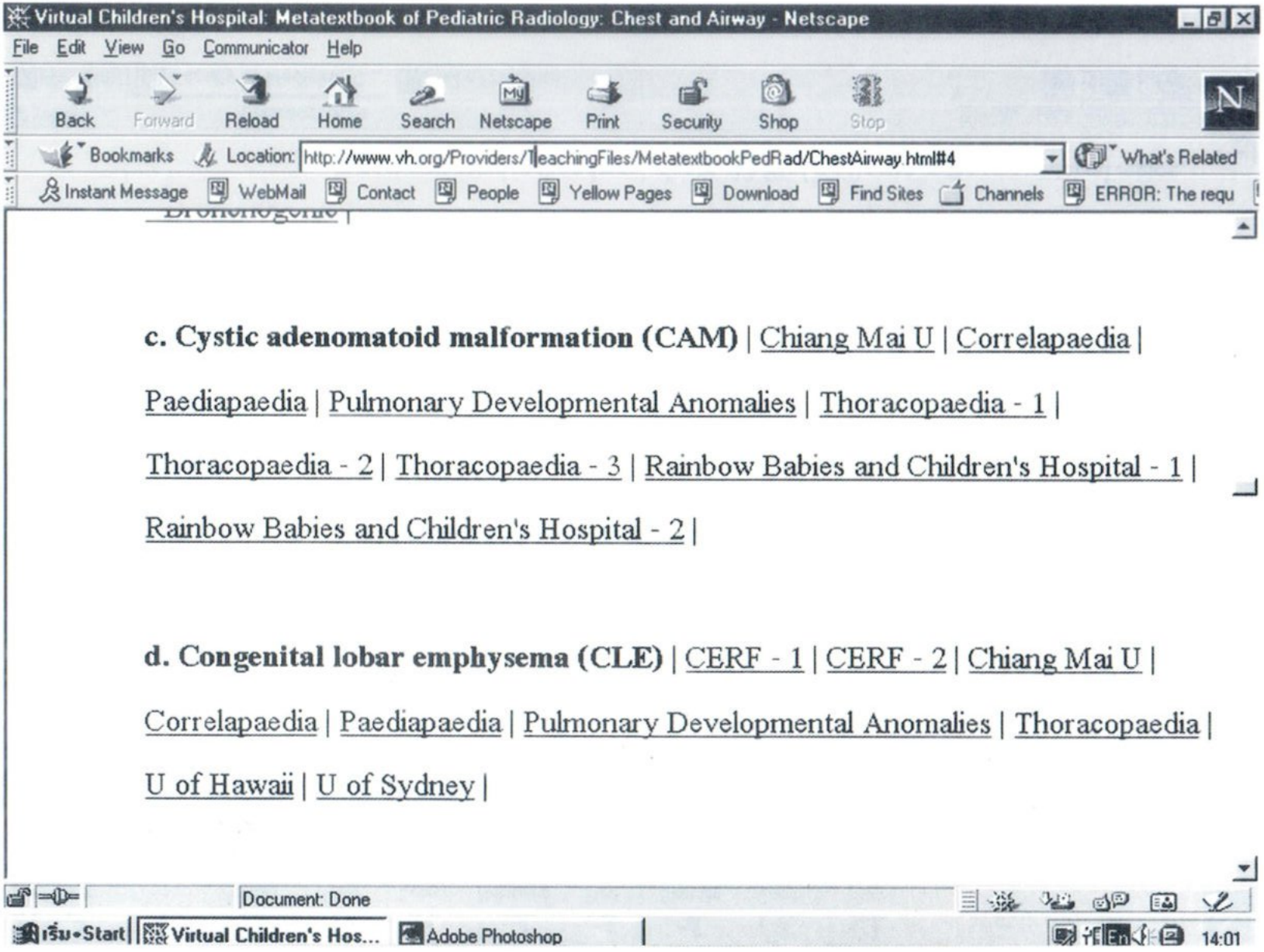


**Fig. 6**. A page from the PediatricRadiology.com web site with links to our web pages.

## RESULTS

It was found that placing our web pages on the Internet has simplified distribution of teaching files to all parts of our hospital. Our medical students and residents can bring up our web pages using computers in our department, the hospital's computer laboratory, or common study rooms in their dormitories anytime they would like to. When there are questions about imaging findings or imaging techniques at meetings or when seeing patients, images from our web pages can be brought up immediately instead of having to search through the file of teaching films or textbooks for them.

## DISCUSSION

For radiologists, images are the basic source of information. When making a diagnosis, radiologists frequently access image collections for reference. The most commonly used sources of radiologic reference images are textbooks and teaching files. Computer-based references such as electronic textbooks and teaching files on Intranets or the Internet are other sources of images.[2,3]

Nowadays WYSIWYG (what-you-see-is –what-you-get) editor software helps to produce documents in HTML easily.[4] The HTML format allows the combining of text, images, sound, movie files and other files into a single document. It also allows persons with little computer experience to navigate through the Internet, read text files, view images (stills and movies), and download files by merely pointing with the mouse and clicking on items of interest.[5] This has allowed us to maintain a teaching file that is physically small and easy for residents and students at our university and radiologists elsewhere to access. Our web pages were accepted by the web site PedaitricRadiology.com on March 4, 2000 and have been incorporated into the list of imaging appearances of common pediatric diseases there (Fig. 6).

We plan to add more cases to our web pages and to provide on-line continuing medical education courses for radiologists in Thailand.

## REFERENCES

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5. Richardson ML. A World-Wide Web radiology teaching file server on the Internet. AJR 1995;164:479-83.