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The New Generation Picture Archiving and Communication System (PACS) - Internet/Intranet-based Picture Archiving and Communication System (IPACS)

Key Words

Picture Archiving and Communication System (PACS)

Endoscopy

Internet

Sonography

ABSTRACT

An Internet/Intranet-based Picture Archiving and Communication System (IPACS) was developed in our hospital in November 1996, by combining an array of technologies including Internet/Intranet, Asynchronous Transfer Mode (ATM) network, parallel processing, and distributed multimedia database systems. The IPACS provides an infrastructure for various kinds of medical image retrieval. It can be used through the hospital's Local Area Network (LAN), telephone, Integrated Services Digital Network (ISDN), and the Internet. Based on the IPACS, we established a web-site "Clinical Infostation" that contains 1) IPACS for digestive endoscopy and sonography, 2) IPACS for gynecological sonography, 3) an on-line search system for pathology reports, 4) an on-line search system for laboratory information and 5) IPACS for digitalized X-ray examinations (CT, MRI, and DSA). Through the Clinical Infostation, we can browse and retrieve almost any medical information of patients including text and images in any working place of our hospital and in any place of the world where the Internet is available.

INTRODUCTION

During the past 2 decades, progress in medical imaging technology has brought us not only traditional roentgenography, but also more advanced technology, such as electronic endoscopy, sonography, computed tomography (CT), magnetic resonance imaging (MRI), and digital subtraction angiography (DSA). These medical images have given us more in-depth information of diseases, and thus we can make more accurate diagnoses of disease and give better management to patients.

In the past, the discussion on diagnostic images was based on reading "films" or "photos" of X-ray examination, endoscopy, and/or sonography, irregardless of being in the wards, or within or between hospitals. In recent years, Picture Archiving and Communication Systems (PACS) have been applied in medical image management and transfer/browsing in some hospitals in Taiwan. A typical PACS consists of a database of medical images, display stations, acquisition systems, and a communication medium.^{1,2} A fiber optic computer network was designed based on the present PACS network requirements and data traffic.^{3,4} However,

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