

TELEPHONE TRANSMISSION OF SCINTIPHOTOGRAPHS

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Recently, one of us has reported on preliminary work dealing with the telephone transmission of ultrasonic tracings (1). The quality of the images obtained was good enough to encourage us to attempt to transmit scintiphotographs. We wish to report our initial results and briefly mention projected modifications.

MATERIALS AND METHODS

The scintiphotographs were obtained using a commercial gamma camera and instant developing film.

No special settings were required. The procedure for telephone transmission was the same as described before for ultrasonic tracings using the same commercially available equipment (1). Transmissions were made within the hospital, from hospital to hospital, and from our hospital to our homes by direct

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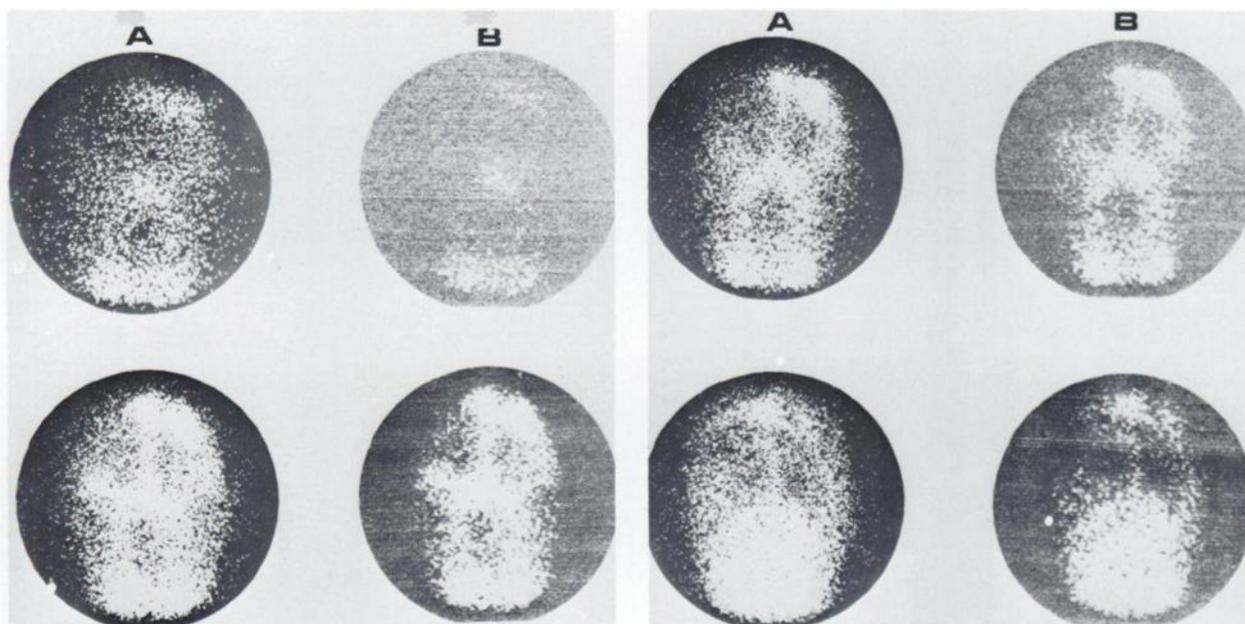


FIG. 1. Selected images, from top to bottom, of anterior view flow study of brain showing arteriovenous malformation on left

side. Column A shows original scintiphotographs and Column B their respective transmitted images.

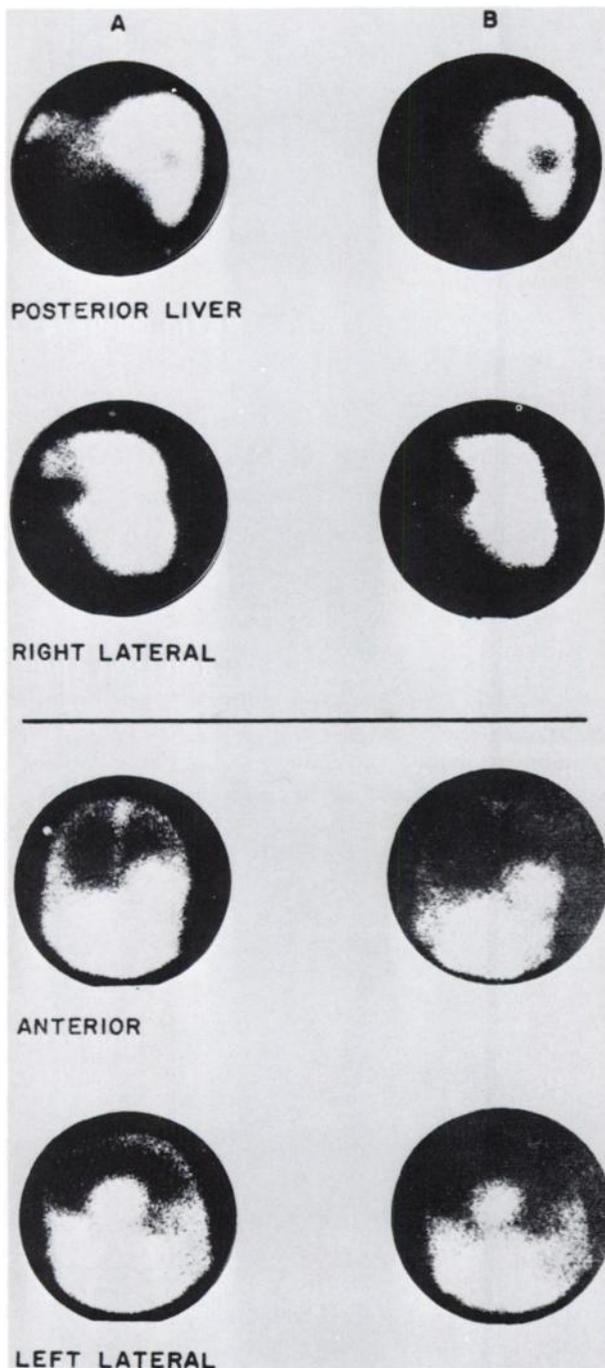


FIG. 2. Posterior and right lateral views (top) of liver showing single metastatic lesion. Their respective transmitted images are in Column B. Anterior and left lateral views (bottom) of brain study showing large sphenoid wing meningioma. Their respective transmitted images are in Column B.

dialing. The time for transmission of each scintiphoto-graph was approximately 1 min.

RESULTS

Using this technique, various types of scintiphoto-graphs were transmitted. Figure 1 shows a brain flow study done in the anterior view in a patient with an arteriovenous malformation. The abnormality in the left side can be seen. There is, however, loss of detail of lesser areas of activity as evidenced by the disappearance of the right cerebral hemisphere activity. Figure 2 shows two views of a brain scan of a large meningioma and two views of a liver scan showing a metastatic lesion. These were selected as examples of abnormalities of increased and decreased activity, respectively. In both the anterior and left lateral views of the brain the activity over the cerebral convexities and in the sagittal sinus is not seen. In the liver study, the posterior view shows disappearance of the activity of the left lobe and in the right lateral view the size of the lesion appears to increase because of the disappearance of the activity in its superior aspect.

DISCUSSION

The quality of the transmitted images is quite good. However, the main difficulty is the loss of information in the regions of less activity. This may result in a lesion of slightly increased activity over background being missed, and conversely it falsely increases the size of lesions with less activity than background. In order to avoid this loss of information during the transmission, the original scintiphoto-graphic images would have to be obtained with a higher intensity setting. This, however, is undesirable since it would degrade the resolution of the original image. We are presently working with the manufacturer to see what modifications can be made so that the quality of the original image is not compromised to obtain a faithful transmission. We are also developing a technique for transmitting photoscans by first photographing them with instant developing film.

REFERENCE

1. GOLDBERG BB: Teletransmission of ultrasonograms. *Radiology* 103: 457-459, 1972