Bronchoscopy and Television

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A new method of bronchoscopy which utilizes a telescope equipped with a quartz rod providing a powerful light source, has made it possible to adjust a television camera directly to the endoscope. We should like to describe briefly two experiments with television which may be of interest to you.1

Our first experience in televising bronchoscopy directly took place in December, 1955, with the cooperation of Television Nationale. Our purpose was to relay the endoscopic views which could be obtained with the "Four- estier, Gladu, Vulmiere" apparatus. The same view of the bronchi as seen by the bronchoscopist and his assistants on the screen in the operating room could thus be followed at the same time by all those outside, on their individual television sets. The experience was valuable in that it showed us that it could be done.

As one of us has written in Bronchology, there may be practical, social and prophylactic interests in utilizing a national television network in this way, and there may be also the value in a particular case, in permitting a specialist to give his opinion regarding a bronchoscopy which takes place at some distance. Actually, however, because the procedure of performing a bronchoscopy for television requires so much on the part of the operator in becoming accustomed to the technique, it should naturally be reserved for exceptional cases. In this respect, the systematic taking of bronchoscopic films is a simpler and more fruitful means of insuring satisfactory consultations because it can be achieved under better conditions.

The second experiment was undertaken for pedagogical reasons; this was television in a university hospital, and reserved for the bronchoscopist and assistants, other physicians and medical students. Once again, it was a matter of adjusting the television camera to the special Fourestier, Gladu, Vulmiere bronchoscope. In this case, we did not use one of the Nationale Television cameras, but a much more practical camera which had been manufactured privately, greatly reduced in volume and weight (25 cm. long, 15 cm. wide and three lbs. in weight. The new model for which we are waiting is twice as small and twice as light.

This camera makes it possible to transmit to the viewing screen the same image which the operator himself has, of the progression of the tube into


Figure 1: General arrangement. The patient and the equipment are in place. The special Fourestier, Gladu, Vulmiere camera is ready in front of the enormous National Television equipment.—Figure 2: The bronchoscope is in the trachea; it is adjusted to the television camera; the bronchoscopist does not look into the telescope, but at the television screen.
the bronchi. This, of course, obviates the old necessity of taking turns in looking into the tube during a bronchoscopy, when several people wish to follow it, and modifies the examination procedure and information which can be gained from it.

Moreover, the same bronchoscopic picture can be transmitted to several amphitheatres for physicians and students, at the same time that a commentary is relayed through a loud speaker. Thus a greater number of students are able to benefit from the bronchoscopic examination itself, without requiring each to look into the telescope. It is likely that the use of television only amplifies the instruction, which is doubtless given with as much profit by the bronchoscopic films.

Two applications of this procedure were made for students during the annual International Course of Broncho-esophagologie which was recently given in Paris.

The first procedure was performed on a man at Laennec Hospital, in Professor Robert Monod's Clinic for Chest Surgery. The bronchoscopic pictures of several patients were transmitted simultaneously on several screens: on one in the thoracic surgery division; on one in Professor Etienne Bernard's Pneumo-Pthiologia Service; and, of course, on the screen in the operating room. All the students and all the physicians grouped around the screen were able to observe at the same time as did the bronchoscopist, a tuberculous stenosis, a neoplastic stenosis, and the alteration of the bronchi in a bronchiectasis.

**FIGURE 3:** Another view of the room where the bronchoscopy is taking place. A small group of technicians, engineers, and physicians is seen who are following the bronchoscopic procedure on the screen and who listen to the accompanying explanation; all the television viewers in Paris and outlying communities were able to do the same.
The second application seemed to have an even greater importance. It permitted the viewers to observe at the same time as did the bronchoscopist and the physiologist, the bronchoscopic results of the excitation of the vagus.

*Figure 4:* A photograph, only fair in reproduction, of one of the fine pictures obtained on the television screen. Orifice and stem of the middle lobe; below, the lower right bronchus, its divisions and their orifice.—*Figure 5:* Another photograph of a picture obtained on the television screen above, at 9-11 o’clock, the upper lobe of the left bronchus; below, the lower lobe and its divisions.
nerve, and of the administration of prostigmine and acetylcholine in an anesthetized dog. Professors and students were thus able to observe the production of a spectacular bronchial spasm. This production for the students of our course demonstrated the interest which television may have in the domain of experimental research. It took place in Dr. Halpern's laboratory in the Medical Clinic of Professor Pasteur Vallery-Radot in Broussais Hospital.

This new television procedure should be in color; that would be preferable, and is, of course, already possible in this country. Moreover, it may be used in all endoscopy, as we have done: in photo-cinematography during proctoscopy, laparoscopy, urethroscopy. The future will show the results and the value of all these various techniques, particularly in bronchosophagoscopy.

SUMMARY

Using a new type of bronchoscope with a proximal light source, telescope and a quartz rod to transmit the light to the distal tip of instrument, sufficient illumination was obtained to permit attaching a television camera directly to the endoscope. The image was transmitted to screens in the operating room and in various services in the hospital through a closed circuit. This was found to be of great value for both teaching and consultation.

RESUMEN

Usando un nuevo tipo de broncoscopio con una fuente de luz proximal, telescopio y una varilla de cuarzo para transmitir la luz al polo distal del instrumento, se obtuvo la suficiente iluminación para permitir adaptar una cámara de televisión directamente al endoscopio. La imagen fue transmitida a pantallas en la sala de endoscopías y en varios servicios del hospital a través de un circuito cerrado. Esto resultó de gran valor educativo y de consulta.

RESUME

Utilisant un type nouveau de bronchoscope avec source lumineuse proximale, un télescope et un tube de quartz pour transmettre la lumière à l'extrémité de l'instrument, on peut obtenir une luminosité suffisante pour permettre l'adjonction à l'endoscope d'une caméra de télévision. L'image fut transmise sur les écrans de la salle d'opération et dans les différents services de l'Hôpital, en circuit fermé. Ceci est d'un grand intérêt à la fois pour l'enseignement et la clinique.

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