

BRONCHOGRAPHY

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This is a review of bronchography as practised in St. Luke's Hospital, Malta, over the years 1969 and 1970 .

The inhalation technique is used. It is usual for one lung to be investigated at a time but bronchography of both sides has been carried out when indicated. No sedation prior to the examination is given. The intended procedure is explained to the patient in the X-Ray Department before the examination is carried out. Topical anaesthesia is used. The throat is sprayed with 5-10 cc of 2% Amethocaine Hydrochloride. The mouth and back of the throat are first sprayed, and then the larynx, taking care to spray as the patient is inhaling so that the mucosae of the larynx and main bronchi are anaesthetised, thus reducing the tendency of the patient to cough during the actual examination. The patient is asked to breath deeply at this stage. Once the throat and larynx are anaesthetised it is reassuring to the

patient if he is asked to feel the back of the throat with his own index finger. This will ensure more cooperation by the patient later on. Dionosil — a white sterile oily contrast medium — is slowly injected via a curved non-pointed wide bore cannula on the back of the tongue which is held out wrapped in a piece of sterile gauze in the operator's left hand. The patient is asked to breathe, but not too deeply. In this way only the bronchi are filled and alveolar filling does not occur. One tries to avoid alveolar filling as when this happens, it will to some degree blur the outline of the smaller bronchi. About 200 c.c. of contrast medium are thus introduced into the bronchial tree .It is most essential to instruct the patient at this stage to refrain from coughing. While the contrast medium is being introduced, the patient is made to lie in the lateral decubitus to the side which is being investigated. This is done

to fill the upper lobe bronchi. He is then asked to bend backwards and then forwards, in this way filling the bronchi of the middle and lower lobes. Some of the Dionosil is inevitably swallowed.

Three views are taken with the patient standing up: an Antero-posterior, an Anterior oblique view and a Lateral view.

The patient is not screened during any part of the examination. (A postero-anterior and lateral views of the chest are taken prior to the introduction of the contrast medium in the bronchial tree). When the examination is completed and satisfactory radiographs have been obtained, the patient is asked to cough up as much as possible of the contrast medium, and instructed not to eat or drink for the next four hours. This will allow the effect of the topical anaesthesia to wear off.

Contraindications

- 1) Very poor general condition of the patient
- 2) Considerably reduced vital capacity
- 3) Idiosyncrasy to iodine.

Over the two years January 1969 - December 1970, 42 Bronchograms were carried out on 40 patients. Two patients had a repeat Bronchogram.

The indications for Bronchography in St. Luke's Hospital were:

- 1) To confirm the presence of bronchiectasis.
- 2) Suspicion of neoplasm.
- 3) Haemoptysis — cause unknown.
- 4) To define the relations of a lung lesion to the bronchial tree.

Of the 40 patients examined 33 were males and 7 females.

The number in each of the following age groups were:

Age 14-20 years	2 cases
Age 21-40 years	9 cases
Age 41-60 years	20 cases
Age 61-80 years	9 cases

28 cases were referred from the Medical Division, 8 from the Chest Clinic, 3 from the Surgical Wards and 1 from E.N.T.

The diagnoses reached through bronchography were as follows:

- 17 cases had Bronchiectasis .
- 14 cases had a normal bronchogram.
- 5 cases had an occlusive lesion.
- 3 cases had other lesions, including a mass in the lung tissue, not related to the bronchi.
- 1 case had an effusion.

Discussion

The inhalation technique has always been used in St. Luke's Hospital. Other methods, including intubation via the larynx under general anaesthesia, have not been used except in the rare cases of very young and uncooperative patients. The method of crico-thyroid puncture has not been used here. With this technique there is the risk of surgical emphysema due to air leaking through the puncture site. The inhalation technique is preferable because of its simplicity. Good demonstration of the upper lobe bronchi can also be obtained, provided the patient is put in the lateral decubitus to the side which is being investigated and enough time is allowed for the contrast medium to spread peripherally. Saxton and Strickland (1964) do not believe this to be so, but we have been able to demonstrate the upper lobe branch in all cases. Another advantage of this inhalation technique is that one may if necessary obtain a laryngogram — the uniform coating of the upper respiratory tract with contrast medium. Quiet breathing is essential during the introduction of the contrast medium as the movement of the medium along the smaller bronchi is dependent on the force of the inspiratory effort (Holden, 1957).

Although no sedation is given prior to the examination moderate basal sedation will be advantageous provided the condition of the patient allows it.

Out of 40 patients who were investigated by bronchography, 26 cases had a definite bronchial or lung lesion. 14 cases had a normal bronchogram.

The advantage of bronchography in the investigation of a lung or bronchial lesion is that demonstration of the lesion is clear cut with good definition. The amount of exposure to X-Rays is minimal and is equivalent to 3 exposures for a

chest X-Ray which are of minimal duration. This is in contrast to tomography where the different cuts at different levels are taken with each exposure lasting between 1 and 3 seconds. The disadvantage, relative to tomography, is that the procedure is more uncomfortable for the patient. Neither bronchography nor tomography will supersede each other as a means of investigating a lung lesion. Bronchography and tomography are complementary. Tomography is in fact preferable in investigation of certain lung lesions i.e.: Hamartomas where areas of calcification within this benign lung tumour can be demonstrated.

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References

- SAXTON, H.M. and STRICKLAND, B. (1964). Practical Procedures in Diagnostic Radiology, p. 124.
HOLDEN, W.S. (1957) Brit. J. Rad., 30, 530.