PROBLEMS IN EARLY DIAGNOSIS
OF CARCINOMA OF THE LUNG

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The purpose of this discussion is to point out the problems involved in making an early diagnosis of carcinoma of the lung. We need not go into the importance of recognizing an early lesion. As in carcinoma anywhere in the body, we know that for the present our only hope for cure is to discover the tumor early enough so that it can be resected.

As bronchoscopists we are part of a group concerned with the problem of making an early diagnosis in cancer of the lung. The internist, chest specialist, roentgenologist, pathologist, as well as the bronchologist must combine their efforts more effectively to bring the cases to the thoracic surgeon before it is too late.

At the present time the curability of cancer of the lung is reported as low as 6-8% in all cases operated, and 40% of the tumor is confined to the lung and resectable. It is obvious then that the techniques in diagnosis are thus far inadequate. There is a great increase in the incidence of cancer of the lung and yet our ability to discover early cases has not improved to any extent.

As bronchoscopists we make a plea for early bronchoscopy since this is the only certain way of making a diagnosis. We ask the medical men not to procrastinate in the presence of a persistent cough or hemoptysis or a wheeze. We ask the internists and the roentgenologists to seek bronchoscopy when the x-ray shows any suspicious shadow or even in the presence of a negative x-ray. We now have the help of cytological examination, and still diagnosis of cancer of the lung is too late in most cases to effect a cure.

What can we do? Let us take each man's job in this fight against cancer of the lung and see what he can do to help. First the patient. He must be educated to seek medical advice if he has an irritating cough that lasts more than three weeks. He must not neglect the so-called hacking cough and blame it on smoking or a postnasal drip. He will certainly seek consultation if he is spitting blood. In other words education of the public is of paramount importance.

Next, the internist should be suspicious of a cough that lasts more than a reasonable length of time and cannot be definitely explained on examination. He should not be tempted to treat the condition as a bronchitis or an infection and give the patient a trial treatment with antibiotics. Cough, hemoptysis, or wheeze may be an early symptom and must be extensively investigated. After a thorough physical examination, he must refer the patient for x-rays of his chest.

The roentgenologist will take x-rays of the chest perhaps postero-anterior views and laterals, but frequently this is not enough. Further views on inspiration and expiration, obliques, and possibly planograms may demonstrate a lesion in a case that is suspicious.
of carcinoma of the lung when the routine films may be negative.

Then too, the roentgenologist must learn to over-read the x-rays and view with suspicion any slight deviation from normal. Rigler mentions several abnormalities in x-rays that may be overlooked, i.e. segmental or general pulmonary emphysema, minor differences in the size of the root shadows of the two lungs, linear areas of atelectasis, and a nodule in the periphery.

After thorough x-ray study, if the findings appear to be negative, it is not necessarily true that a cancer is not present. After all, the lesion may be so small that it creates symptoms of irritation in the bronchus, but it may be of a size that does not create bronchial obstruction and a resulting shadow. So in the presence of a negative x-ray, further investigation is required, i.e. bronchoscopy.

Bronchoscopy is the only means of making a certain diagnosis. We are able through the bronchoscope to see a lesion when it is present. This is relatively easy, and our experience tells us that most of the time it is too late. What we must do is to recognize the very early lesion: the slight abnormality that may occur in a beginning cancer of the bronchus. To identify a large fungating growth or rigidity or severe narrowing of the bronchus is not difficult, but to be able to discern a small elevation of the mucosa, a slight roughening or irregularity of the mucous membrane, or a little narrowing of the bronchus, these are the abnormalities that one must recognize. An elevation in the mucosa may be flat or may be a small nodule or group of nodules giving a granular or wrinkled appearance. When the surface of the mucous membrane is broken, there is an ulceration which appears as a small irregular granular area that bleeds readily when touched with the tube or aspirator. At time one recognizes a change in color. Instead of the usual pale pink appearance of the mucosa we may see a red or bluish area. Any irregularity in the normal longitudinal folds of the bronchus may indicate a mucosal or submucosal infiltration. Any obliteration of the normal pattern of the cartilaginous rings must be held suspicious of tumor. It takes training and skill to be able to do this, and we must attain that skill and teach it to our younger men.

Besides viewing the inside of the bronchus and examining carefully each branch including the upper lobes with telescopic lenses, we are able to take specimens. The biopsy of a lesion that is readily seen is not difficult, but we must obtain specimens of the almost imperceptible lesion and specimens of the secretions of exudate even though no lesion is seen. We are able to use a curette if the tissue cannot be grasped with a biopsy forceps. The bronchial mucosa can be swabbed with an applicator and smears made for cytological studies. Saline may be instilled in the lung and aspirated for study in the hope of being able to recognize abnormal cells if a cancer is present. A forceps or curette may be placed in a suspicious bronchus with the hope of taking a blind biopsy and revealing a tumor. In cases of hemoptysis the blood or blood clots should be carefully followed to determine the branch of origin. Sometimes localization by x-ray will help to lead the bronchoscopist to the branch involved and specimens taken to confirm the diagnosis. Yes, the bronchoscopist has a very important part to play in the diagnosis of the early lesion. He must view everything in the bronchus with suspicion and take many specimens. He must not hesitate to repeat the bronchoscopy in any suspicious case if his first attempt has not proven the presence of the cancer.
A very important member of the diagnostic group is the pathologist. It takes a great deal of time and patience as well as training and ability to recognize abnormal cells in the sometimes meager specimens that he is asked to examine. His contribution is most significant, and as time goes on we are leaning heavier and heavier on him to help us prove the presence of a cancer.

Is there anything further to be done? Mass x-rays have been disappointing, and yet if people were x-rayed every six months after the age of 45 perhaps more cases would be recognized that could be successfully operated. Then too, sputum examination at regular intervals may reveal some cases that would not ordinarily be discovered. It has been suggested that lung washings obtained with a catheter inserted indirectly — not through a bronchoscope — might reveal added cases. But these procedures would have to be done at regular intervals in large surveys, and whether they would be successful is problematical.

One thing we can do is to recommend more freely and regularly exploratory operation in cases that are suspicious of carcinoma of the lung. Our previous reluctance in asking the thoracic surgeons to investigate a lesion is now unfounded since the risk is negligible and the prospect of obtaining a cure so much greater than if we wait for the tumor to increase in size or for a positive diagnosis to be made.

CONCLUSION

In spite of our present knowledge the curability rate of carcinoma of the lung is low. We have attempted to indicate that the early diagnosis of cancer of the lung is beset with problems. What we can do for the present is to educate the public and to train the medical specialists to improve their ability in the techniques in diagnosis that are available to us at this time. Mass surveys are not practical for the present.

REFERENCES

Boucot, K. R. Mass Surveys on Case-finding Techniques for Pulmonary Neoplasms. Trans. of the 46th annual meeting—National Tuberculosis Assoc. 1950. page 266.

著者はコロンビア大学出身。現在 New York Bellevue Hospital の気管食道科主任、New York Veterans Administration Hospital の耳鼻科顧問である。本論文は1954年10月10日より13日までリスボンで開催された国際気管食道科学会に於て講演された要旨で本会報へ掲載を快諾されたものである。
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肺癌の早期診断

この論文では、肺癌の早期診断に必要な問題を述べるのが目的である。身体の何処なる部分の癌でも手術可能な内に発見できてこそ治癒が期待出来るのであるから、早期発見の重要性については今更述べる必要もない。肺癌患者に時を失す事なく手術を行う為に、気管支の研究者は勿論、内科医胸部専門医、レントゲン学者、病理学者のもとと有効に努力を結集せねばならない。現在の低い発見率は明らかに診断技術の不十分な事を物語つて居り、肺癌の頻度は非常に増加しているが、未だ我々の早期発見の能力は少しも進歩していない様に思われる。

肺癌に対して我々が為し得る事は、次の事項である。先ず第一には公衆の教育が大切である。患者は3週間以上も嘔呪、喘鳴、喘鳴が有る場合は、之等が初期症状である事が多いから十分な病理的検査の後、胸部レ線写真を撮影すべきである。

レントゲン科医は従来正面及び側面の撮影を行っているが、これだけでは屡々不十分で、再に陰気時呼気時、斜位の撮影をも行い、又出来る限り断層撮影を行わなければならない。そして写真の陰影に際しては僅か変化も疑う目を以て見られる事が必要である。見落され易いレ線写真上の幾つかの異常について Rigler は次の如く述べている。即ち区域的或は全肺野の肺気腫、両肺が紋理の大きいの僅か変化、線状を呈する無気肺、周辺部に見られる小結節、等である。十分なレ線検査を行って所見が認められなくても癌を否定する事は出来ない。この場合は更に気管支鏡検査が必要である。

気管支鏡検査は診断を確定する唯一の方法であるから、我々は bronchoscopist として早期に気管支鏡検査を行う事を強調したい。この場合にも初期の変化を即ち軽度の異常を発見する事が必要で、粘膜の小隆起、軽度の粗面化、気管支の僅かの狭窄、小潰瘍、粘膜の着色、気管支纖維膜の変化、軟骨片の消失、等を疑わせる。気管支内部の視診のみならず、更に可視病変から組織標本を作る事は勿論、不夜の病状に対しても疑わしい気管支に急性に組織採取を行い、共に、細胞学的診断の為に標本を摂る為により、或は食塩水を注入し、之を吸引する事によって smear を作る。嘔呪のある場合には出血の源となる気管支を決定するために血液や感液を注意深く追求すべきである。一回の気管支鏡検査で癌が証明出来なくても、疑わしい症例には繰返し検査を反復する事が必要である。

診断時には病理学者が非常に重要な一員で、病理学者は多くの時間と精神が必要である。我々は益々病理学者の援助に頼る様になって来た。

更に行うべき事と言え、若し45歳以上の人に6ヶ月毎にレ線検査を行い、又定期的に嘔呪検査を行えば、発見率は良くなるであろう。又気管支鏡を用いずに間接的に挿入したカテーテルによって肺洗浄を行えば、更に症例が追加出来るだろうという事が考えられる。然し之等の方法は定期的に、又広範囲に行わねばならないであろう。然しそれが成功するかどうかは疑問である。

我々に出来るもう一つの事は、疑わしい患者に、もっとと試験的手術を行う様に動かす事である。現在ではこれによる危険は殆どなく、又腫瘍が増大したり或は診断が確定する迄待つているよりも治療の期待が大きく持てるからである。（抄訳 鈴木 安恒）