The editor interviews Earle W. Wilkins, Jr., M.D., Instructor in Surgery at Harvard Medical School, and Associate Visiting Surgeon at Massachusetts General Hospital, Boston, Massachusetts.

**DR. GRANT:** Dr. Wilkins, you have recently reported on the excision of metastatic neoplasms in the lung at the Massachusetts General Hospital. How many patients have had this procedure?

**DR. WILKINS:** Sixty-seven patients have undergone a total of 75 operations for removal of pulmonary metastases at our hospital. Follow-up examination has been complete on all 67 patients and the status of each has been accurately determined.

**DR. GRANT:** Such a small group must have been highly selected. What primary lesions were most common in this series?

**DR. WILKINS:** Table 1 is a list of the primary sites. You will note that the colon and rectum and kidney account for approximately one half of the entire series.

**DR. GRANT:** Does this special selection of colon and rectum and kidney cases indicate that you have had the best results in these sites?

**DR. WILKINS:** Yes. In general, our most favorable results occurred following excision of carcinomas originating in the colon and kidney and also the uterus and for osteosarcoma.
TABLE 1

| Primary Sites      | Operations* |
|--------------------|-------------|
| Colon and rectum   | 17          |
| Kidney             | 16          |
| Connective tissue  | 7           |
| Uterus             | 5           |
| Melanoma           | 4           |
| Bladder            | 4           |
| Bone               | 4           |
| Testis             | 3           |
| Miscellaneous      | 7           |
| **Total**          | **67**      |

TABLE 2

| Operations*       |
|-------------------|
| Pneumonectomy     | 12          |
| Lobectomy         | 41          |
| Segmental excision| 4           |
| Local excision    | 18          |
| **Total**         | **75**      |

*Seventy-five procedures were performed on 67 different patients.

**TABLE 3**

| Carcinoma* (Survey of Literature) | Number of Cases | Known Five-Year Survivors |
|-----------------------------------|-----------------|---------------------------|
| Gastrointestinal                  | 69              | 3                         |
| Urinary                           | 47              | 6                         |
| Uterine                           | 32              | 4                         |
| Mammary                           | 31              | 2                         |
| Endocrine                         | 31              | 3                         |
| Melanoma                          | 17              | 0                         |
| Miscellaneous                     | 27              | 0                         |
| **Total**                         | **254**         | **18**                    |

*The total numbers and favorable results from excision of metastatic carcinomas to the lung.

DR. GRANT: How extensive were the operations to remove the metastatic lesions in the lung?

DR. WILKINS: The operative procedures ranged from local excisions to pneumonectomy, as you will note in Table 2.

DR. GRANT: I am quite surprised by the large number of lobectomies and pneumonectomies which were performed and the small number of lesser procedures, such as local excision or segmental excision. Was any particular operation more successful than the others?

DR. WILKINS: No, except that if pneumonectomy was required to remove metastatic disease, the outcome was usually poor. If pneumonectomy was not required, the type of operation performed did not seem to influence the results. For example, following lobectomy 22 per cent survived five years and following local excision 17 per cent of the patients survived five years. Incidentally, none of the 12 patients requiring pneumonectomy survived five years.

DR. GRANT: What about multiple operations for cancer metastatic to the lungs? I note that you performed 75 operations on 67 patients.

DR. WILKINS: In this limited series, repeated operations are associated with a uniformly grave prognosis. In six patients who had either a bilateral thoractomy or a second operation on the hemithorax, death occurred from residual disease within two years.
DR. GRANT: I suppose a similar unfavorable experience was obtained from multiple metastatic nodules.

DR. WILKINS: Yes, but excision of multiple lesions can be justified in some cases. For example, more than one nodule was found in six explorations in our series. Five of the six were known preoperatively. Two of these patients are alive more than five years and one is alive eight years.

DR. GRANT: What are the criteria for selection of cases?

DR. WILKINS: Well, in addition to the type of primary lesion, the presence or absence of secondary lymph node metastasis is important. For example, a patient with secondary lymph node metastasis has a poor prognosis. There were nine such patients. Eight have died within 17 months. The time interval between the primary and the pulmonary operation is important.

DR. GRANT: In what way?

DR. WILKINS: In general, the greater the span of time between the primary and the pulmonary operation, the better the possibility of long term survival. Of 40 patients whose pulmonary operations were performed less than five years after the primary operation, only 10 per cent survived five years after removal of metastasis. On the other hand, of 20 patients whose excisions of pulmonary metastases were performed more than five years after the primary operation, 40 per cent survived an additional five years.

DR. GRANT: Did you have any patients in whom pulmonary metastases were removed before the primary was known or discovered?
TABLE 4

| Sarcoma* (Survey of Literature) | Number of Cases | Known Five-Year Survivors |
|---------------------------------|-----------------|---------------------------|
| Fibrosarcoma                    | 32              | 3                         |
| Osteogenic                      | 23              | 6                         |
| Synovioma                       | 6               | 2                         |
| Chondrosarcoma                  | 5               | 0                         |
| Neurogenic                      | 4               | 2                         |
| Miscellaneous                   | 31              | 3                         |
| Total                           | 101             | 16                        |

*The favorable results from excision of metastatic sarcomas to the lung.

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DR. WILKINS: Yes. Seven patients had pulmonary metastases surgically excised before the primary was known and only one of these is still alive.

DR. GRANT: *What about the location of the pulmonary metastases?*

DR. WILKINS: Most lesions occurred in the lung parenchyma and also seemed to have the most favorable prognosis. Bronchial metastases occurred in only three instances and all three died in less than two years.

DR. GRANT: *What is your total five-year survival experience in this series?*

DR. WILKINS: The five-year cumulative survival in this series is 26 per cent.

DR. GRANT: *This is almost as good as for surgery of primary carcinoma of the lung, is it not?*

DR. WILKINS: Yes. Surprisingly, this figure is almost as high as for our five-year survival rate for resected primary carcinoma of the lung, which is 28 per cent. Figure 1 shows the cumulative survival of all resected cases comparing primary lung cancer with metastatic lung cancer. The curves are almost identical.

DR. GRANT: *This experience is for five years. What about the 10-year figure?*

DR. WILKINS: For metastatic cancer the 26 per cent five-year survival figure drops to 16 per cent at the end of 10 years and for primary lung cancer the 28 per cent five-year survival figure drops to 18 per cent.

DR. GRANT: *How does your experience compare with others?*

DR. WILKINS: We surveyed the literature and we were able to collect 355 cases. Table 3 represents an analysis of 254 carcinoma cases and Table 4 represents 101 sarcomas. Follow-up reports on these are limited but where such reports were available the five-year cumulative survival rate is 37 per cent. These figures although inaccurate do lend some measure of confirmation to the results in our series.

DR. GRANT: *These results are surprisingly good. What precise conclusion do you draw from your study?*

DR. WILKINS: The removal of pulmonary metastases is safe and it is associated with little morbidity and should be strongly advised if the proper criteria exists. At present no other form of therapy offers a reasonable hope for survival.