Metastases to the Bones of the Hand

P. PRADEEP KUMAR, M.D.,
Assistant Professor of Radiotherapy,
Howard University College of Medicine,
Washington, D.C.

Although metastases to the bones from primary carcinoma of different organs is so common[1-3] (Table 1), metastases to the bones of the hand is so rare that Gold and Reefe[4] reported only two cases in 3,000 patients with various types of malignant diseases, and De Pass and Roswit[5] reported two cases in 800 patients with bronchogenic carcinoma. Of 171 malignant tumors of the hands, Pack[6] noted only two of metastatic origin. I have recently seen and treated two cases with metastatic disease in hand bones, one from primary of the esophagus and the other from primary of the cervix.

TABLE 1. INCIDENCE OF BONE METASTASES FROM DIFFERENT PRIMARY SITES

Primary Site	*Bone Metastases Percentage*
Breast	73.1
Prostate	55
Lung	32.5
Kidney	24
Pancreas	15.6
Cervix	15.1
Stomach	10.9
Colorectum	9.3
Ovary	9
Esophagus	8

REPORT OF CASES

Case 1. A 64-year-old black male was admitted to Howard University Hospital on 7/17/74 with a one-month history of dysphagia and weight loss of 25 lbs. Esophagogram done on 7/19/74 showed an irregular filling defect in the distal part of the esophagus. The patient was scoped on 7/26/74; the lesion was biopsied and reported as epidermoid Ca; and 5000 rads tumor dose was given through anterior and posterior fields measuring 19 cm x 6 cm on Co^{60} from 7/30/74 to 9/17/74. Repeat esophagogram at the end of the treatment showed smoothening of the irregular filling defect in the esophagus with free flow of contrast. At the end of the treatment, the patient complained of pain and slight swelling in the right hand. X-ray of the hand (Fig. 1 left), did not show any pathology. The patient was seen by a surgeon for the hand problems and a diagnosis of non-suppurative tenosynovitis was made and the patient was referred to the Department of Physical Medicine. In October, 1974, the patient developed a painful swelling in the right glutial region, which ulcerated. Biopsy was taken from this ulcer and was reported as metastatic disease. The ulcer was given 4000 rads on Co^{60} from 10/15/74 to 11/15/74. Meanwhile, the right hand continued to be swollen and painful. A repeat X-ray of the right hand was taken in January, 1975, which showed a mass destructing metacarpal bones (Fig. 1 middle). The patient also developed another painful subcutaneous deposit in the left calf muscle region. Needle biopsy from both regions was reported as metastatic carcinoma. 3000 rads tumor dose was given on Co^{60} to both right hand and left calf region. Good palliation was achieved in both regions. Repeat X-ray of the right hand taken two months after irradiation showed irregular bone formation (Fig. 1 right). The patient developed haemoptysis on 4/10/75 and expired on 4/11/75.

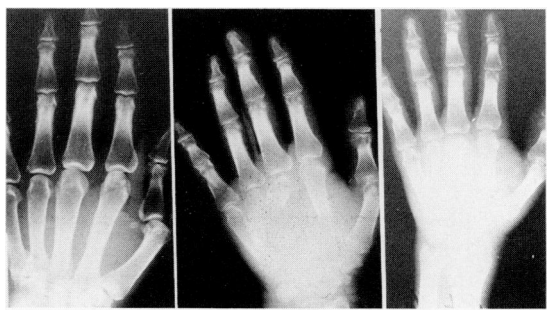

Fig. 1. X-ray of the right hand showing essentially normal bony structures (left). X-ray of the right hand shown in Fig. 1 after 3 months interval showing marked destruction of the metacarpal bones (middle). X-ray of the right hand shown in Fig. 2 after irradiation 3000 rads on Co^{60} showing irregular bone formation (right).

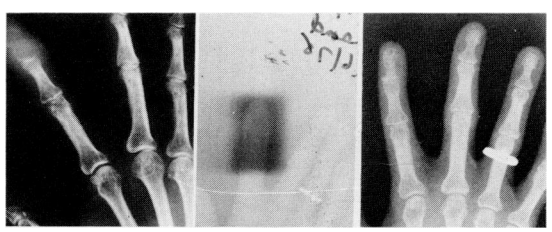

Fig. 2. X-ray of the left hand showing marked destruction of the distal phalanx, but the periosteum in the lateral aspect is intact (left). Picture of the left hand showing the treatment field. 3000 rads on Co^{60} was given (middle). X-ray of the left hand shown in Fig. 2 showing bone formation after 3000 rads (right).

Case 2. This 45-year-old black female, $G_5P_5Ab_0$, was admitted to Howard University Hospital in Feb., 1974, for

irregular vaginal bleeding. Examination of the genitalia revealed an irregular bleeding growth arising from the cervix. Biopsy of the growth reported an adenocarcinoma of the cervix. The patient underwent TAH + BSO in Feb., 1974. She was well until July, 1974, when she again developed bleeding per vagina. Examination revealed a 2 cm x 2 cm x 2 cm nodule in the anterior vaginal wall. Biopsy was reported as adenocarcinoma. The patient was given 4000 rads to the whole pelvis through 15 cm x 15 cm anterior and posterior fields on Co^{60} from 9/19/74 to 10/22/74. This was followed by vaginal applicator, using 100 mg Ra Eq of Cs^{137} for 36 hours, which delivered a surface dose of 6000 rads to the vaginal mucosa.

The vaginal recurrence responded well to irradiation. X-ray of the chest, taken on 11/22/74, during the first follow up after intravaginal application, showed metastatic disease in both lung fields and the patient was started on Provera.

In Feb., 1975, the patient developed pain and swelling in the tip of the left index finger. X-ray of the left hand revealed complete destruction of the distal phalanx of the left index finger. Only periosteum on the lateral aspect was present (Fig. 2 left). 4000 rads external radiation on Co^{60} was given to the distal phalanx of the left index finger from 2/6/75 to 3/11/75 (Fig. 2 middle). Repeat X-ray after treatment showed complete bone formation (Fig. 2 right).

DISCUSSION

From 1971 to 1974, 980 cancer cases were treated at Howard University Hospital, out of which 41 were Ca esophagus and 100 were Ca cervix. Only two (0.2%) of the total number of cases treated developed metastatic disease in the bones of the hand, and 2.4% of all esophageal carcinoma cases and 1.0% of all cervix carcinoma cases developed metastases to the hand bones. In both instances, metastases to the hand bones were associated with metastatic disease to the other region; multiple skin lesion in Case No. 1 and multiple pulmonary lesions in Case No. 2. In none of the cases was the metastases to the hand bones associated with metastatic disease in other bones.

Because of the extreme rarity of the metastases to the hand bones, when they occur they can be misdiagnosed and much time is lost, leading to massive destruction of the small bones of the hand, as shown in the first case. It is very important at least for the periosteum to be intact for new bone formation as shown in the second case. Therefore, even though metastases to the hand bones are very rare, they should be expected and picked up early and treated. Nothing is impossible in cancer.

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(Davidson, from page 286)

a maximum of $2,500 per year can be placed in a retirement fund.

Most savings banks will administer the Keogh plan without charging an administration fee. This is important since, many insurance companies who administer these plans charge an initial high percentage of the fund.

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