METASTASIS OF A MAMMARY CARCINOMA TO AN
ACOUSTIC NEUROMA

REPORT OF A CASE

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Reports of rare and unusual conditions initially may appear to serve no other purpose than to
document a medical curiosity until, prompted by
the original description, a sufficient number of
similar reports accumulate to permit interpreta-
tion.

The occurrence of multiple neoplasms in a single
host no longer is considered uncommon, but
metastasis from one malignant neoplasm to a
second benign or malignant neoplasm is a distinct
rarity.1,3-6.9 This is particularly true with metastasis
to intracranial tumors. Thus far, only 7 reported
instances of metastases to primary intracranial
tumors have been found.1,2,4-7,8,11 Five of these
represented metastases of carcinomas to me-
ingiomas; in 2, the carcinomas were primary in
the breast,1,4 and in 2 others, the carcinomas were
primary in the lung,2,7 with the kidney suspected
as the primary site in the fifth instance.7 In addi-
tion to these 5 cases, an instance of thyroid car-
cinoma metastatic to a glioblastoma multiforme8
and another of mammary carcinoma metastatic
to an acoustic neuroma11 have been reported. The
scarcity of these reports makes it impossible to
determine whether metastases of systemic cancers
to primary intracranial tumors occur merely by
chance.

The purpose of the present report is to describe
another instance of mammary carcinoma meta-
static to an acoustic neuroma. This particular in-
stance and the one reported previously11 are of
interest in view of the exceptionally rare involve-
ment of cranial-nerve roots by hematogenous
metastases. As a rule, secondary growths appear-
ing on the cranial-nerve roots represent dissemi-
ation through the cerebrospinal fluid,10 whereas
in the 2 cases mentioned, the metastases were of
hematogenous origin.

CASE REPORT

Clinical Summary. A 48-year-old married white typist
was first admitted to the University of Chicago Hospitals
on July 7, 1958 with a painless left axillary mass which
had been present for 4 months. For 1 1/2 years prior to
admission, she had had menopausal symptoms with
irregular, infrequent menses, and had been treated with
estrogen by a family physician. There was deafness of
the left ear, which she attributed to previous trauma.
On examination, she had deafness on the left. An ill-
defined, hard mass, 3 cm. in diameter, was found in the
upper outer quadrant of the left breast. A matted mass
of lymph nodes, 6X4X4 cm., was palpable in the left
axilla. Roentgenograms of the chest and bones disclosed
no metastases.

On July 8, 1958, the patient had a left radical mastec-
tomy when frozen section of the mass in the upper
outer quadrant revealed carcinoma.

Histologically, the tumor was an infiltrative papil-
dary ductal carcinoma of the breast (Fig. 1). Metas-
tases were found in 11 of 14 axillary lymph nodes.

On July 16, 1958, bilateral oophorectomy was per-
formed.

Two days later, she had an episode of syncope and
persistent occipital headache developed. Bilateral
papilledema was observed, but there were no localizing
neurological signs. On lumbar puncture, the opening
pressure of the cerebrospinal fluid was 205 mm. H2O
and the closing pressure, 175 mm. H2O. The fluid con-
tained 130 mg. per cent protein. Intracranial metastases
in or near the dura mater were suspected. Plans for
roentgen-ray therapy to the site of the left mastectomy
and left axilla were abandoned as futile in view of the
presumptive diagnosis of intracranial metastases. On
July 28, 1958, the patient was discharged on testos-
terone.

Her occipital headache improved subsequently, and
no further neurological symptoms appeared. By April,
1959, she was sufficiently well to return to work. In
May, 1959, she received 6000 r of roentgen ray to the
left chest, left suprachavicular area, and left axilla. An
additional 4728 r were delivered to the internal mam-
mary and retrosternal lymph nodes.

In November, 1959, she began to have low-back pain,
and on Jan. 15, 1960, she was admitted for the second
time. Moderate bilateral papilledema and left-nerve
deafness again were present. The lower thoracic and
lumbar spine was tender to pressure. Roentgenograms
revealed no pulmonary metastases, but numerous
metastases were present throughout the vertebral col-
umn, pelvis and skull. In addition, asymmetry of the
petrous bones, with destruction toward the left petrous
apex, was observed. Acoustic neuroma and metastatic
mammary carcinoma were considered as diagnostic pos-
sibilities. A pneumoencephalogram via the cisternal
route subsequently revealed a left acoustic neuroma,
with bilateral herniation of the cerebellar tonsils through the foramen magnum.

Because of increased intracranial pressure, a craniotomy for removal of the left acoustic neuroma was performed on Jan. 22, 1960. The tumor was well encapsulated and measured 2.5 cm in diameter. Because of its large size, only a subtotal, intracapsular removal was achieved.

The surgical pathological diagnosis was acoustic neurilemoma.

Following this procedure, the papilledema decreased. On March 4, 1960, a transabdominal bilateral adrenalectomy was performed. Metastatic mammary carcinoma was present in both adrenals.

The postoperative course was uneventful. On March 17, 1960, the patient was discharged on cortisone and sodium chloride.

On June 2, 1960, she was admitted for the third time because of pain in the occipital region, radiating to the right arm. The right arm and leg were somewhat weak. For the 2 days prior to admission, she had been febrile, slightly confused, nauseated, and vomited occasionally.

Examination revealed blood pressure 120/75 mm. Hg, pulse rate 106, respiratory rate 18, and temperature 38°C. The patient was moderately disoriented and uncooperative. The skin was dry. Chronic radiation dermatitis was evident in the vicinity of the scar of the left radical mastectomy, left supraclavicular area, and over the sternum. Rales were heard over both pulmonary fields. The heart was enlarged, but there was no murmur. The cardiac rate was 106 per min. The peripheral pulses generally were weak. A left paramedian surgical scar was present on the anterior abdominal wall. The liver was palpable 6 cm. below the right costal margin. Neurological examination revealed slight weakness of the right arm and leg. Deep tendon reflexes were normal except for a slightly decreased right knee jerk. There was no associated sensory deficit.

The hemoglobin was 13.0 gm. per cent and the leukocyte count 8450 per c.mm. The serum sodium was 138 mEq./l., serum potassium 4.9 mEq./l., serum chloride 100 mEq./l., serum CO₂ 20.7 mEq./l., and blood urea nitrogen 11 mg. per cent. Roentgenograms of the chest revealed widespread bilateral pulmonary metastases, pleural effusion, widening of the mediastinum, and metastases to the vertebral column, ribs, and scapulae.

Despite antibiotics, intravenous fluids, and steroids, she remained febrile and deteriorated rapidly. On June 4, 1960, approximately 40 hours following admission, she expired in cardiorespiratory failure.

Autopsy Report. At autopsy, the left breast was absent. There was chronic radiation dermatitis around the scar of the left radical mastectomy, left supraclavicular area, and over the sternum. A left paramedian abdominal surgical scar extended from the xiphoid process toward the pubic symphysis.

Each pleural cavity contained approximately 500 cc. of serosanguineous fluid. There was extensive bilateral pleural carcinomatosis. Both lungs were replaced massively by firm white metastatic tumor; the remaining pulmonary parenchyma was atelectatic and showed pneumonic consolidation bilaterally. The mediastinal lymph nodes were replaced by metastatic tumor.

**Fig. 1.** Infiltrative papillary ductal carcinoma primary in the resected breast (×105).