"Neurogenic Sarcoma" is the general heading applied to a group of malignant tumors usually arising from mesodermal elements of nerve trunks. However, Foot and Stout both include the rare malignant neurilemmoma (malignant Schwannoma) under this heading, and the Schwann cells are generally agreed to be of ectodermal origin. Stout further states, though, that this latter tumor is an extremely rare source of the malignant nerve sheath tumors. None of these "neurogenic sarcomas" arise from the nerve fibers proper. Neurogenic sarcomas may arise anywhere along the course of peripheral nerves and are seen most commonly after the age of 30 and about equally in both sexes. It is usually possible to demonstrate the connection of the tumor to a nerve trunk and often the tumor is represented only by a fusiform, diffuse swelling of the nerve. Sometimes infiltration into surrounding soft tissue structures may be demonstrated grossly. The great majority of these neoplasms develop in individuals suffering from von Recklinghausen's disease, although some instances have been reported in individuals apparently not having that disease. All are characterized by persistent growth with a marked tendency to reappear after attempts at removal, and a great many have proved fatal. They are generally considered to be extremely radioresistant. The heading, "Neurogenic Sarcoma," also includes a small number of tumors exhibiting epithelial elements and which reproduce in a more or less recognizable form embryonal or adult neuroectodermal structures. Stout also reports that the neurogenic sarcomas that have been reported as occurring without any evidence of von Recklinghausen's disease show the same clinical and biological behavior as those with the disease; 50 per cent of the operated tumors reappeared locally and 30 per cent had metastasis, usually in the lungs. Fifty per cent of the patients were known to have died of the sarcoma.

CASE REPORT

Mrs. M.M., aged 48, was admitted to St. Luke's Hospital on June 5, 1946 with a chief complaint of pain in the left leg of 8 months' duration. The pain had recently become more severe and almost constant. It originated in the left popliteal space and traveled down the leg and was accompanied by "considerable twitching" of the leg. The past history was non-contributory.

Examination revealed a moderately enlarged heart and edema of the hands and feet. The left leg was flexed at the knee and hip and the posterior thigh muscles were contracted. Tenderness and slight swelling were noted in the left popliteal space. No pulsation was demonstrable. There was analgesia of the lateral and dorsal aspects of the left foot. No reflexes could be elicited in the left lower extremity. The oral temperature was 99.2°F. and the blood pressure, left arm, was 184 systolic, 124 diastolic.

A roentgenogram on June 6, 1946 showed a soft tissue mass in the left popliteal space. The bone was uninvolved except for osteo-arthritis in the knee joint. Blood Kahn test was negative.

Operation. On June 12, 1946, under local anesthesia, the lower third of the thigh posteriorly and popliteal space were explored. The tibial nerve was exposed proximal and distal to the tumor. The tumor was fusiform, 2.5 cm. in diameter, and 3 cm. in length. In removing the tumor it was necessary to resect 6.5 cm. of the nerve. The nerve ends were then dissected.
NEUROGENIC SARCOMA

free and an end-to-end anastomosis was accomplished with the leg in a flexed position. The peroneal nerve had become involved in the periphery of the tumor but was easily shelled out from it. Surrounding connective tissue was also cleaned out. A plaster cast was applied from the toes to the gluteal region with the knee flexed at 90°.

Pathological Diagnosis. "Malignant tumor of nerve trunk, structure consistent with either cellular anaplastic neurosarcoma or sympathicoblastoma."

Course. The patient was discharged on June 24, 1946. She was then given the following radiotherapy: Between July 25, 1946 and Aug. 7, 1946 at 400 KV and 70 cm. distance with 2.25 mm. copper filtration, 1482 r (measured in air) was delivered through two ports of the left knee. Between July 30, 1946 and Aug. 6, 1946, with the same physical factors, 741 r was delivered to an anterior port, left groin. Then between Sept. 23 and Sept. 27, 1946, again with the same physical factors, 988 r was delivered to two ports at the left knee and between Sept. 24 and Sept. 27, 1946, 494 r was delivered to the anterior port over the left groin.

Second Admission (June 25, 1948 to July 2, 1948). Aged 51. The patient stated that for several days she had experienced pain in the right side of the chest, especially on inspiration, accompanied by cough and hemoptysis, fever and chills, and nausea and vomiting.

Examination. There were râles in both lung bases. There was no evidence of local recurrence in the left popliteal space. A chest roentgenogram on June 25, 1948 "shows a large, rounded mass in the right hilar area. Other smaller spherical dense areas are scattered throughout both lungs. The bones are intact. The left cardiac ventricle is slightly prominent. Impression: Secondary neoplasm deposited throughout both lungs." In Fig. 1 the R. hilar mass is well seen and smaller nodules are seen in the L. 3rd and R. 2nd intercostal spaces.

On June 26, 1948, the sputum contained no acid-fast bacilli.

Course. The patient was treated with antibiotics for a low-grade bronchopneumonia and discharged, symptomatically improved, on July 2, 1948.

She was again given radiotherapy in the following manner: at 200 KV, 50 cm. distance and with 2.25 mm. of aluminum filtration, between Feb. 1 and Feb. 11, 1949, 1984 r was delivered to three ports, anterior R. chest and lateral R. chest.

Between Aug. 17 and Aug. 22, 1949, with the same physical factors, 744 r was delivered.