Vertebral Echinococcosis

Report of Case of Surgical and Biological Therapy with Review of the Literature*

MARK RAYPORT, M.D., HUGH S. WISOFF, M.D., AND HERMAN ZAIMAN, M.D.

Departments of Neurological Surgery and Pathology, Albert Einstein College of Medicine, and
Bronx Municipal Hospital Center, New York, New York†

The relative rarity of the condition, its still rarer occurrence in the United States, and the unsatisfactory state of its treatment have prompted the report of a case of vertebral echinococcosis in which the patient was subjected to "biological therapy" after repeated surgical intervention failed to eradicate or suppress the parasite. The authors are unaware of any previous review of spinal hydatidosis in the North American literature.

Presentation of Case

Summary. A 49-year-old carpenter of Sicilian origin, who had served with the Italian forces in Africa, suffered progressive pain in the back and lower thoracic paraparesis in 1957, following a minor injury to the back. Decompressive laminectomy revealed vertebral and epidural hydatidosis. Repeated surgical decompressions were required because of recurrence of compression myelopathy caused by hydatid abscess. Antiparasitic medical treatment (biological therapy of Calcagno) has been employed.

1st Admission. A 49-year-old carpenter was admitted to the Bronx Municipal Hospital Center on May 7, 1957, with pain in the back and progressive weakness of the lower extremities. Three months previously, he had suffered a minor injury of the back in an automobile accident. For 6 weeks he had experienced increasing continuous low-back pain radiating around the flanks into both inguinal regions. For 4 weeks he had noticed urinary and rectal sphincteric disturbance. Two days before entering the hospital, he became unable to walk without assistance.

He gave the following personal history: He was born in Sicily to a family of shoemakers and farmers. From 1935 to 1944, he had served in the Italian Army in various parts of Africa, being stationed in Abyssinia, in Egypt, and subsequently in South Africa as a prisoner of war. In 1947, he emigrated to the United States of America. He had always been in good health.

Examination. He was a healthy man in acute pain. Neurological abnormalities were spastic paraparesis of moderate severity with incomplete sensory loss to pin prickle, touch, change of position and vibration below T12.

Routine laboratory data, namely blood counts, serology, urinalysis, roentgenogram of the chest and electrocardiogram were normal. Plain roentgenograms of the spine revealed demineralization of the left pedicle and increased prominence of the trabecular pattern of the body of the 11th thoracic vertebra (Fig. 1). Lumbar puncture with formal manometric test demonstrated a high degree of subarachnoid block. The cerebrospinal fluid was xanthochromic, devoid of cells, and contained 218 mg. per cent protein. On myelography, a complete block of extradural appearance was observed opposite the body of the 12th thoracic vertebra.

Operation. Emergency laminectomy of the 11th and 12th thoracic vertebrae was performed on the day of admission because of the severity of the pain and increasing paralysis. The left pedicle of the 11th thoracic vertebra were found destroyed. The laminae and spine of the 11th thoracic vertebra were found destroyed. The laminae and spine of T12 were invaded by nests of multiple small cysts, 1 mm. in diameter, grey or white in appearance and containing clear fluid. The bulk of the lesion was situated in the epidural space, replacing the pedicle of T11. It consisted of a cluster of cysts ranging in size from several mm. to more than a cm. Each cyst had an opaque white membrance and contained perfectly clear fluid. The lesion was traced anteriorly around the dural tube into the body of the 11th thoracic vertebra which was invaded extensively. The dura mater was not opened. The wound healed per primam.

Course. Postoperative laboratory tests revealed a negative serum complement-fixation test for Echinococcus, normal liver-function tests, and normal counts of eosinophils in peripheral blood. The patient made a slow but satisfactory neurological recovery and was discharged from the hospital on June 13, 1957, ambulatory and wearing a back brace. He returned to light work. He re-
remained well until November 1957, when pain in the back recurred.

2nd Admission. On Jan. 29, 1958, he was admitted by the Orthopedic Service for posterior spinal fusion. During a period of observation prior to this operation, he showed progressive spastic weakness of the lower extremities and dysfunction of the bladder.

2nd Operation. The former site of laminectomy was occupied by a large cavity with avascular fibrous walls containing yellow puriform fluid and multiple cysts. The cavity was evacuated and irrigated with a 10 per cent solution of formalin.

Course. Healing of the wound occurred by first intention. He was discharged from the hospital on June 1, 1958, and returned to work. He remained well for 1 year.

3rd Admission. The patient was re-admitted to the Neurosurgical Service on May 18, 1959 because of severe localized pain in the mid-thoracic region of 4 days’ duration, radiating around the left flank in the distribution of the 9th thoracic segment. Obstruction had been present for 4 days, heaviness and numbness in the legs for 2 days and urinary retention for 24 hours.

Examination. There was exquisite tenderness deep to the healed incision of the laminectomy at T10. A subcutaneous nodule, 2 cm. in diameter, also tender to palpation, was noted at the T9 level, 2 cm. from the midline. The lower extremities were spastic and mildly paraparetic. A relative sensory deficit was detected below the 9th thoracic level. The left saddle area was analgesic. Bladder dullness extended 3 fingerbreadths above the symphysis pubis.

Roentgenograms of the thoracic spine demonstrated persistence of the previous findings. Early lytic changes were noted in the head of the 11th rib. A minor degree of wedging of the 11th thoracic vertebra had occurred from loss of height of the left lateral margin of the vertebral body.

3rd Operation. The incision of the laminectomy was re-opened and a large cavity filled with yellow puriform fluid and multiple cysts was evacuated. This cavity was situated between the dura mater and the lumbodorsal fascia. The dura mater was hidden by a thick layer of pinkish-yellow granulations. The cavity was traced anteriorly into the body of the 11th thoracic vertebra, from which many small white cysts were also removed. The subcutaneous nodule was excised and proved to be an hydatid cyst separate from the main cavity.

Culture of the puriform fluid demonstrated that it was sterile bacterially.

Course. The patient again made a very satisfactory recovery. He was discharged from the hospital on June 1, 1959, and returned to work. He remained well for 1 year.

4th Admission. The patient was re-admitted to the Neurosurgical Service on June 2, 1960, because of midline pain in the low thoracic area of the back, radiating to the region of the left iliac crest, and difficulty in initiating micturition.

Examination revealed tenderness beneath the old incision of the laminectomy. Hepatomegaly was noted for the first time. The edge of the liver extended 3 fingerbreadths below the right costal margin and was smooth, rounded and nontender. Roentgenogram of the chest showed minimal pleural thickening and pleurodiaphragmatic adhesions in the left lower hemithorax. Roentgenograms of the spine demonstrated some extension of the lytic changes in the body of the 11th thoracic vertebra and in the head of the left 11th rib. There was moderate hypertrophic spurring at the adjacent margins of the 11th and 12th thoracic vertebrae.

4th Operation. The incision of the laminectomy was re-opened and the hydatid abscess was drained once more. The anatomical extent and the contents of the abscess cavity were similar to those encountered at the previous operation. He made a prompt recovery and was discharged on June 21, 1960.

5th Admission. The patient was re-admitted to the Neurosurgical Service on Oct. 2, 1960, for the initiation of “biological therapy” with hydatid-cyst fluid. The institution of this regimen was prompted by the discouraging retrospect of repetitive surgical decompressions, and the hope...