Chondroma of the cervical spine

Case report

GÉRALD LOZES, M.D., AHMAD FAWAZ, M.D., HARRY PERPER, M.D., PHILIPPE DEVOS, M.D., PASCAL BENOIT, M.D., IAN KRIVOSIC, M.D., and MICHAEL JOMIN, M.D.

Services of Neurosurgery, Neurology, and Anatomic Pathology, Centre Hospitalier Regional et Universitaire, Lille, and Service of Neurology, Boulogne Sur Mer, France

The authors report a case of cervical chondroma presenting with a syndrome of spinal cord compression in a 76-year-old woman. Total surgical removal of the lesion was followed by partial neurological recovery. Chondromas of the vertebral column are rarely reported in the literature.

KEY WORDS • spinal tumor • chondroma • cervical spine

Chondromas are considered benign tumors, susceptible to metaplasia or malignant degeneration. The frequency of these lesions is estimated at 5% of all bone tumors, and a spinal localization is exceptional. A case of a chondroma of the cervical spine is reported.

Case Report

This 76-year-old woman was hospitalized for right brachial monoparesis that had appeared progressively over 3 months, causing difficulty in walking. She had no pertinent medical history.

Examination. The initial neurological symptoms included right cervicobrachial neuralgia, partially diurnal, which responded to standard analgesic and anti-inflammatory treatment. The neuralgia had become constant, causing insomnia, and radiated toward the right shoulder along the C-5 nerve root. Neurological examination revealed a right brachial monoparesis affecting most of the deltoid and to a lesser degree the biceps. There was hypesthetic response to all stimulation restricted to the C-5 nerve root. All deep-tendon reflexes in the right arm were abolished, except for the cubitopronator reflex, which was equal to the same reflex on the left side. There was no Hoffman's sign. Gait was perturbed by profound ataxia and spasticity. There was no impairment of sensation in the lower limbs, and the patient reported no sphincteral problem. There was no other abnormality.

X-ray films of the cervical spine showed a smooth enlargement of the right C4–5 intervertebral foramen with thinning of the anterointernal aspect of the ipsilateral posterior articular process and erosion of the right lateral part of the body of C-5. The bone structure appeared normal in the area bordering the defect, with no extraneous calcification. Myelography indicated the presence of an extradural tumor adjacent to the L4–5 intervertebral space that displaced the spinal cord from posteriorly toward the left. The lesion was rounded and regular. Computerized tomography (CT) after intravenous injection of contrast medium showed a slightly enhanced tumor that was regular, homogeneous, and centered in the right C4–5 foramen. Neighboring bone structures and the C4–5 disc were normal. The right carotid artery and jugular vein were in immediate contact with the tumor (Fig. 1) but the right vertebral artery was not seen during digital subtraction angiography.

Operation. Surgery was performed via a right anterolateral approach under general anesthesia. The carotid-jugular axis was found to be compressed by a tumor which raised the prevertebral aponeurosis and displaced the paravertebral muscles laterally, without invading them. The tumor was friable, avascular, gray in color, and easily excised. The right vertebral artery was not found and no vascular structure in the transverse canal could be identified. The tumor was removed piecemeal until contact was made with the thinned but structurally normal right posterior articular process and the eroded body of C-5. The posterior portion of the tumor was
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FIG. 1. Computerized tomography scan, after myelography and contrast medium enhancement, showing a regular, homogeneous tumor in the right C4-5 foramen.

removed with care from the right C-5 root and the right anterolateral side of the dural groove. The tumor was adherent only to the lateral face of the C4-5 intervertebral disc, which was clearly visible because of the erosion of the uncus of C-5. A fusion was thought to be necessary because of the loss of bone substance in the body of C-5. In order to obtain immediate spinal stability, an acrylic prosthesis was placed across the defect into the bodies of C-4 and C-6. This required total discectomy and partial corpectomy of C-5.

Postoperative Course. The postoperative course was uneventful. Partial neurological recovery was noted, with immediate relief of the neuralgia. Ataxia and pyramidal spasticity improved over the next 6 months. One year later, there remained some motor deficit of the right deltoid and hypesthesia of the shoulder but, on follow-up review 3 years later, the neurological examination was normal. There are no radiological signs of recurrence or of spinal instability.

Pathological Examination. Microscopic examination of the tumor revealed a benign chondroma with bands and islets of cartilaginous cells in the center of an amorphous hyaline and homogeneous substance. There was no sign of metaplasia or degeneration (Fig. 2).

Discussion

Chondromas are benign tumors that develop slowly. They are of a firm, elastic consistency and are consistently demarcated from adjacent structures. They are rare, the incidence is estimated at 5% of all bone tumors, with only 4% occurring as spinal tumors. They can be found in patients at any age, but most frequently in those between 30 and 40 years; there is no sexual predilection. The preferential locations are the small bones of the hands and feet, and intracranial occurrence is rare. Generalized chondromatosis and Maffucci's syndrome, which are associated cutaneovisceral hemangiomas, are separate entities. The clinical expression of the spinal form is not unique. It presents as a slowly compressive lesion of the spinal cord or nerve root. The tumor usually develops on the face of one or two adjacent vertebral bodies, sometimes (as in our case) with an extension through a foramen. X-ray films show only indirect signs of this lesion, with smooth erosions of the bone structures with which it is in contact. Rarely, the tumor is revealed by conventional radiology, in which case it is delimited by a hazy or mottled opacity. Arteriographic studies show no tumor vascularization. A CT scan facilitates identification, permitting precise delimitation of the contours of the lesion, and its impact on bone, vascular, and nerve structures. The tumor may evolve toward ossification, and all intermediate forms between a pure chondroma and an osteochondroma are possible. A metaplastic evolution toward a fibrochondroma or myxochondroma is also possible.

The spinal chondroma may be derived from a hyperplasia of immature spinal cartilage with migration outside the vertebral axis or from metaplasia of the connective tissue in contact with the spine or the anulus fibrosus. Our case most likely relates to the first hypothesis, since the integrity of the intervertebral disc was maintained. These lesions are either only slightly responsive or resistant to radiotherapy. Spontaneous remissions have been reported, particularly in elderly patients. Sarcomatous degeneration is possible. Surgical removal is facilitated by the well-defined limits and consistency of the tumor, but requires an approach without risk to vascular or nerve structures and one that does not threaten spinal stability.
In conclusion, chondromas are rare spinal tumors that may cause a slow radiculomedullary compression. Progress in neuroradiological imaging and especially in CT scanning permits diagnosis and information that can define the best surgical approach.

References

G. Lozes, et al.

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Address reprint requests to: Géraud Lozes, M.D., Service de Neurochirurgie B., C.H.U. 59037, Lille, France.