Poster #75

Langerhans cell histiocytosis of the cervical spine. A single Chinese institution experience with 30 cases.

Study Design. A retrospective study of cervical Langerhans cell histiocytosis (LCH).

Objective. To evaluate the safety and efficiency of the present diagnosis and treatment strategy.

Summary of Background Data. The diagnosis and treatment protocols are still controversial for the rarity of cervical LCH.

Methods. Thirty patients with cervical LCH were diagnosed in the past ten years. Biopsy was routinely performed to establish the final diagnosis before treatment. Immobilization was usually the first choice. Low-dose radiotherapy was suggested for cases with solitary marked bony erosion and/or soft tissue extension, and chemotherapy for cases with multiple lesions. Surgery was preserved for suspected malignancy, neurologic deficits, severe deformity and/or instability.

Results. The mean age at diagnosis was 14.2 (range: 1.5 to 41) years old. Neck pain (96.7%) was the most common symptom, followed by restricted motion (70%), neurologic symptoms (36.7%) and torticollis (30%). Four cases had multiple lesions. Fourteen cases had atlantoaxial lesion and 16 cases were subaxial. The lesion extended to paravertebral soft tissue in 40% cases, to epidural space in 30%, to pedicle and/or transverse process in 56.3%. One case had endplate destruction. The accuracy of percutaneous needle biopsy under CT guidance was 91.2% (25/26). Eighteen patients had conservative treatment and 12 underwent operation. Three cases involving C2 vertebral body had fixed atlantoaxial anterior dislocation.
Another 3 cases with atlantoaxial lateral mass destruction had spontaneous fusion. Twenty-five cases had an average 61.6 month follow-up. In cases with severe bony collapse, the vertebral height ratio increased from 20.0% to 44.9% and the lateral mass height ratio from 22.2% to 56.8%.

**Conclusions.** Cervical LCH lesions often extend to paravertebral soft tissue, epidural space, pedicles and even to the end plate and lamina. Needle biopsy under CT guidance is safe and effective. The prognosis of cervical LCH is generally fair. Conservative treatment is usually enough and surgery should be reserved for major neurologic defects like myelopathy or monoparesis.

Figure 1. 27 year old man with C6 lesion. The C6 caudal endplate was destructed. Although the biopsy indicated LCH, the vertebroectomy and reconstruction was still carried out for malignant suspicion. The final histopathologic result was still LCH. A. Lateral roentgenogram at presentation. B. Coronal CT reconstruction revealed endplate destruction (arrowhead). C. Axial CT. D E. Sagittal MRI showed high intensity zones (arrow) in C56 disc and in front of C5 vertebral body. F. Lateral roentgenogram at 24 month follow-up.
Figure 2. 13 year old boy with solitary LCH in the left lateral mass lesion of C1. He had intractable neck pain for 6 weeks even with hard collar immobilization. He had radiotherapy with Halo-vest immobilization for 3 months. A B. Axial and coronal CT showed C1 lateral mass destruction, especially in the upper endplate. C D. CT at 6 month follow-up. E F. Coronal and axial CT showed spontaneous lateral mass arthrodesis (arrowhead) at 26 month follow-up. He had slight rotation restriction.
Figure 3. Suggested protocol for the management of suspected LCH lesion of the cervical spine.