

# Bone cyst in the cervical spine due to secondary amyloidosis,

## A case report

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A patient who had been on hemodialysis for 20 years developed an amyloid bone cyst in the cervical spine. The cyst collapsed resulting in neurologic damage to

the cervical spinal cord. He was known to have high circulating levels of beta-2-microglobulin.

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Carpal tunnel syndrome and arthropathy are frequent complications of long-term hemodialysis. Both are associated with cystic lesions of bone that do not have the characteristics of those due to hyperparathyroidism or erosive arthropathy, and are thought to be due to bony infiltration by amyloid (Sargent et al. 1989). We report a case in which such a cyst was detected in the cervical spine.

### Case report

A 39-year-old man with a history of chronic renal failure had been on regular hemodialysis for 20 years. He had undergone four failed renal transplants and a total parathyroidectomy. He has had bilateral hip replacements for presumed femoral head necrosis and had had bilateral carpal tunnel decompressions. His right hip prosthesis had required revision after 7 years. He underwent a left total knee replacement 4 weeks before presenting in the follow-up clinic with neck pain and stiffness after stumbling on his crutches. Radiographs of the cervical spine showed a cystic lesion in the body of the second cervical vertebra involving the base of the odontoid peg (Figure 1). There was a fracture through the base plate of the C2 vertebra. These findings were confirmed by computed tomography. Two weeks later, he had increasing neck pain and decreasing power in the right arm, and radiographs showed some collapse of the body of C2. He underwent transoral biopsy of the body of C2, which confirmed the lesion as amyloid. The neurologic deterioration continued, as did the radiographic evidence of collapse. Three weeks after initial presentation, he

underwent transoral removal of the lesion with bone grafting and had a posterior stabilization of the cervical spine with Luque rectangles and sublaminar wiring. Nine days after surgery, he suddenly deteriorated and developed a Brown-Sequard syndrome. He died 10 days later of bronchopneumonia.

### Discussion

Secondary amyloid disease appears to be due to a specific type of amyloid derived from circulating beta-2-microglobulin (Bruckner et al. 1987). It is probably associated with the use of cuprophane dialysis membranes (Hauglustaine et al. 1986). It is characterized by synovioarticular deposition of amyloid, which is associated with cystic lesions of bone. Sargent et al. (1989) showed that 20 percent of patients on hemodialysis for more than 6 years had cystic lesions that did not have the characteristics of those due to hyperparathyroidism or erosive arthropathy, and were therefore thought to be due to bony amyloidosis. They were most commonly detected in the carpal bones and around the hips and shoulders, and appeared between 5 and 15 years after the commencement of hemodialysis.

Our patient was known to have had very high circulating levels of beta-2-microglobulin on at least two occasions, and arthroscopic biopsy from the synovium of his knee had demonstrated beta-2-microglobulin immunohistochemically.

It has been reported that amyloid bone cysts around the hip joint are associated with pathologic fractures (Campistol et al. 1990); however, we are not aware of



Expanding lytic lesion in the body of the second cervical vertebra with a fracture through the inferior end plate. There is involvement of the base of the odontoid peg.

A single cut from the CAT scan through the body of the second cervical vertebra. This shows a lytic lesion in the body with associated soft-tissue swelling.

Two weeks later, with increasing pain. The lesion has undergone collapse.

Figure 1. A 39-year-old man who had been on hemodialysis for 20 years developed neck pain.

any report of an amyloid-related bone cyst occurring in the cervical spine. We would like to stress that such lesions can undergo fracture and collapse.

## References

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