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# Synovial Cyst of the High Cervical Spine Causing Myelopathy

Gerardine Quaghebeur<sup>1,3</sup> and Martin Jeffree<sup>2</sup>

**Summary:** The authors describe the myelographic and post-myelographic CT findings of an extradural mass with cord compression in an 82-year-old woman. Synovial cysts generally occur posterolaterally and are associated with degenerative facet joints; an unusual site together with facet joint disease should alert the observer to the possibility of a synovial cyst.

**Index terms:** Spine, synovial cyst; Spine, computed tomography; Myelography

Intraspinal synovial cysts are rare and have mainly been described in the lumbar spine. We report the fourth case of a synovial cyst of the cervical spine and the third case in which it caused myelopathy and spastic paraparesis.

## Case Report

An 82-year-old woman presented with leg weakness, unsteadiness, and paresthesia of both hands of 3-weeks duration. She had long-standing mild neck stiffness. Examination revealed a spastic gait and she was unable to walk unaided. There was restriction of neck movements, increased tone and reduced power in the upper limbs, and impaired joint position sense. In the legs, there was increased tone, brisk reflexes, and clonus. Power was normal and joint position sense was impaired. A lateral film at the time of myelography (Fig. 1A) revealed no C1–C2 spondylolisthesis. Cervical myelography showed an anterolateral extradural mass on the right at C1–C2 level, displacing the cord to the left and compressing it. Postmyelogram CT (Figs. 1B and 1C) confirmed an extradural cystic lesion at that level. The preoperative diagnosis was of an extradural tumor, possibly a metastatic deposit.

Following cervical laminectomy, the spinal cord was noted to be displaced to the left by a cystic structure arising from the right C1–C2 facet joint. This extradural cyst extended anterior to the cord and was intimately related to the dura in that region. The dura was thinned, presumably due to chronic pressure. The cyst was approached from behind and when the posterior wall of the cyst was incised, clear gelatinous material was extruded. All the cyst contents were removed, and as much of the cyst wall as was deemed safe. Anteriorly the wall merged with the dura and

could not be dissected-off totally, due to venous bleeding. Histology revealed a fibrocollagenous cyst wall with no epithelial lining, ie, a ganglion or synovial cyst. Reactive synovial cells were seen.

Postoperatively, the patient reported immediate improvement of all her symptoms. Six months after surgery, she had only mild impairment of joint position sense in the right hand. She remains well and independent 1 year later.

## Discussion

Our search of the literature disclosed only three previous reports of synovial cysts involving the cervical spine (1–3): two were associated with myelopathy; one, at C7–T1 level, was associated with spastic paraparesis (1). One involved the quadrate ligament, behind the dens and was associated with unspecified long tract signs (3). The third, at C4–C5 level, was associated with neurogenic torticollis (2).

Typically, an extradural mass is shown close to a facet joint. It may contain gas or calcium (3, 4). Silbergleit et al (4) report the use of enhanced MR in this condition, but suggest that further evaluation is still needed. The differential diagnosis in both the lumbar and the cervical spine includes disk herniation that is usually not in a posterior or posterolateral position, and other cystic extradural masses. Perineural cysts (of Tarlov), meningeal cysts, and rarer parasitic cysts should be considered, but are not associated with degenerative facet joint changes. Cystic extradural tumors and arachnoid cysts classically lead to thinning of pedicles and laminae.

Synovial cysts generally occur posterolaterally and tend to be associated with degenerate facet joints. The combination of an unusual site and associated facet joint disease should alert the observer to the possibility of a synovial cyst.

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<sup>1</sup> Department of Neurosurgery, and <sup>2</sup> Department of Radiology, Brook General Hospital, London SE18 4LW, England.

<sup>3</sup> Address reprint requests to Gerardine Quaghebeur, Department of Radiology, King's College Hospital, Denmark Hill, London SE5 9RS, England.



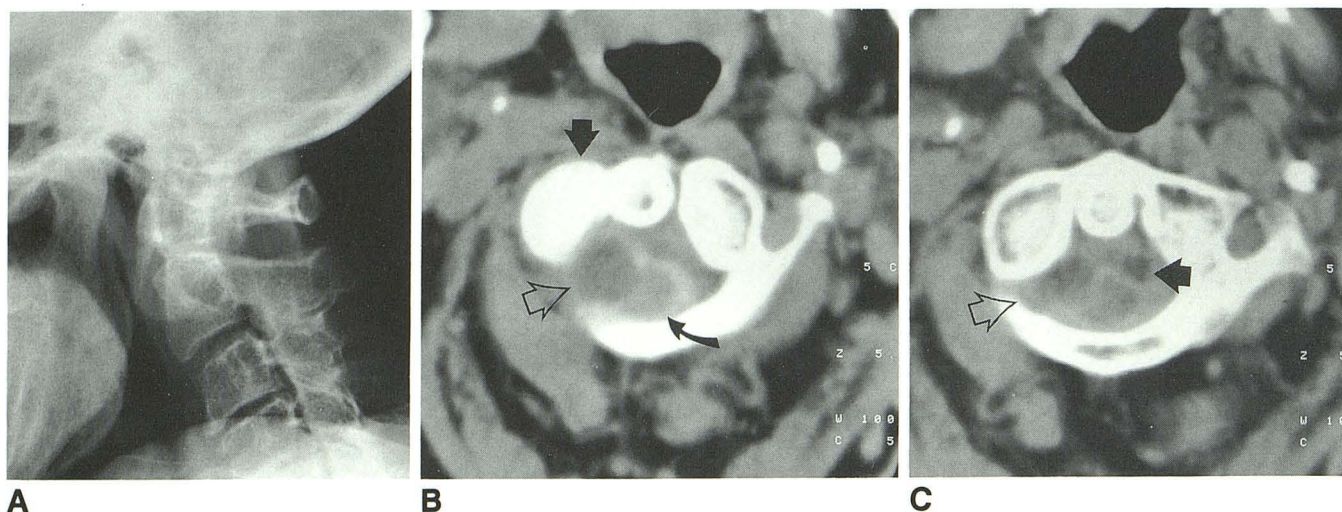


Fig. 1. A, Lateral film at the time of myelography. No evidence of C1-C2 subluxation (film taken in flexion). No evidence of rheumatoid arthritis. Degenerative disease is present.

B, Postmyelogram CT at the level of the superior articular facets of the axis. The mass (*open arrow*) is seen to be closely associated with the right lateral C1-C2 articular facet (*closed arrow*). It is of water density (10.7 Hounsfield units) and indents the cord (*curved arrow*). The cord density was 50.9 Hounsfield units.

C, Postmyelogram CT section through the C1-C2 facet joint, showing continuity with the cyst (*open arrow*) seen in B. *Closed arrow* points to lucent structure on left side and anterior to the cord. This was presumed to be due to cystic degeneration of the anterior cruciate ligament. At the time of surgery it was not identified as a significant lesion, and no mass effect was present due to it.

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