Retrodental synovial cyst which disappeared after posterior C1-C2 fusion: A case report

Tomokazu Ito, Masahiro Hayashi and Toshihiko Ogino
Department of Orthopaedic Surgery, Yamagata University School of Medicine, Yamagata City, Japan.

ABSTRACT

Synovial cysts of the cervical spine are extremely rare. We describe an 8-year-old boy with atlantoaxial subluxation and hypoplasia of the dens. Magnetic resonance imaging showed a round lesion, posterior to the odontoid process. This mass was characterized by a low signal intensity on T1-weighted images, and high signal intensity on T2-weighted images. The retrodental synovial cyst disappeared after posterior atlantoaxial arthrodesis.

Key words: synovial cyst, cervical spine, MRI, transarticular screw fixation

INTRODUCTION

Spinal synovial cysts are generally found in the lower lumbar spine. Synovial cysts of the cervical spine are extremely rare. This is a report of a retrodental synovial cyst which disappeared after posterior atlantoaxial arthrodesis.

CASE REPORT

An 8-year-old boy presented with a history of neck pain. He had no history of head and neck trauma. He had a congenital cataract and bilateral genu valga due to multiple epiphyseal dysplasia.

There was no neurological deficit and no hyperreflexia. Laboratory studies (including RA factor) were normal. Plain radiographs of the cervical spine showed reducible atlantoaxial subluxation and hypoplasia of the dens (Fig. 1). Magnetic resonance imaging (MRI) showed a round lesion, posterior to the odontoid process, causing slight compression of the spinal cord. This mass was characterized by a low signal intensity on T1-weighted images (T1W), and high signal intensity on T2-weighted images (T2W). T2W also revealed a high signal intensity area in the spinal cord at the C1 posterior arch level (Fig. 2).

Transarticular screw fixation was performed using 2.8 mm titanium cannulated screws and iliac bone graft. There was no iatrogenic vascular injury during surgery, and no infection or neurological deficit after surgery. The patient was allowed to walk within one week after surgery. The neck was immobilized with a soft collar for 3 months.
Figure 1  Cervical lateral radiograph (a: flexion, b: extension) showing reducible atlantoaxial subluxation and hypoplasia of the dens.

Figure 2  Preoperative cervical MRI showing a round lesion, posterior to the odontoid process, causing slight compression of the spinal cord. This mass was characterized by a low signal intensity on T1-weighted images (a), and high signal intensity on T2-weighted images. A high signal intensity area was also shown in the spinal cord at C1 posterior arch level on T2-weighted images (b).
Six weeks after surgery, MRI showed no retrodental cyst (Fig. 3). Six months after surgery, the patient had achieved solid osseous union and there was no screw breakage or pullout. MRI demonstrated no recurrence of the retrodental synovial cyst. However, a high signal intensity area in the spinal cord at the C1 posterior arch level remained (Figs. 4, 5).

**Figure 3**  Postoperative (6 weeks) cervical MRI (a: T1W, b: T2W) showing that the retrodental mass had disappeared.

**Figure 4**  Postoperative (6 months) cervical lateral radiograph showing the solid osseous union of C1-C2.
DISCUSSION

Many theories have been proposed to explain what causes spinal synovial cysts.6,8 Synovial cysts generally arise at the facet joint capsule.3,8 The atlantoaxial instability was so severe in this case, therefore excess stress at the C1-C2 facet joints might have produced the synovial cyst. As in a report by Goffin,2 the MRI of our patient revealed typical features of a fluid mass which disappeared after surgery. The retrodental mass was considered to be a spinal synovial cyst.

The retrodental mass was not removed during surgery because the risk was too great to remove it from the posterior approach. If a retrodental mass is considered an additional compressive agent, transoral decompression should be performed. Postoperatively, the retrodental mass immediately disappeared. C1-C2 transarticular screw fixation stabilized the abnormal motion of the C1-C2. The fluid might have been reduced because there was no instability at C1-C2. Similar findings with motion-induced retrodental fibrous tissue (pannus, pseudotumour) have been reported in patients with either congenital or post-traumatic instability.3,10 To our knowledge, this is the first case report of a patient presenting a retrodental synovial cyst which disappeared after C1-C2 arthrodesis by transarticular screw fixation.

REFERENCES


