



A case of lumbar ganglion cyst causing radiculopathy

Radikülopatiyeye yol açan lomber gangliyon kisti: Olgu sunumu

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Ganglion kisti sık rastlanmayan, daha çok spinal kolonun lomber bölgesinde ortaya çıkan bir patolojidir. Sağ bacak ağrısı şikayetiyle başvuran 46 yaşındaki kadın hastada yapılan manyetik rezonans görüntüleme sonucunda L₄₋₅ lomber ganglion kisti tanısı kondu. L₄ total laminektomi yapıldıktan sonra kistik kitle tümüyle eksize edildi. Semptomlar ve nörolojik bulgular ameliyat sonrasında düzelme gösterdi.

Anahtar sözcükler: Servikal vertebra; kist/komplikasyon; gangliyon; laminektomi; manyetik rezonans görüntüleme; radikülopati/etyoloji; omurga hastalıkları/tanı/cerrahi; sinovyal kist/tanı/cerrahi.

Ganglion cysts represent a rare pathology mostly encountered in the lumbar region of the spinal column. Magnetic resonance imaging revealed a ganglion cyst at the L₄₋₅ level in a 46-year-old woman who had a complaint of long-standing pain in her right leg. The cyst was completely excised following total laminectomy at L₄. After surgery, her symptoms and neurological signs completely disappeared.

Key words: Cervical vertebrae; cysts/complications; ganglia; laminectomy; magnetic resonance imaging; radiculopathy/etiology; spinal diseases/diagnosis/surgery; synovial cyst/diagnosis/surgery.

Synovial and tendon cysts usually arise in tendon sheaths and tissues around the joints.^[1] Histologically a synovial cyst is an herniation of synovial sheath. Ganglion cyst is formed due to the myxoid degeneration of periarticular fibrous tissue and secretion of excess hyaluronic acid by the fibroblasts.^[1-4]

Although synovial and ganglion cysts are considered to be the same entity their pathology is different. They are rarely seen in the spinal canal with the predominance of the lumbar region. Radiculopathy symptoms are observed in the patients with synovium and ganglion cysts.^[1,5-7]

We present a case with the symptoms of radiculopathy due to the lumbar ganglion cyst which resolved following surgical treatment.

Case report

A 46 year old female patient presented to the outpatient clinic with the complaint of right leg pain unresponsive to medical treatment. Pain which had been present for several years exacerbated with walking and sitting. In the neurological examination right straight leg raising test was positive at 30 degrees; there was a loss of 1/5 in the ankle dorsiflexion and hypoesthesia in the L5 dermatome. Magnetic resonance imaging (MRI) revealed a round mass with uniform edges at the right L4-5 level of the spinal canal, and degenerative changes at the same location (Figure 1a, b). Following total laminectomy of the L4 level, the mass encroaching the shoulder of the L5 root from the ligamentum flavum was excised totally. Postoperatively the total

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excision of the mass was confirmed with MRI (Figure 1c, d). The complaints of the patient arising from the radiculopathy, and the neurological status of the patient was resolved.

Microscopically, a unilocular cystic development without lining epithelium but with a fibrous tissue wall was observed (Figure 2a). Loci of calcification was present in the lumen and scarcely on the cyst wall (Figure 2b).

Discussion

Ganglion and synovial cysts, occurring rarely in the spinal canal, precipitate radiculopathic com-

plaints.^[5-7] The etiology of the ganglion cysts are degeneration, trauma, inflammation, and they can also be seen congenitally.^[5-9] In our case, the presence of long lasting complaints, negative trauma history, and degenerative changes pointed degeneration as the etiological factor.

In the differential diagnosis of the extramedullar lesions of the spine, meningioma, schwannoma, metastatic tumors and pannus formation due to romatoid arthritis should be considered. Diffuse contrast uptake can be observed in meningiomas. High signal characteristic is present in scwannomas. Metastatic tumors usually cause osteolysis. In roma-



Figure 1: a) Preoperative appearance of lumbar ganglion cyst in sagittal MRG b) Preoperative appearance of lumbar ganglion cyst in axial MRG c) Postoperative appearance of lumbar ganglion cyst in sagittal MRG d) Postoperative appearance of lumbar ganglion cyst in axial MRG

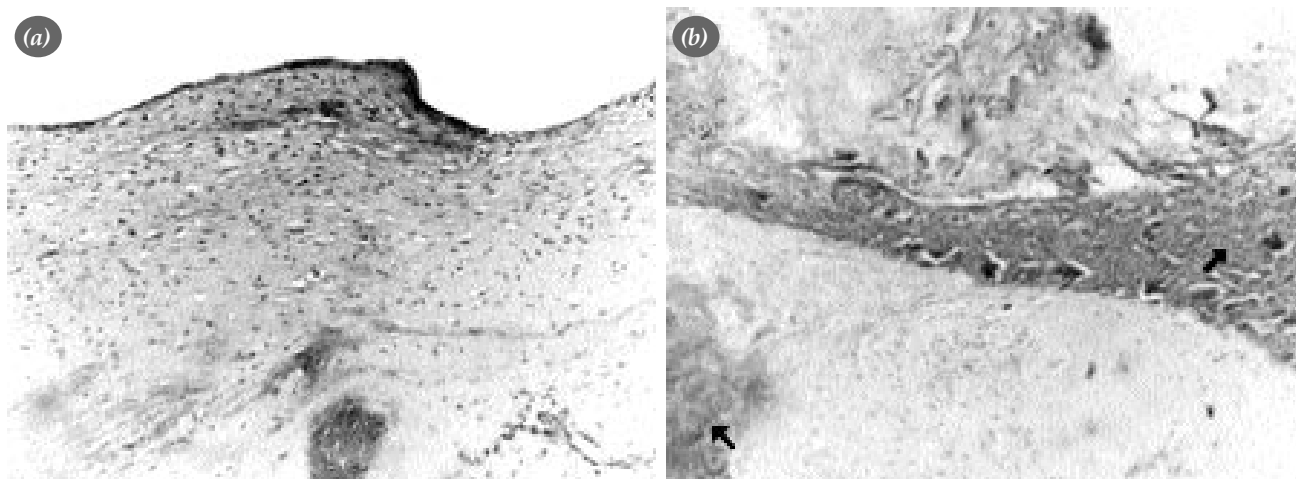


Figure 2. a) Ganglion cyst. Fibrous cyst wall without epithelial lining. (H-E x 40) b) Calcification in the lumen and cyst wall (arrow). (H-E x 200).

toid arthritis physical symptoms predominate.^[10-11]

The definite differential diagnosis of the synovial and ganglion cysts is made by pathological examination.^[2,3] A synovial cyst has a wall of epithelium like cuboidal synovia with clear and xanthochromic liquid. A ganglion cyst, on the other hand has gelatinous protein material and myxoid degeneration of the fibrous adventitial tissue, but no synovium like epithelium.^[8,11] Similar characteristics were observed in the pathological examination performed in our case. Diagnosis of synovial and ganglion cysts is made by preoperative MRG, computed tomography, myelography and percutaneous arthrography.^[12] Synovial cysts arise from the facet joints, while ganglion cysts arise from the ligamentum flavum.^[13] Filling of the cyst with contrast material during percutaneous arthrography is a sign favouring synovial cyst. Ganglion cysts appear as hypointense lesions in T1-weighted MRG images; hyperintense or heterogeneous lesions in T2-weighted images.^[11,12,14,15] Cyst capsule has the capacity to uptake contrast material.

Although spontaneous regression of synovial cysts could be observed, surgical excision, simple aspiration of the cyst material and injection of long lasting corticosteroid ensuing aspiration are the treatment methods.^[12-14] Surgical treatment is recommended if spinal ganglion cysts is symptomatic.^[5-7]

In conclusion, a ganglion cyst which is a rare cause of lumbar radiculopathy should be considered in cases recalcitrant to conservative treatment.

References

- Lunardi P, Acqui M, Ricci G, Agrillo A, Ferrante L. Cervical synovial cysts: case report and review of the literature. *Eur Spine J* 1999;8:232-7.
- Fransen P, Pizzolato GP, Otten P, Reverdin A, Lagier R, de Tribolet N. Synovial cyst and degeneration of the transverse ligament: an unusual cause of high cervical myelopathy. Case report. *J Neurosurg* 1997;86:1027-30.
- Takano Y, Homma T, Okumura H, Takahashi HE. Ganglion cyst occurring in the ligamentum flavum of the cervical spine. A case report. *Spine* 1992;17:1531-3.
- Tabaddor K, Sachs D, Llana JF, Testaiuti MA. Ganglion cyst of the odontoid process. Case report and review of the literature. *Spine* 1996;21:2019-22.
- Yamamoto A, Nishiura I, Handa H, Kondo A. Ganglion cyst in the ligamentum flavum of the cervical spine causing myelopathy: report of two cases. *Surg Neurol* 2001;56:390-5.
- Lee J, Wisneski RJ, Lutz GE. A ganglion cyst causing lumbar radiculopathy in a baseball pitcher: a case report. *Arch Phys Med Rehabil* 2000;81:837-9.
- Baba H, Furusawa N, Maezawa Y, Uchida K, Kokubo Y, Imura S, et al. Ganglion cyst of the posterior longitudinal ligament causing lumbar radiculopathy: case report. *Spinal Cord* 1997;35:632-5.
- Giger R, Szalay-Quinodoz I, Haenggeli A, Dulguerov P. Ganglion cyst of the spinal anterior longitudinal ligament presenting as a retropharyngeal mass. *Am J Otolaryngol* 2002; 23:390-3.
- Hsu KY, Zucherman JF, Shea WJ, Jeffrey RA. Lumbar intraspinal synovial and ganglion cysts (facet cysts). Ten-year experience in evaluation and treatment. *Spine* 1995; 20:80-9.
- Mignucci LA, Bell GR. Differential diagnosis of sciatica. In: Herkowitz HN, Garfin SR, Balderston RA, Eismont FJ, Bell GR, editors. *Rothman-Simeone: The Spine. Vol. 1, 4th ed.* Philadelphia: W. B. Saunders; 1999. p. 98-9.
- Bell GR, Modic MT. Radiology of the lumbar spine. In: Herkowitz HN, Garfin SR, Balderston RA, Eismont FJ, Bell GR, editors. *Rothman-Simeone: The Spine. Vol. 1, 4th ed.* Philadelphia: W. B. Saunders; 1999. p. 120.
- Bureau NJ, Kaplan PA, Dussault RG. Lumbar facet joint

- synovial cyst: percutaneous treatment with steroid injections and distention-clinical and imaging follow-up in 12 patients. *Radiology* 2001;221:179-85.
13. Abdullah AF, Chambers RW, Daut DP. Lumbar nerve root compression by synovial cysts of the ligamentum flavum. Report of four cases. *J Neurosurg* 1984;60:617-20.
 14. Houten JK, Sanderson SP, Cooper PR. Spontaneous regression of symptomatic lumbar synovial cysts. Report of three cases. *J Neurosurg Spine* 2003;99:235-8.
 15. Koga H, Yone K, Yamamoto T, Komiya S. Percutaneous CT-guided puncture and steroid injection for the treatment of lumbar discal cyst: a case report. *Spine* 2003;28:E212-6.