



2
가
T1 , T2 T2*

(Fig. 1B).

(small round cell tumors)
(1).
(Fig. 1C). T1
3-4

3
가 가
2 (Fig. 1D).
가

2-3
가 (Fig. 1E).

1
59 가 1

가 (poor -
ly differentiated malignant small round cell)
T1 2, 3
3x2x2.8 cm
가 (Fig. 1A).
Periodic acid - Schiff (PAS)
, reticulin
reticulin
vimentin leukocyte common
antigen, UCHL1, CD 30

T2*
2-3

3

가

2002 5 2

2002 8 21

(Fig. 2C). 3
가

2
65 가 15
2
3
가

가

2D).

(Fig.

가

T1 3, 4, 5
4×4×6 cm
가

PAS

MIC2 CD 99가, chromo-
granin vimentin, synaptophysin, S-100, neu-
ron-specific endolase, leukocyte common antigen, cytot-
eratin

(Fig. 2A). T2
(Fig. 2B), T1

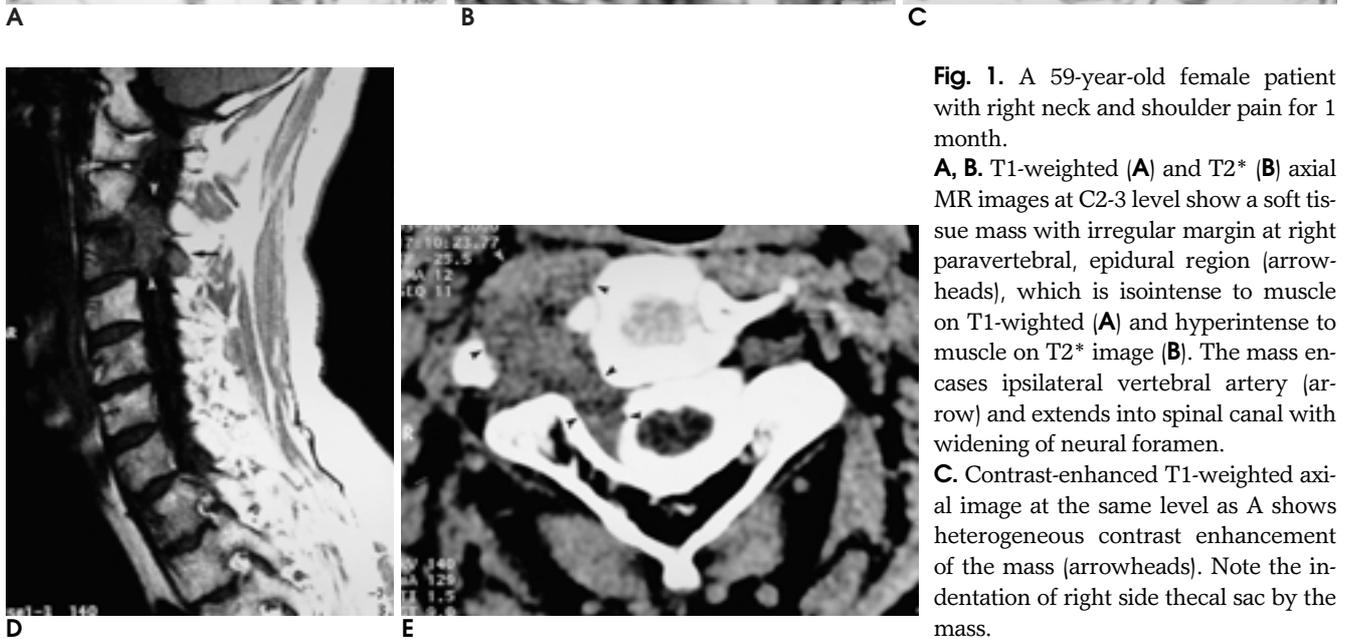
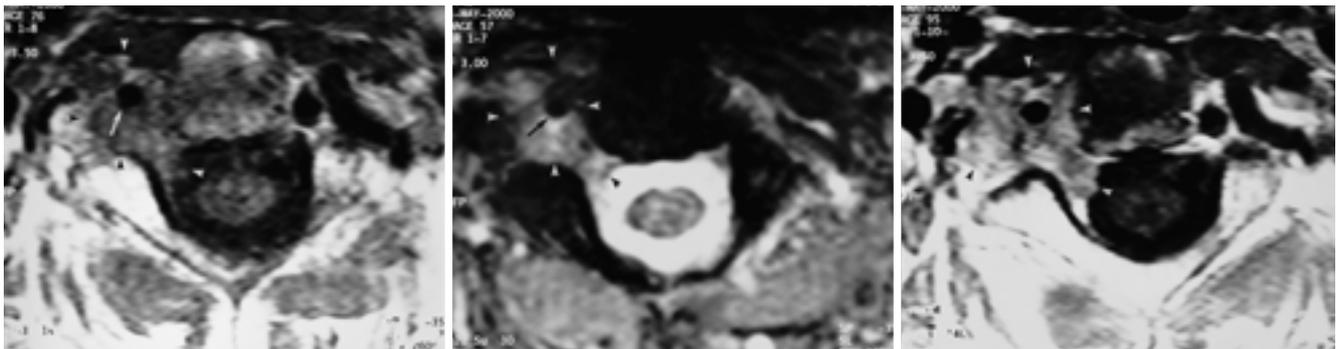


Fig. 1. A 59-year-old female patient with right neck and shoulder pain for 1 month.

A, B. T1-weighted (**A**) and T2* (**B**) axial MR images at C2-3 level show a soft tissue mass with irregular margin at right paravertebral, epidural region (arrowheads), which is isointense to muscle on T1-wighted (**A**) and hyperintense to muscle on T2* image (**B**). The mass encases ipsilateral vertebral artery (arrow) and extends into spinal canal with widening of neural foramen.

C. Contrast-enhanced T1-weighted axial image at the same level as A shows heterogeneous contrast enhancement of the mass (arrowheads). Note the indentation of right side thecal sac by the mass.

D. T1-weighted sagittal image shows vertically oriented mass within spinal canal at C2-3 through C3-4 level (arrowheads). Note the low signal intensity change of body and neural arch of C3 (arrow).

E. CT myelography at C2-3 level clearly depicts the mass, which compresses contrast filled thecal sac, right laterally (arrowheads).

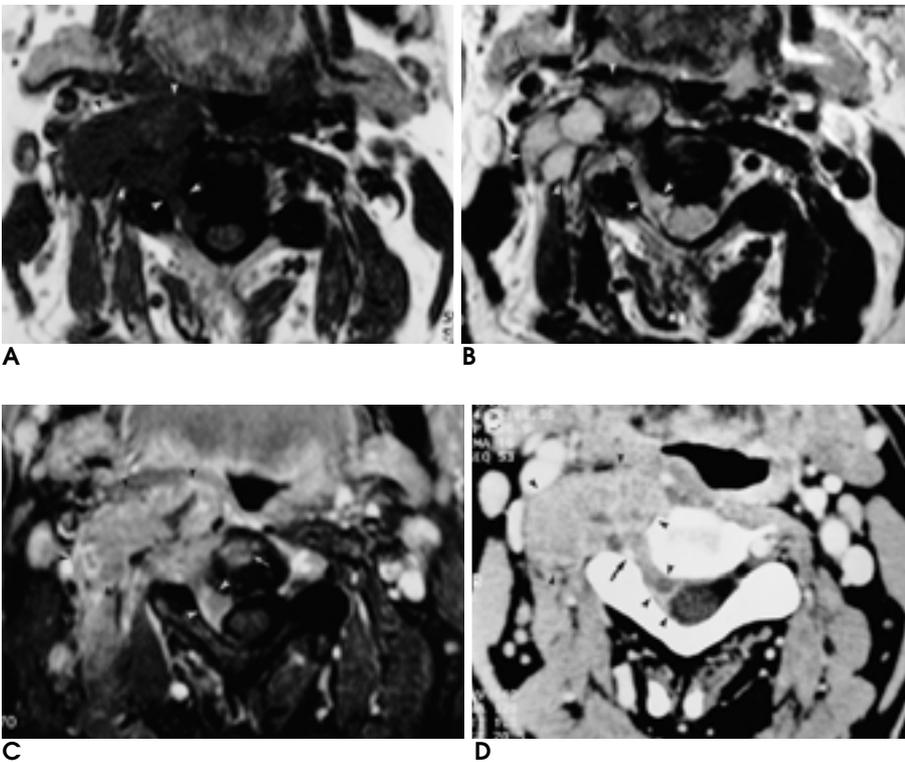


Fig. 2. A 65-year-old male patient with pain and palpable mass at right side neck for 2 weeks.

A, B. T1-weighted (**A**) and T2-weighted (**B**) axial MR images at C3-4 level show a large paravertebral, epidural mass extending into spinal canal through widened neural foramen and compressing right lateral aspect of thecal sac (arrowheads). The mass is isointense to muscle on T1-weighted (**A**) and hyperintense to muscle on T2-weighted image (**B**). The mass encases right vertebral artery (small arrows) and displaces the right parapharyngeal fat and carotid artery (large arrow), anteriorly and laterally.

C. Postcontrast T1-weighted image at the same level as **A** shows heterogeneous contrast enhancement of the mass (arrowheads). Also note patchy contrast enhancement at lower endplate of C3 body (arrow) without evidence of continuation with paravertebral mass.

D. Contrast-enhanced CT scan at same level as **A** reveals a large contrast-enhancing paraspinal mass with epidural extension and resultant thecal sac and spinal cord compression (arrowheads). Note the encasement of right vertebral artery (arrow).

Askin ,
 (, t(11;22)(q24; q12)
 EWS/FLI1) (8).
 MIC2
 가 (CD99)
 가 (9).
 vimentin keratin 8 18,
 neuron - specific endolase, neurofilament protein
 desmin, endothelial marker,
 leukocyte antigen (1).
 2 CD99
 . 1 CD99
 PAS reticulin ,
 vimentin 가 가
 ,
 (10), 가
 (2).
 가

1. Miettinen M, Weiss SW. *Soft-tissue tumors*. In Mamjanov I, Linder J. *Anderson's pathology*. St. Louis: Mosby, 1996:2480-2530
2. Raney RB, Asmar L, Newton Jr. WA, et al. Ewing's sarcoma of soft tissues in childhood: a report from the intergroup Rhabdomyosarcoma study, 1972 to 1991. *J Clin Oncol* 1997;15:574-582
3. Kaspers GJL, Kamphorst W, van de Graaff M, van Alphen AM, Veerman AJ. Primary spinal epidural extrasosseous Ewing's sarcoma. *Cancer* 1991;68:648-654
4. Mondrego PJ, Pina MA. Extraskelletal Ewing's sarcoma presenting with neurological symptoms. Report of two cases. *Neurol Sci* 2001; 22:257-259
5. Shin JH, Lee HK, Rhim SC, Cho KJ, Choi CG, Suh DC. Spinal epidural extraskelletal Ewing sarcoma : MR findings in two cases. *AJNR Am J Neuroradiol* 2001;22:795-798
6. Weil RJ, Zhuang Z, Pack S, et al. Intramedullary Ewing sarcoma of the spinal cord: consequences of molecular diagnostics. *J Neurosurg* 2001;95:270-275
7. O'Keefe F, Lorigan JG, Wallace S. Radiological features of extraskelletal Ewing sarcoma. *Br J Radiol* 1990;63:456-460
8. West DC. Ewing sarcoma family of tumors. *Curr Opin Oncol* 2000; 12:323-329
9. Ambros IM, Ambros PF, Strehl S, Kovar H, Gadner H, Salzer-Kuntschik M. MIC2 is a specific marker for Ewing's sarcoma and peripheral primitive neuroectodermal tumors. Evidence for a common histogenesis of Ewing's sarcoma and peripheral primitive neuroectodermal tumors from MIC2 expression and specific chromosome aberration. *Cancer* 1991;67: 1886-1893
10. Ahmad R, Mayol BR, Davis M, Rougraff BT. Extraskelletal Ewing's sarcoma. *Cancer* 1999;85:725-731

Extraskeletal Ewing Sarcoma of Cervical Epidural Region: Cases Report¹

Kijun Kim, M.D., Hyun Seouk Jung, M.D., Jae-Hee Lee, M.D.,
Kyung Myung Sohn, M.D., Sung Yong Lee, M.D.

¹Department of Radiology, Our Lady of Mercy Hospital, The Catholic University of Korea

Extraskeletal Ewing sarcoma is a rare malignant tumor found in children and young adults. It commonly occurs in deep soft tissue of the trunk, especially in the paravertebral region and extremities. We report two cases of extraskeletal Ewing sarcoma occurring as a cervical epidural tumor in elderly patients. The MRI and CT findings showed that paravertebral epidural tumors had invaded the spinal canal through the intervertebral foramen. At T1-weighted MR imaging, the masses were isointense to muscle, and at T2* and T2-weighted images were hyperintense, and heterogeneous contrast enhancement was observed. Extraskeletal Ewing sarcoma, though quite rare, should be borne in mind in the differential diagnosis of paraspinal epidural tumors.

Index words : Ewing sarcoma
Soft tissues, neoplasms
Soft tissues, MR

Address reprint requests to : Sung Yong Lee, M.D., Department of Radiology, Our Lady of Mercy Hospital,
665 Bupyong-dong, Bupyong-gu, Incheon 403-720, Korea.
Tel 82-32-510-5531 Fax 82-32-529-0964 E-mail: sylee@olmh.cuk.ac.kr