

**Fig. 1.** A 32-year-old man with CO poisoning. Axial (A) spin-echo T1 weighted MR image (TR/TE, 500/17) 3 weeks after onset shows swelling in right gluteus maximus muscle (arrows). Axial (B) and sagittal (C) fast spin-echo T2 weighted images (TR/TE, 3500/108) show heterogeneous high signal intensity in right gluteus maximus muscle (arrows). Sagittal (D) gadolinium enhanced spin-echo T1 weighted image (TR/TE, 500/17) shows faint intramuscular (arrow heads) and marked peripheral enhancement (arrows) in right gluteus maximus muscle. Ultrasonogram (E) shows diffuse swelling of the gluteus maximus muscle with heterogeneous echogenicity. Color doppler image (F) shows increased vascularity with abnormal increased diastolic flow within the gluteus maximus muscle. In photomicrograph (G), the lower part of the skeletal muscle fibers (arrows) shows massive lytic degradation compared with normal upper part.

4000/123.5) MRI 가 (Fig. 2D) 가 T1 (TR/TE, 650/10.3) (Fig. 2E). creatine kinase 95 IU/L

가

5 - 8.6%

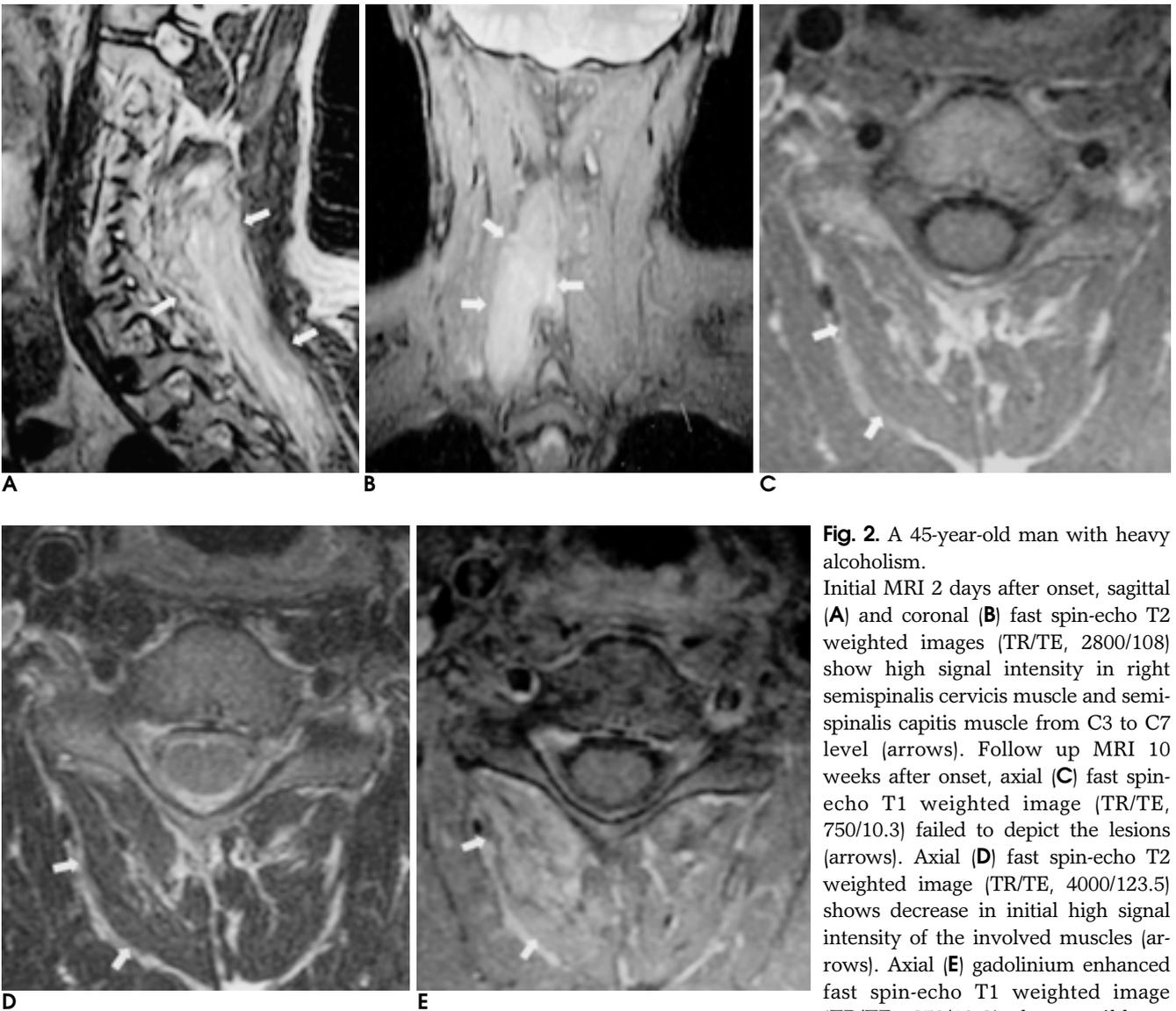
(2), 가

CT MRI

(3).

creatinine kinase, myoglobin, lac-

(1 - 6).



**Fig. 2.** A 45-year-old man with heavy alcoholism. Initial MRI 2 days after onset, sagittal (A) and coronal (B) fast spin-echo T2 weighted images (TR/TE, 2800/108) show high signal intensity in right semispinalis cervicis muscle and semispinalis capitis muscle from C3 to C7 level (arrows). Follow up MRI 10 weeks after onset, axial (C) fast spin-echo T1 weighted image (TR/TE, 750/10.3) failed to depict the lesions (arrows). Axial (D) fast spin-echo T2 weighted image (TR/TE, 4000/123.5) shows decrease in initial high signal intensity of the involved muscles (arrows). Axial (E) gadolinium enhanced fast spin-echo T1 weighted image (TR/TE, 650/10.3) shows mild enhancement of the involved muscles (arrows).

tate dehydrogenase, phosphate, potassium

가 가 (3). myoglobin , 가 ,

globin 가 , creatine kinase myo-

(5). T1 가

MRI

T2

, T1

가

. T2

(1). MRI

(4).

1

가

T2

(5).

2

2

MRI

T2

10

MRI

creatine kinase

T1

T2

가

, 가

T1

1

3

가

MRI

2

10

. 가

가

가

. T2

1. Shintani S, Shiigai T. Repeat MRI in acute rhabdomyolysis: correlation with clinicopathological findings. *J Comput Assist Tomogr* 1993;17:786-91
2. Vukanovic S, Hauser H, Curati WL. Myonecrosis induced by drug overdose: pathogenesis, clinical aspects and radiological manifestations. *Eur J Radiol* 1983;3:314-318
3. Nakahara K, Tanaka H, Masutani K, et al. The value of computed tomography and magnetic resonance imaging to diagnose rhabdomyolysis in acute renal failure. *Nephrol Dial Transplant* 1999;14:1564-1567
4. May DA, Disler DG, Jones EA, Balkissoon AA, Manaster BJ. Abnormal signal intensity in skeletal muscle at MR imaging: patterns, pearls, and pitfalls. *Radiographics* 2000;20:295-315
5. Kakuda W, Naritomi H, Miyashita K, Kinugawa H. Rhabdomyolysis lesions showing magnetic resonance contrast enhancement. *J Neuroimaging* 1999;9:182-4
6. Lamminen AE, Hekali PE, Tiula E, Suramo I, Korhola OA. Acute rhabdomyolysis: evaluation with magnetic resonance imaging compared with computed tomography and ultrasonography. *Br J Radiol* 1989;62:326-330

## MR Findings of Acute Rhabdomyolysis: Case Report<sup>1</sup>

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Rhabdomyolysis is an acute disorder resulting from skeletal muscle injury in which intracellular contents are released into extracellular space and plasma. The condition may result from drug or alcohol overdose, infection, crush injuries, collagen disease, or intensive exercise. We report two cases of acute rhabdomyolysis resulting from CO poisoning and alcohol overdose, and discuss the MRI and ultrasonographic findings.

**Index words :** Muscles, MR  
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