Sjögren-related atypical myositis mimicking respiratory-onset ALS

S. Bocci[1], M. Pirrelli[2], M.A. Mazzei[3], S. Bartalini[1], N. Volpi[1], S. Casali[1], A. Fioravanti[4], F. Giannini[1]

[1] Neurology and Clinical Neurophysiology Unit, Department of Medical, Surgical and Neurological Sciences, University of Siena, Italy
[2] Respiratory Rehabilitation and Pathophysiology Unit, Cardiovascular and Lung Department, AOUS Siena, Italy
[3] Diagnostic Imaging Unit, Department of Medical, Surgical and Neurological Sciences, University of Siena, Italy
[4] Rheumatology Unit, Department of Medical, Surgical and Neurological Sciences, University of Siena, Italy

BACKGROUND.

Neurologic manifestations are not uncommon in Sjögren Syndrome (SS) and can occasionally precede the diagnosis[1].
Most common neurological complications of SS are peripheral neuropathies but other manifestations, including motor neuron-like syndromes, have been rarely reported, although lacking a clear pathogenic correlation[2-6].

CASE REPORT.

A 82-year-old woman was referred to neurological examination by pulmonologist because of respiratory dysfunction characterized by severe extrinsic restrictive impairment (FVC 59%, VC 72%, FEV1 48%, PCEF 1,44 l/sec) with significant decrease in supine position requiring non-invasive ventilation (NIV) during 18 hours a day.

Recent medical history:
- Generalized weakness (7 months)
- 12 kg weight loss (6 months)
- Dyspnea, hypophonia, episodic dysphagia for liquids (3 months)

Neurological examination:
- MRC scale 4/5 in bilateral shoulder abduction/elbow flexion
- MRC scale 4/5 in neck extension
- Diffuse loss of deep tendon reflexes

Neurophysiological findings:
- MNCV and SNCV: normal
- RNS: negative for neuromuscular junction disorders
- EMG: fibrillation and sharp wave potentials 4/5 in dorsal paraspinal muscles
  1-2/5 in Deltoid, EDC and FDI

Brain and cervical spinal cord MRI: Negative

CSF analysis: Several oligoclonal bands not present in serum

Lab tests: see Table 1

	Values at diagnosis	7 months follow-up	Reference values
Creatine kinase	**155** UI/l	56 UI/l	10-140 UI/l
Aldolase	**10,1** UI/l	7,1 UI/l	1-8 UI/l
Myoglobin	**199** ng/ml	30 ng/ml	25-58 ng/ml

Table 1. Laboratory tests at diagnosis and seven-months follow-up.

Respiratory-onset ALS ?
(≈1% of all ALS)

Electromyography revaluation:
- Low amplitude poliphasic MUAPs in dorsal paraspinal muscles
- Myopathic recruitment pattern in Deltoid muscles

Muscular biopsy (right deltoid): inflammatory myopathy (see Figure 1)

Additional lab tests: see Table 2

High resolution chest CT-scan: see Figure 2

Minor salivary gland biopsy: lymphocytic infiltration (Chisholm & Mason grade 3)

Schirmer test: positive

	Values at diagnosis	7 months follow-up	Reference values
ANA titer	**1:320**	**1:320**	<1:160
Anti-SSA/Ro	**36** UI/ml	negative	<7 UI/ml

Table 2. Laboratory tests at diagnosis and seven-months follow-up.

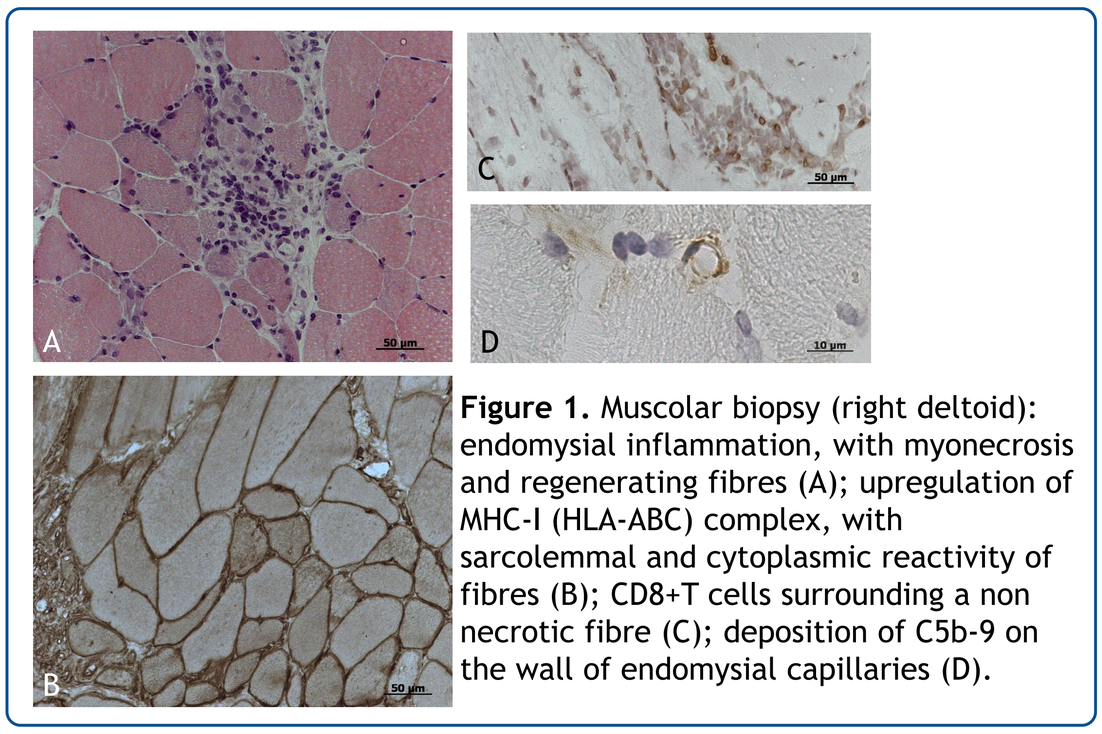

Figure 1. Muscolar biopsy (right deltoid): endomysial inflammation, with myonecrosis and regenerating fibres (A); upregulation of MHC-I (HLA-ABC) complex, with sarcolemmal and cytoplasmic reactivity of fibres (B); CD8+T cells surrounding a non necrotic fibre (C); deposition of C5b-9 on the wall of endomysial capillaries (D).

Sjögren-related myositis !

Therapy:
IVIg 2 gr/Kg in 5 days → Methylprednisolone e.v. 3 gr in 6 days
→ full recovery of proximal weakness
→ marked increase of respiratory volumes
Maintenance therapy: oral Prednisone (37.5 mg/day → 15 mg/day)
monthly low dose IVIg (25 g/month)

7 months follow-up: → all measures improved
- MRC scale 5/5 in upper limbs and neck extensors muscles
- Lab tests: see Tables 1 and 2
- EMG: fibrillation and sharp wave potentials only 1/5 in dorsal paraspinal muscles
  no signs of LMN disease in any muscle of the four anatomic regions
- NIV limited to night hours with low supportive pressures

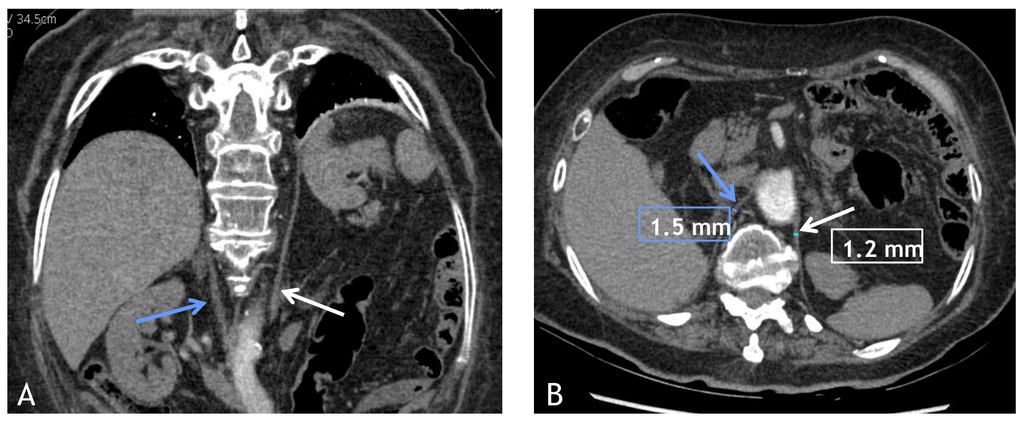

Figure 2. High resolution chest CT-scan (A: coronal-oblique; B: axial-oblique): hypotrophy of both crura of the diaphragm (maximum thickness 1.5 mm for right crus and 1.2 mm for left crus respectively) compared to the normal values (≤1.8); no signs of interstitial lung disease.

DISCUSSION.

The severe respiratory failure, which provided the main presenting feature of this challenging case, can be explained by CT scan proved, selective though unusual and not pathognomonic, diaphragmatic involvement by the myositic process, which resulted in a clear reduction of maximal diaphragmatic crural thickness compared to the normal values for the patient's age[7].
Few cases of motor neuron-like disease related to Sjögren Syndrome have been reported in the literature[2-6]. Among them only three patients underwent muscolar biopsy[1,5], all showing neurogenic atrophy. Nevertheless, all reported cases presented absent or just transient response to immune-modulating therapy, differentiating those from our current case, which showed clear myositic changhes in muscolar biopsy and a prompt and persistent response to steroids and IVIg. In the light of this, should we talk about causal or casual association?

UNIVERSITÀ DI SIENA 1240

BIBLIOGRAPHY.
1. Delalande S et al. Neurologic Manifestation in Primary Sjögren Syndrome: a study of 82 patients. Medicine 2004;83(5):280-291.
2. Hagiwara K et al. Upper motor neuron syndrome associated with subclinical Sjögren's syndrome. Intern Med 2008;47(11):1047-1051.
3. Attout H et al. [de Gougerot-Sjögren syndrome simulating amyotrophic lateral sclerosis]. Rev Med Interne 2000;21(8):708-710. [Article in French].
4. Salachas F et al. Motor Neuron Disease mimicking Amyotrophic Lateral Sclerosis or Primary Lateral Sclerosis in Primary Sjögren Syndrome. Neurology 1998;50(4):A31.
5. Katz JS et al. Multisystem neuronal involvement and Sicca Complex: Broadening the spectrum of complications. Muscle Nerve 1999;22(3):404-407.
6. Lafitte C et al. Neurological complications of primary Sjögren's syndrome. J Neurol 2001;248(7):577-584.
7. Dovgan DJ et al. Computed tomographic evaluation of maximal diaphragmatic crural thickness. Conn Med 1994;58(4):203-206.