Oxygen-ozone autohemotherapy in sacroiliitis

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A 39-year-old man was referred to our department with the complaint of low-back pain and morning stiffness over the last 2 months, irresponsive to nonsteroidal anti-inflammatory drugs. On physical examination lumbar rate of motion was severely limited due to pain. Pain was measured as 7 on a 10 cm visual analogue scale (VAS) and Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) was 5.3. Fabere sign was bilaterally positive but straight leg raising test was negative. Laboratory results showed elevated erythrocyte sedimentation rate (30 mm/h) and C-reactive protein (12 mg/L) level with positive HLA-B27. Plain radiography was consistent with bilateral grade 1 sacroiliitis but there was no sign of lumbar degenerative disc disease. Sacral medullar edema was found in right sacroiliac joint on fat suppressed T-2 weighted sacroiliac magnetic resonance imaging (MRI) (Grade 1 active inflammation according to Berlin MRI Score[1]) (Figure 1A). Bilateral sacroiliac joint surface irregularity was also detected in T-1 weighted MRI (Figure 1B). Active inflammatory lesions of the sacroiliac joints (reflecting active sacroiliitis) were observed for the fulfillment of the imaging criterion "sacroiliitis on MRI (positive MRI)" as applied in the ASAS classification criteria[2]. The patient refused medical therapy. He also declined sacroiliac joint intra-articular corticosteroid injection. Therefore, major oxygen-ozone autohemotherapy (OOA) was performed. OOA was performed 3 times a week for 2 months. Clinical signs and symptoms of the patient resolved at the end of the therapy. VAS and BASDAI decreased to 1.0 and 1.4, respectively. Six months after OOA, repeated fat suppressed T2 weighted MRI showed complete resolution of right sacroiliac medullar edema (Grade 0, no inflammation, according to Berlin MRI Score[1]) (Figure 1C).

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A small ozone dose well calibrated against the potent antioxidant capacity of blood can trigger several useful biochemical mechanisms and reactivate the antioxidant system[3]. The effect of ozone-oxygen therapy is becoming clear that a small and precisely calibrated ozone dose paradoxically induces an adaptive response capable of reducing the endogenous oxidative stress[4]. OOA is based on briefly (about 10 min) exposing a volume of the patient's heparinized blood to an equal volume of gas mixture (98% oxygen and 2% ozone). The ozonated blood is reinfused in the donor, the endothelium at first and then several organs interact with submicromolar concentrations of lipid oxidation products[4]. Reactive oxygen species in the blood are able to activate multiple biochemical and immunological pathways in blood cells[3]. Ozonetherapy is proving to be very useful in age-related macular degeneration, ischemic and infectious diseases, and in wound healing disorders, where conventional medicine has failed[5].

Although improvement in sacroiliac medullar edema was observed on MRI in the presented case, it cannot be excluded that it was due to evolution of the disease activity, as variations in sacroiliitis may occur independently from the treatment with changes in the disease activity throughout the follow-up. Despite the limitations of a single case, we may conclude that oxygen-ozone therapy seems to be a minimally invasive, effective and promising method in the treatment of sacroiliitis.

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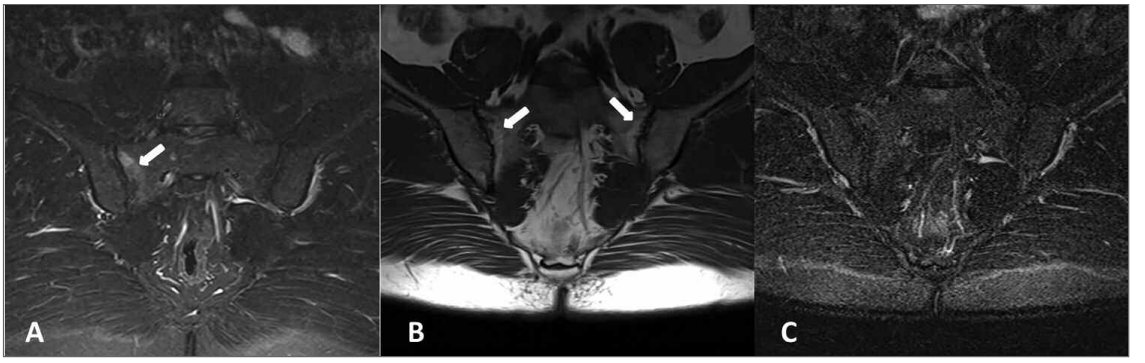

FIGURE 1. **1A)** Fat suppressed coronal T2 weighted MRI shows bone marrow edema on sacral surface of right sacroiliac joint indicating active inflammation (arrow).
1B) Coronal T1 weighted MRI shows bone surface erosions and fatty changes on bilateral sacroiliac joints consistent with sacroiliitis (arrows).
1C) Fat suppressed coronal T2 weighted MRI shows resolution of bone medullar edema in right sacroiliac joint after OOA.

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