

## Pain relief in a patient with snapping scapula after 5% dextrose injection

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Snapping scapula is a rare musculoskeletal condition and the frequent symptoms are pain at the superomedial angle of the scapula and a pathological loud snapping sound during the activities. Conservative treatments including activity modification, analgesics, non-steroidal anti-inflammatory drugs, and physical therapy should be attempted for at least six months before referring to surgery.<sup>[1]</sup> Herein, we report a case with snapping scapula treated with 5% dextrose injection which has not been used before for this condition.

A 22-year-old woman presented with a two-year of history of pain at the superomedial angle of the right scapula. She had audible loud snapping sound with particularly overhead motions. On physical examination, crepitus with audible loud sound was heard with arm motions. She had tenderness to palpation at the superomedial border, insertion of the levator scapulae and rhomboid muscles. The pain was assessed with Visual Analog Scale (VAS) which is calculated from 0 to 10. The VAS score was measured as 10 in both palpation and arm motions. The Quick Disabilities of the Arm, Shoulder and Hand (QuickDASH) was used to evaluate disability and QuickDASH disability/symptom score was calculated as 38.63. On plain radiography, there was no abnormality. The scapulothoracic bursa was imaged under the serratus anterior muscle by ultrasonography, and inflammation was observed.

As the previous treatments did not relieve her symptoms, the dextrose solution was decided to

inject. The details of the procedure were explained to her and a written informed consent was obtained from the patient. She received. 6 mL 5% dextrose injected into the scapulothoracic bursa using ultrasonography, and 3 mL 5% dextrose into the insertion of levator scapulae and rhomboid muscles. After treatment, the VAS score was 5 at 1 h. On Day 1 and at one week, the VAS score was indicated as 1, when she did overhead motion. Crepitus without sound was felt between 120° to 180° shoulder abduction. There was no tenderness with palpation of the previously sensitive areas. The Quick-DASH disability/symptom score was calculated as 15.90 at one week. At one and three months, improvements in examination findings continued, the VAS score was measured as 1, and the Quick-DASH disability/symptom score was 11.36. No side effects were observed during both injection and follow-up periods.

In a systematic review, dextrose prolotherapy found to be effective in chronic musculoskeletal conditions, particularly tendinopathies and osteoarthritis after three to six months of treatment.<sup>[2]</sup> In our case, we found an early improvement in pain, and the pain reduction was 50% (VAS decreased from 10 to 5) at 1 h. Dhir et al.<sup>[3]</sup> demonstrated that sensory nerve block was started earlier with 5% dextrose plus local anesthetic than saline plus local anesthetic. In another study, it was suggested that 5% dextrose was effective in reducing the pain after 15 min and it could affect the sensory nerves expressing the transient receptor

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potential vanilloid-1 (TRPV-1) channel in a different way.<sup>[4]</sup> It is known that long-term exposure to dextrose may increase messenger ribonucleic acid (mRNA) for TRPV-1.<sup>[5]</sup>

In conclusion, in the literature, there is no other case using dextrose injection to the scapulohumeral bursa for the treatment of snapping scapula. In this case report, we, for the first time, demonstrate that 5% dextrose injection is effective up to three months. Based on these findings, we believe that the 5% dextrose injection may be a useful treatment method for patients with snapping scapula.

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