Experience with epidural neuroplasty via the caudal approach

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Percutaneous epidural neuroplasty has been performed over the last 15 years in the management of low back pain caused by epidural adhesions. The method, which was defined by Racz[1] as the lysis of the epidural adhesions, depends on entry into the epidural space by a special catheter either caudally, or trans foraminally. The catheter, which is used for this technique, has a steel wire inside. Some drugs, such as local anesthetics, steroids, hyaluronidase, and 10% NaCl, were used in clinical practice. The hypertonic serum sale (10% NaCl) and steroids reduce nerve root pressure and irritation by means of its great antiedematous and local anesthetic properties. Hyaluronidase may be useful for facilitating the spread of the substance into the tissues. Local anesthetic drugs help the treatment by solving the paravertebral muscle spasm and discounting the sensorimotor pain cycle. In this clinical note, we aimed to evaluate the 4-month follow-up outcome of 40 percutaneous epidural neuroplasty cases with chronic degenerative discopathy. There can be many causes for epidural fibrosis and epidural adhesions, and neuroplasty should be considered for the patients with chronic low back pain not responding to conservative therapy.[2]

All patients received information on the procedures and its possible complications, and written informed consent was obtained. The caudal area was prepared under sterile conditions after antibiotic prophylaxis. After local anesthetic injection (lidocaine 2 mL), the caudal area was entered through the sacral hiatus with the 18-gauge Tuohy needle under fluoroscopic guidance (**Figure 1**). An Arrow-Racz catheter was advanced to the pathological area and 10 mL 0.25% bupivacaine was injected when the catheter was properly localized. Twenty minutes after this injection, 10 mL 10% NaCl was infused through the catheter very slowly (approximately 20 minutes). The 10% NaCl infusions were performed after the local anesthetic injection over 3 days. The patients were evaluated by the Visual Analogue Scale (VAS), analgesic requirement and the Patient Satisfaction Scale (PSS) after the first, second, and fourth month. A decrease of more than 80% in VAS was evaluated as perfect, 30-80% decrease as middle grade, and a decrease of less than 30% was assumed unresponsive to treatment. All of the cases were middle-aged (55.2 ± 4.6 years) and female. Before the procedure, the VAS scores of the patients were more than 5. At the evaluation, which was made at the end of the first

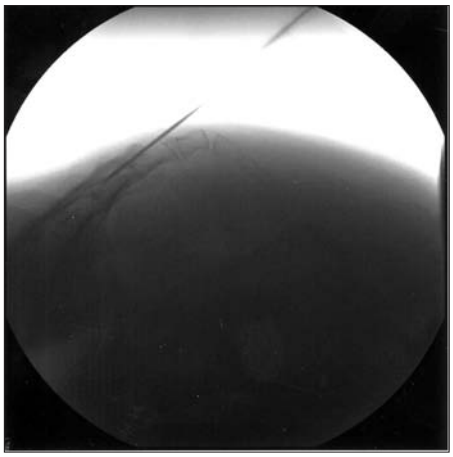

Figure 1 - Showing entry to the caudal area through the sacral hiatus with an 18-gauge Tuohy needle under fluoroscopic guidance.

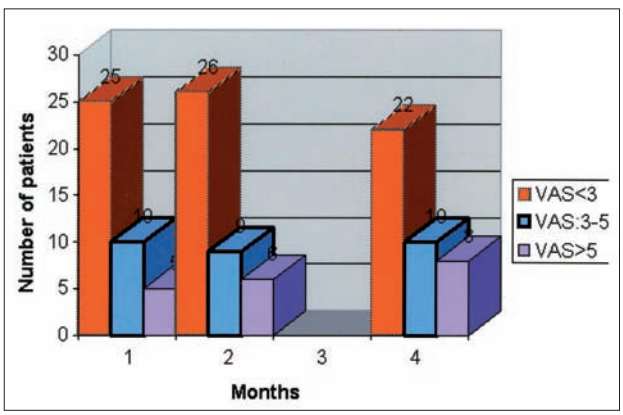

Figure 2 - Evaluation of the results after the first, second, and fourth months. VAS - Visual analogue scale.

month, 25 patients evaluated their results as perfect (VAS <3), 10 patients reported benefits in the middle grade (VAS 3-5), and 5 patients reported no benefit (VAS >5). Transforaminal steroid injections were applied to 7 of these 10 patients in the middle grade, and to the other 5 patients reporting no benefit. Later, lumbar facet radiofrequency thermocoagulation was applied to 3 patient, who still had facet pain. At the end of the second month, 26 patients evaluated their results as perfect (VAS <3). After this month, conservative medications were applied to the patients. At the end of the fourth month (**Figure 2**), 22 (55%) patients evaluated their situation as perfect. Ten patients benefited at the middle grade from the procedure (VAS 3-5), and 8 cases did not have any benefit from these procedures, they were classified as unresponsive to the treatment and have been directed to the alternative treatment modalities.

Heavner et al[3] compared isotonic and hypertonic saline in a prospective study containing 59 patients.

They found that hypertonic saline was more effective. In addition, there was no statistical difference between the groups to which hyaluronidase had been applied, and the group without. We used hypertonic saline for our patients. Local infection, sepsis, and hemorrhage diathesis are the contraindications for the lysis procedure. The complications which were determined by the epidural steroid procedures, and which belong to the steroid intake may appear at the neuroplasty procedure. It is possible that the vessels or the dura may be pierced; the catheter may break off in the epidural space or be blocked. Epidural abscess or meningitis can occur by infection related to procedure conditions. Neurogenic bowel and urinary bladder problems, especially sexual functions should be evaluated before starting the procedure. Intrathecal injection of the hyper tonic saline by mistake may cause fatal complications such as cardiac arrhythmias, loss of sphincter control, respiratory failure, and brain edema.[4]

The clinical value of epidural neuroplasty is still not determined. The decision to practice this procedure is still based on personal experience and choice. Due to the sparsity of literature on this topic, we believe that more studies are needed on these frequently performed procedures.

As a conclusion, we decided that under appropriate indications, epidural neuroplasty procedures can be useful, and the arrow catheter can be used for the successful treatment of low back pain.

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