

## Unfolding the Truth; the Way Towards Painfree Spine Surgery

This commentary is written in reference to the article, “Efficacy of double drug impregnated autologous coagulum in postoperative spinal pain,” published in the current edition of the Asian Journal of Neurosurgery. This study was put forth, comparing the efficacy of double drug impregnated autologous coagulum patch with single drug impregnated autologous coagulum patch, in the postoperative pain management following spinal surgery. Their idea was to use patient’s own (autologous) venous blood clot over the dura to prevent cerebrospinal fluid (CSF) leak. The base of the patch being provided by drug soaked oxidized gelatin sponge. The drugs used were a local anesthetic ropivacaine (naropin) and an opioid analgesic agent tramadol hydrochloride. Their aim was to assess the efficacy of double drug impregnated autologous coagulum (DDIAC) in the postoperative pain management as well as prevention of CSF leaks. They tried to look at the relationship between the two, whether if one followed the other or worsened it leading to entrapment in a vicious cycle. Twenty-seven patients with similar disease profile were recruited, and they suggested that DDIAC patch was more effective compared to single drug impregnated autologous coagulum (SDIAC) in postoperative pain control. Their inference was that SDIAC patch was insufficient for 24 h postoperative pain control compared to DDIAC. Despite having prevention of CSF leaks as one of their aims, the authors did not mention it in their conclusion.

Viewing it from an analytical perspective, this study depicts a design fault with certain unrealistic aims and objectives. It was started in 2011 in lieu of which it has statistically insignificant numbers considering the burden of this disease on a worldwide scale. Their objective of the efficacy of DDIAC in the prevention of CSF leaks is unreasonable as its incidence is significantly low in this time and age of minimally invasive procedures. The incidence of dural tears following virgin lumbar discectomies in experienced hands has been reported by Papavero *et al.* to be 1.7%<sup>[1]</sup> (195 surgeries performed in 176 patients of which 145 were virgin microdiscectomies) and 3.7% by Cammisa *et al.* in 2144 patients.<sup>[2]</sup>

The average preoperative visual analog scale (VAS) score was 5 in both groups, which improved to 3.01 in DDIAC arm and 4.29 in SDIAC. This was statistically insignificant. The SDIAC group required 6 hourly analgesic shots. This VAS is equivalent to other studies in which epidural patch was not used.<sup>[3]</sup> In modern day spinal surgery, multidrug protocols have shown to significantly reduce postoperative pain and thus decreasing the requirement of parenteral analgesia. Mathiesen *et al.* showed that compared to

patients receiving usual care, a standardized multimodal pain protocol supplemented with antiemetic usage reduces opioid consumption and improves mobilization.<sup>[4,5]</sup>

The postoperative pain in this set of patients is quite low on VAS and majority of spinal surgeons either do not use local infiltration or patch.<sup>[5]</sup> Some surgeons however leave a spongostan soaked with local anesthesia and/or steroid.

Another aim of this study was to show the relationship of pain management with CSF, which is not possible with this study design. Following were few discrepancies. CSF leak was seen till discharge of patient. A large number of patients may present with a fistula once patient is discharged from the hospital or following the removal of stitches.<sup>[6]</sup> The authors mentioned “spine rest” after surgery, which is not practiced frequently.

The use of coagulum for CSF leak repair is well known, but its role in prevention of the same in an elective single/double level procedure is unheard of. Kamenova *et al.* wrote in the World Neurosurgery that primary dural suturing (where it was feasible), fibrin glue/TachoSil patch, and suture plus patch had almost equal outcome in patients with preoperative CSF leak. Dural suturing has been reported to be the gold standard for achieving permanent closure in these cases.<sup>[6]</sup>

Leaving 5 ml of coagulum extradurally could potentially cause compression of theca, leading to neurological deterioration. The risk of infection may increase with clot *in situ*.<sup>[7]</sup> Epidural blood patch is considered to be inferior to fibrin glue in CSF leak repair and works well with dural defects measuring <5 mm. Dural tears greater than that may require duroplasty.<sup>[7,8]</sup>

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<b>Quick Response Code:</b> 	<b>Website:</b> <a href="http://www.asianjns.org">www.asianjns.org</a>
	<b>DOI:</b> 10.4103/ajns.AJNS_68_17

**How to cite this article:** Sharif S, Afsar A. Unfolding the truth; the way towards painfree spine surgery. *Asian J Neurosurg* 2018;13:1303-4.