

## Letters to the Editor

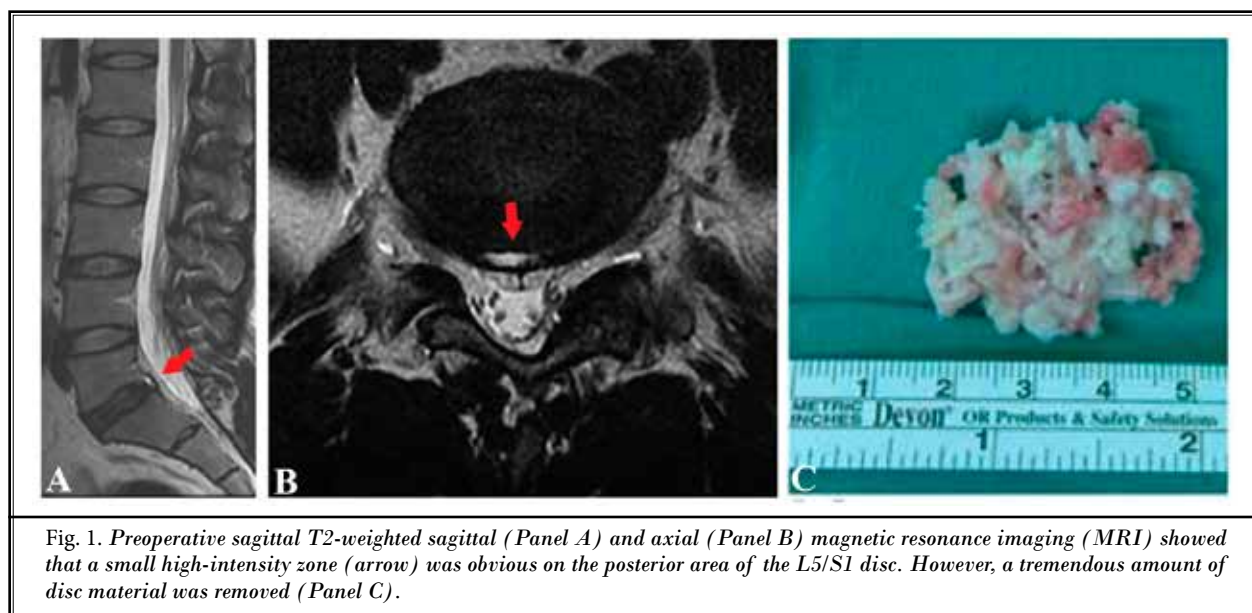
## **e** Re: Liu KC, Yang SK, Ou BR, et al. Using Percutaneous Endoscopic Outside-In Technique to Treat Selected Patients with Refractory Discogenic Low Back Pain

**TO THE EDITOR:**

We read with interest the article "Using percutaneous endoscopic outside-in technique to treat selected patients with refractory discogenic low back pain" by Liu et al (1). The authors presented a prospective study to evaluate the clinical results of percutaneous endoscopic treatment for annular tear in selected patients with discogenic low back pain by using the outside-in technique. After the provocative discography and transforaminal epidural injection test, the 24 patients underwent percutaneous endoscopic discectomy and thermal annuloplasty via a transforaminal or interlaminar approach.

The methylene blue was only used in patients who received the transforaminal endoscopic surgeries. In patients who underwent interlaminar surgeries, the methylene blue was not utilized. The authors noted that the torn lesion on the annulus fibrosus was bulg-

ing, loose, and covered with vessels and red granulation tissues. For the patients whose surgeries did not use methylene blue, the location of torn lesion was judged subjectively. That explained why a tremendous amount of disc material was removed (Fig. 1). We consider that the methylene blue can be injected simultaneously with the discography to facilitate the secondary interlaminar surgery. Additionally, if the methylene blue is injected simultaneously with the discography before the interlaminar or transforaminal surgeries, that will result in the nucleus pulposus and the displaced fragment being dyed blue, allowing the torn annulus to be easily and accurately located under the endoscope. However, the previous discography can induce the iatrogenic annular tear. Since the inside disc material is also dyed blue, if the discectomy and annuloplasty are performed under the guidance of blue stain, the real annular tear can be missed or not tackled thoroughly, impairing the clini-



cal outcome. We recommend that the discography be performed at the side opposite to the designed surgical approach.

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## REFERENCES

1. Liu KC, Yang SK, Ou BR, et al. Using percutaneous endoscopic outside-in technique to treat selected patients with refractory discogenic low back pain. *Pain Physician* 2019; 22:187-198.