Neurospine 2020;17(Suppl 1):S17-19.
https://doi.org/10.14245/ns.2040326.163

Neurospine
pISSN 2586-6583 eISSN 2586-6591

Editorial

Inside-Out and Outside-In Techniques in Endoscopic Spine Surgery: Are These Techniques Efficient Even for Pathology Irrelevant to the Intervertebral Foramen?

Corresponding Author
Chun-Kun Park
https://orcid.org/0000-0003-4705-8034

Good Doctor Tn-Tn Hospital,
775 Kyeongsu-daero, Dongan-gu, Anyanag 14041, Korea
E-mail: ckpmd@catholic.ac.kr

See the article "Lumbar Endoscopic Unilateral Laminotomy for Bilateral Decompression Outside-In Approach: A Proctorship Guideline With 12 Steps of Effectiveness and Safety" via https://doi.org/10.14245/ns.2040078.039.

"Inside-out (I-O)"—this simple phrase, which Yeung introduced in the 1990s, has become one of the standard terms used by endoscopic spine surgeons.[1] Furthermore, the I-O technique has become a fundamental and popular technique in endoscopic transforaminal discectomy and decompression (ETD). The I-O technique enables better visualization of intradiscal conditions that cause pain, enabling the surgeon to perform intradiscal therapy. A comparative study[2] in foraminal stenosis demonstrated that I-O had better long-term results at a 5-year follow-up than the outside-in (O-I) technique. Yeung and Lewandrowski[2] argued that the better outcomes of I-O were brought about by additional intradiscal therapy during the early stage of an operation. However, the therapeutic effect of intradiscal treatment on backache when the I-O technique is used exceeds the scope of the current discussion.

These techniques are mainly designated for the endoscopic management of pathology through the intervertebral foramen. There is no accessible route other than the through the foramen to approach pathology in the vertebral canal without laminectomy. Both techniques use a posterior and lateral incision from the midline of the back for skin access. The I-O technique is started by placing an endoscope in the disc, while the first step in the O-I technique is localizing the foramen for foraminoplasty. In the final stage, the I-O technique leads to a widened foramen by successive decompressions.[2] In contrast, the O-I technique results in free nerve roots by decompression in the last endoscopic view.[3] According to these descriptions, I-O and O-I are surgical techniques for pathologies that are only accessible through the intervertebral foramen.

I read 2 articles dealing with I-O and O-I in the management of endoscopic decompression that were published in this special issue.[4,5] These cases seemed to emulate Yeung's concept when describing their endoscopic approach to a lesion. However, I did not find any critically different points, especially in the techniques used for the approach, between the 2 groups. They might not have a significant enough difference from each other for it to be appropriate to use different terminology. If pressed to find a difference between the techniques in these manuscripts, I might point out that they differ in terms of how to remove the ligamentum flavum (as a whole or piecemeal).

In the article using the O-I technique,[4] the author indicated that the O-I technique performed in their study was similar to "the over-the-top" technique.[6] Using scientific termi-

nology, this technique can be referred to as unilateral laminotomy with bilateral spinal canal decompression (ULBD), and another synonym in endoscopic surgery is "cross-over." The original application of this technique was in open surgery.[6] This technique, which is mainly used to decompress the contralateral side of the canal, might have been carried out through ipsilateral single-incision skin access. In other words, although there are certain similarities between O-I and ULBD, O-I stands for a full series of endoscopic transforaminal techniques. Therefore a surgeon could divide the entire endoscopic procedure into several stages by time, whereas the "over-the-top" technique is a specific way to handle a particular part of the entire endoscopic process.[7] Consequently, It was improper to present the "over-the-top" technique as a similar procedure as the O-I technique, as each of these techniques plays a different role in the sequence of steps performed in an endoscopic procedure.

In recent years, endoscopic decompression surgery has been used to treat central canal stenosis[7] and other kinds of lumbar degenerative stenosis using newly designed endoscopes, with shorter and wider working channels, and surgical tools.[8] The route approaching down from the skin via the lamina to the epidural space is anatomically more familiar to most spine surgeons than the I-O technique in ETD. However, not a few endoscopic spine surgeons, including Yeung, still place a high value on I-O taking the foraminal route and insist that the ETD might be used for most lumbar spine pathologies, except for those that are unreachable.

Accordingly, ETD cannot remain at the forefront in the field of endoscopic spine surgery, even if certain limited and specific pathologies may be managed better by ETD. The O-I and I-O techniques (mainly I-O), which are supposed to belong to ETD, should be appropriately applied in pathologies reachable by the transforaminal route.

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Title: Child with a Dove
Artist: Pablo Picasso
Year: 1901

Child with a Dove is one of Picasso's earliest works: he was twenty-one, or even less, but his own style is already apparent. He probably painted it in Paris during his second visit, when he was staying with Spanish friends. By that time he had seen, studied, and assimilated contemporary French painting: he had taken Toulouse-Lautrec's way of rendering a visual impression rapidly with a few forceful lines and shrill spots of color, and made it his own. Also, he had learned from Degas how to observe a figure sharply and with detachment. In Child with a Dove, we see a new thoughtfulness, a poetic sympathy with the subject, qualities that were to dominate his work in the years that followed.

More information: https://www.pablopicasso.org/child-with-a-dove.jsp