

Modified epidural needle

S Dube, R Dubey, V Rastogi

Citation

S Dube, R Dubey, V Rastogi. *Modified epidural needle*. The Internet Journal of Anesthesiology. 2007 Volume 18 Number 2.

Abstract

Since the existence of a negative pressure inside the epidural space during the localization of epidural space is a well known fact, we modified the standard epidural needle with tuohy bevel to identify the epidural space correctly.

Dear Editor

The epidural space is a space bound by the posterior longitudinal ligament anteriorly, the ligamenta flava and the periosteum of the laminae posteriorly, and the pedicles of the spinal column and the intervertebral foramina containing their neural elements laterally. The epidural space can be localized clinically either by the loss-of-resistance technique or by the technique of hanging-drop identification¹. While localizing the epidural space, a sub-atmospheric pressure is created inside the epidural space² due to its expansion as the needle pushes the dura away from ligamentum flavum^{1, 3}. Since the existence of a negative pressure inside the epidural space is a well known fact, we modified a standard epidural needle with tuohy bevel to identify the epidural space correctly. We attached a sterile glove finger piece to the lateral port of a three way stop cock. To the other port we attached a sterile syringe (Figure 1).

Figure 1

Figure 1: Modified epidural needle



After placement of an epidural needle tip into the ligamentum flavum, we removed the stylet and attached the above mentioned assembly to the epidural needle. We then

inflated the glove piece by pushing air through the syringe after closing the end attached to the epidural needle. The end attached to the syringe was closed afterwards and the syringe was removed. The epidural needle was then advanced slowly. When the epidural space was reached, due to the negative pressure inside it the air in the glove piece was sucked in confirming the position of the epidural space. We used the assembly, as sterile glove, three way stop cock and sterile syringes are easily available in the operation theatre. Now days commercial epidural needles are available with a balloon attached to it for the identification of the epidural space. These needles are expensive and are not always available every where. But we have been using this modified epidural needle since 2 years with satisfactory results. Our modification of the standard epidural needle with tuohy bevel can be a cheaper and easily available alternative to the available epidural needles with similar kind of modification.

CORRESPONDENCE TO

Surya Kumar Dube Department of Anesthesiology, Banaras Hindu University, Varanasi, INDIA, 221005 E mail:- surya.dube@yahoo.co.in Phone: - 0091 9936594945 Fax: - 0091542 2369003

References

1. Brown LD. Spinal, Epidural, and Caudal Anesthesia. In Miller RD (Ed.) Anesthesia, 6th ed. New York: Churchill livingstone Inc.; 2005: 1653-83
2. de Andrés J, Gomar C, Calatrava P, et al : Localization of lumbar epidural space by loss of resistance and using the Episensor: a comparative study. Rev Esp Anesthesiol Reanim 1990;37(1):19-22
3. Zarzur E. Genesis of "true" negative pressure in the lumbar epidural space: A new hypothesis. Anaesthesia 1984;39:1101

Author Information

Surya Kumar Dube, M.B.B.S.

Junior Resident, Department of Anesthesiology, Institute of Medical Sciences, Banaras Hindu University

Rajeev Kumar Dubey, M.D.

Lecturer, Department of Anesthesiology, Institute of Medical Sciences, Banaras Hindu University

Virendra Rastogi, MD

Professor, Department of Anesthesiology, Institute of Medical Sciences, Banaras Hindu University