



Letter to the Editor

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A New Theory Explaining “Aspiration” in The Epidural Hanging - Drop Method

Masayuki Miyabe*

Emeritous Professor, Mie University, Japan



The hanging-drop method whereby a drop of saline hanging in the hub of an epidural needle is aspirated when the needle entered the epidural space. The theory behind this maneuver has been controversial. Recently I reported this phenomenon might be explained by the release of compressed air inside of the epidural needle into the epidural space [1]. The reason why I reached this theory is that a drop of saline placed within the hub of an epidural needle is sucked in when the needle is advanced and penetrates through a polyurethane foam cube. And I also showed the pressure inside of the epidural needle increased according to the distance the needle traveled to penetrate the polyurethane foam. Furthermore, once we stop advancing the needle, the pressure inside of the needle

drops to zero. This may be explained by the leakage of the air inside of the needle. This means the amount of “aspiration” of saline drop differs according to the distance of the needle tip reaches the epidural space through the ligament after advancing the needle. In this way, knowing that the degree of attraction of the saline droplet may change depending on the distance the epidural cannula needle reaches the epidural space is a key factor in implementing the hanging-drop method.

References

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***Corresponding author:** Dr. Masayuki Miyabe, Emeritous Professor, Mie University, Japan

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