

Multifunctional Irrigation-Assisted Vacuum Drainage versus Traditional Drainage in the Treatment of Odontogenic Deep Fascial Infection: A Retrospective Cohort Study [Letter]

Aleksandr Urakov ^{1,2}

¹Department of General and Clinical Pharmacology, Izhevsk State Medical Academy, Izhevsk City, Udmurt Republic, Russian Federation; ²Department of Modeling and Synthesis of Technological Processes, Institute of Applied Mechanics, Udmurt Federal Research Center of the Ural Branch of the Russian Academy of Sciences, Izhevsk City, Udmurt Republic, Russian Federation

Dear editor

Recently, He et al¹ released a paper in the Infection and Drug Resistance, entitled “Multifunctional Irrigation-Assisted Vacuum Drainage versus Traditional Drainage in the Treatment of Odontogenic Deep Fascial Infection: A Retrospective Cohort Study.” The results mentioned in the original paper¹ are inaccurate, since the authors did not take into account the warm alkaline solutions of hydrogen peroxide, which allowed the authors to belittle the effectiveness of pharmacotherapy of purulent wounds. In essence, the article by He et al¹ is devoted to proving the advantages of the modified multifunctional vacuum drainage with irrigation support (MIVD) developed by them in the treatment of patients with odontogenic infection of the deep fascial space in the head and neck area. They noted that the current traditional drainage method is passive and depends on gravity. However, the authors did not investigate the possibility of a geyser effect of warm alkaline solutions of hydrogen peroxide, which easily and cheaply provide the dissolution of thick pus and its removal during drainage, regardless of gravity. The authors take into account antibiotics, but do not take into account antiseptic solutions, and also do not take into account such physical-chemical properties of drugs as temperature, concentration, osmotic, acid (alkaline) and gas-forming activity.

Then there are questions: 1) Is it true that a solution of hydrogen peroxide is not used for drainage? 2) How does the temperature of the hydrogen peroxide solution affect the efficiency of traditional drainage? 3) Can hydrogen peroxide solutions be alkaline, and how do they affect the effectiveness of traditional technology for washing purulent wounds? 4) Is it possible to additionally enrich solutions of hydrogen peroxide with gas and how does this affect the effectiveness of the traditional technology of washing purulent wounds?

Firstly, in the conditions of purulent surgery departments, solutions of both chemotherapeutic and antiseptic agents are widely used for drainage of purulent wounds. Of the antiseptics, the most common use is solutions of 3–6% hydrogen peroxide.

Secondly, heating the hydrogen peroxide solution to +37–+45 °C increases its effect on thick pus and increases the efficiency of drainage.^{2,3}

Third, hydrogen peroxide solutions can be alkaline. To do this, sodium bicarbonate is added to the solutions, which provides a pH of 8.4. The effect of the

Correspondence: Aleksandr Urakov
Izhevsk State Medical Academy,
Kommunarov Str., 281, Izhevsk, Udmurt
Republic, 426034, Russian Federation
Tel +79127600939
Email urakoval@live.ru

hydrogen peroxide solution on pus at a pH of 8.4 is higher than at a pH of 7.0 and below this value. So an alkaline solution of hydrogen peroxide increases the effectiveness of the traditional technology of washing purulent wounds.⁴

And, finally, warm alkaline solutions of hydrogen peroxide can be additionally enriched with gas, for example, oxygen gas. To do this, gases are introduced into solutions under excessive pressure. The enrichment of a warm alkaline solution of hydrogen peroxide with oxygen gas turns it into a powerful bleaching cleaner, which is recommended as the most powerful and effective hygiene product that has no equal today.^{4,5}

Therefore, it is necessary to conduct additional research to prove the undeniable advantages of MIVD.

Disclosure

The author reports no conflicts of interest related to this communication.

References

1. He D, Qian Y, Zhou L, Qi H, Liu Y. Multifunctional irrigation-assisted vacuum drainage versus traditional drainage in the treatment of odontogenic deep fascial infection: a Retrospective Cohort Study. *Infect Drug Resist.* 2021;14:3571–3580. doi:10.2147/IDR.S326300
2. Urakov A, Urakova N, Reshetnikov A, Kopylov M, Chernova L. Solvents of pus - medicines with physical-chemical aggressive action. *J Phys Conf Ser.* 2017;790(1):12033. doi:10.1088/1742-6596/790/1/01203
3. Urakov AL. Pus solvents as new drugs with unique physical and chemical property. *Rev Clin Pharmacol Drug Ther.* 2019;17(4):89–95. doi:10.17816/RCF17489-95
4. Urakov A, Urakova N, Reshetnikov A. Oxygen alkaline dental's cleaners from tooth plaque, food debris, stains of blood and pus: a narrative review of the history of inventions. *J Int Soc Prev Community Dent.* 2019;9(5):427–433. doi:10.4103/jispcd.JISP_CD_296_19
5. Urakov AL. Creation of “necessary” mixtures of baking soda, hydrogen peroxide and warm water as a strategy for modernization bleaching cleaners of ceramic. *Epitoanyag J Silicate Based Compos Mater.* 2020;72(1):30–35. doi:10.14382/epitoanyag-jsbcm.2020.6

Dove Medical Press encourages responsible, free and frank academic debate. The content of the Infection and Drug Resistance ‘letters to the editor’ section does not necessarily represent the views of Dove Medical Press, its officers, agents, employees, related entities or the Infection and Drug Resistance editors. While all reasonable steps have been taken to confirm the content of each letter, Dove Medical Press accepts no liability in respect of the content of any letter, nor is it responsible for the content and accuracy of any letter to the editor.

Infection and Drug Resistance

Dovepress

Publish your work in this journal

Infection and Drug Resistance is an international, peer-reviewed open-access journal that focuses on the optimal treatment of infection (bacterial, fungal and viral) and the development and institution of preventive strategies to minimize the development and spread of resistance. The journal is specifically concerned with the epidemiology of

antibiotic resistance and the mechanisms of resistance development and diffusion in both hospitals and the community. The manuscript management system is completely online and includes a very quick and fair peer-review system, which is all easy to use. Visit <http://www.dovepress.com/testimonials.php> to read real quotes from published authors.

Submit your manuscript here: <https://www.dovepress.com/infection-and-drug-resistance-journal>

<https://doi.org/10.2147/IDR.S338255>