

Article information: <https://dx.doi.org/10.21037/jss-23-46>

Reviewer A

Summary: The authors present a case report of a patient with a lumbar epidural abscess who underwent hemilaminectomy for abscess evacuation. Post-operatively the patient was noted to have a clogged drain which was presumed to be a result of vancomycin powder.

Strengths: The article is well-written. The topic is relevant to the field of spine surgery.

Weaknesses: The major weakness here is that, in the absence of pathologic or microscopic examination of the contents within the drainage tube, it is difficult to say with any certainty that the material blocking the drain in this case was in fact vancomycin powder, and not purulent material related to the infection or some other material, which would not be a reportable event. In my opinion, it would add support to the authors' case and increase the value of the manuscript if they were to evaluate different concentrations of vancomycin powder within a solution and determine at what concentration blocking of a drain is likely to occur.

Reply A

We agree with the reviewer's critique of the manuscript in that the powder residue was not conclusively vancomycin in the absence of microscopic and chemical analysis. The Reviewer's suggestion to test for concentrations at which vancomycin powder causes blockage is a good one. To prepare however, we would need more time to arrange for the purchase of multiple vancomycin powder vials as well as exudrains. An experimental setup may be to prepare vancomycin solution at 50 / 75 / 100 / 200 / 400 mg per ml (precipitation known to occur at > 83.3 mg/ml), at a volume of 50 mls of normal saline, and to observe when vancomycin solution / sludge causes occlusion. This setup would require 42.5 grams or 85 vials of 500 mg clinical grades vancomycin powder as well as 5 exudrains, which would better be purchased for the purpose of research rather than 'borrowed' from the operation theatre / pharmacy. We will allow the editor discretion as to whether this experiment is essential.

Changes in text

Absence of microscopic and chemical analysis of powder residue is highlighted in the discussion.

Reviewer B

Dissolved VCM is sludgy. The tube is therefore prone to clogging. This is even more so if the diameter is narrow. Low blood volume increases the viscosity of the VCM. The combination of adverse conditions has caused this to happen. Reviewer thinks it is worth posting this information as a reminder. Reviewer thinks it is necessary to indicate the inner diameter of the connection.

Reply B

We agree and have made these amendments.

Changes in text

In page 7 (Discussion) we have highlighted low blood volume as a risk factor for blockage. We used digital calipers to measure the outer lumen of the choke point (2.73 mm) and patient side tubing (3.39 mm) and have mentioned this within the discussion. Due to caliper design, we were unable to position the measuring tongs within the choke point lumen itself to get accurate measurements. These outer diameter measurements however illustrate how narrow the drain was, and the problem it caused.

Reviewer C

The authors provide a concise case report of an operative drain being occluded by vancomycin powder. There are no major flaws to the report, and this adds a novel discussion point to this common practice. I do not have any specific revisions but will defer to the editorial team both with regard to scope and interest of this report relative to the journal audience, but also with note that the impact of this paper is somewhat limited. Specifically, this appears to be related to a very specific design characteristic (flaw) of the drain, with a dramatically narrowed point of the pathway; the results are therefore hard to generalize to common practices which use other drain systems. Secondly, the broad data demonstrating benefit of vancomycin powder inherently includes that this does not result in significant complications like this, so this paper, while reporting a unique note, should not change practice in this area.

Reply C

We agree to the above, but use of vancomycin powder is of high prevalence and there should be of interest to the readership in order to avoid this complication.

Changes in text

None.