Reviewer’s report

Title: Necrotizing Fasciitis following measles vaccine administration: A case report

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Reviewer: Karina Top

Reviewer's report:

This manuscript reports a concerning case report of necrotizing fasciitis following measles vaccine that was attributed to bacterial contamination resulting from improper vaccine handling practices (use of vaccine reconstituted >6 hours prior). A second child (of 3 in total) receiving the same vaccine on the same day developed an abscess at the site. The investigation and causality assessment is briefly described. No information on the outcome of either child is presented. The report is focused on NF after immunization and its link to bacterial contamination. A key takeaway that deserves greater emphasis is that infectious complications following immunization should prompt investigation and follow up of other patients vaccinated in the same clinic (as was done). The manuscript would be strengthened by condensing (or removing) the general descriptions of NF and AEFIs, and expanding on the details of the ensuing investigation and causality assessment process. Further details on the clinical presentation of the child with abscess (if available) would be helpful (see comments below).

The manuscript contains numerous typographical and grammatical errors, and would benefit from careful review by a colleague with strong writing skills in English.

Major comments

Abstract:

1. Line 28-30: "The incidence of cases of AEFI is very significant" - This implies that vaccines are unsafe and could unnecessarily alarm healthcare providers and the public while providing fuel for anti-vaccination advocates. Please reword to clarify the main point which seems to be that AEFIs are usually mild and serious adverse events are rare.

2. Lines 52-54: "...which could have been caused by incorrect use of...measles vaccine": This conclusion is not supported by the information in the case presentation which does not mention the investigation into the cause of the necrotizing fasciitis, such information would be important to include in the abstract.
Background

1. Lines 42-55: The definition of what an AEFI is, the differential diagnosis for what can cause an AEFI, and description of mild AEFIs could be condensed significantly since many of the details are not relevant to this case.

Case presentation

1. Line 42: Were cultures taken of blood or tissue to identify the causative organism? If so, please provide results.

2. Was any follow up information available on the child's outcome?

Causality assessment

1. Lines 12-16: was the measles vaccine dispensed and reconstituted in a multi-dose vial or single dose? Was there residual reconstituted vaccine available for culture? Was the diluent cultured for bacteria? If so, what were the results?

2. Lines 12-13: What framework was used for assessing causality (e.g., WHO algorithm)?

3. Lines 15-16: Please indicate how long the vaccine had been reconstituted at the time each of the three children was vaccinated, if known. How was the reconstituted vaccine stored between patients?

Discussion

1. Lines 49-50: Was Staphylococcus aureus isolated from the diluent/vaccine or from either child? If so, this should be stated in the causality assessment or case presentation sections not the discussion. If S. aureus is the presumed (but not proven) cause then this should be stated.

2. Instead of focusing on NF in general (e.g., risk factors, presentation), consider discussing the range of complications that can result from vaccines contaminated with bacteria, how frequent such cases are, etc.

Minor comments

1. Please insert page numbers.
2. Background, Lines 28-32: "Vaccination of children at 9 months for routine immunization... however, in some occasion, cases of adverse events..." - This sentence is repetitive, unclear and overly complex. It needs to be reworded split into at least 2 sentences.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

Yes

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Unable to assess

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

Yes

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

Not relevant to this manuscript

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Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

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