

Scoring criteria for the evaluation of micronuclei in oral exfoliated cells

DOI: 10.4103/2278-330X.208842

Dear Editor,

With reference to the article titled, “An *in vivo* cytogenetic analysis of human oral squamous cell carcinoma”^[1] published in your esteemed journal, I would like to bring into notice a few important points regarding the scoring criteria used for the evaluation of micronuclei.

The criteria used for the evaluation of micronuclei in the above-mentioned study are as follows:^[2]

- The diameter of micronucleus (MN) in human lymphocytes usually varies between 1/16 and 1/3 of the mean diameter of the main nuclei which corresponds to 1/256 and 1/9 of the area of one of the main nuclei in a BN cell, respectively
- MN is round or oval
- MN is nonrefractile and it can, therefore, be readily distinguished from artifacts such as staining particles
- MN is not linked or connected to the main nuclei
- MN may touch but will not overlap the main nuclei, and the micronuclear boundary should be distinguishable from the nuclear boundary
- MN usually has the same staining intensity as the main nuclei but occasionally staining may be more intense.

First of all, the above-said criteria are for the evaluation of micronuclei in lymphocytes and not exfoliated oral cells (as in the given study, micronuclei were evaluated in exfoliated oral cells). Second, the micronuclei showed in the images provided do not comply by the criteria used (micronuclei shown in the image are refractile and overlapping). The most accepted criterion^[3] for the evaluation of micronuclei in oral exfoliated cells is as follows:

- a. Rounded smooth perimeter suggestive of a membrane
- b. Less than one-third of the diameter of the associated nucleus, but large enough to discern the shape and color
- c. Staining intensity similar to that of the nucleus
- d. Texture similar to that of the nucleus
- e. Same focal plane as the nucleus
- f. Absence of overlap with, or bridge to, the nucleus.

Since there is a considerable similarity between the two criteria, using the former criterion is technically not wrong, provided it is fulfilled completely.

To conclude, I request the authors to go through their images again and make sure they are compatible with the criterion used. The purpose of this letter is not to highlight an error rather to focus on the appropriate criterion to be used for future studies. Such parameters play a vital role in establishing the validity of the study.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

Sonal Grover, B. R. Ahmed Mujib¹

Department of Oral and Maxillofacial Pathology,
Christian Dental College, CMC, Ludhiana, Punjab,

¹Department of Oral and Maxillofacial Pathology,
Bapuji Dental College and Hospital, Davangere,
Karnataka, India

Correspondence to: Dr. Sonal Grover,
E-mail: sonalgrvr@yahoo.com

References

1. Mohanta A, Mohanty PK, Parida G. An *in vivo* cytogenetic analysis of human oral squamous cell carcinoma. *South Asian J Cancer* 2015;4: 123-6.
2. Fenech M, Chang WP, Kirsch-Volders M, Holland N, Bonassi S, Zeiger E; HUMAN Micronucleus project. HUMN project: Detailed description of the scoring criteria for the cytokinesis-block micronucleus assay using isolated human lymphocyte cultures. *Mutat Res* 2003;534:65-75.
3. Holland N, Bolognesi C, Kirsch-Volders M, Bonassi S, Zeiger E, Knasmueller S, *et al.* The micronucleus assay in human buccal cells as a tool for biomonitoring DNA damage: The HUMN project perspective on current status and knowledge gaps. *Mutat Res* 2008;659:93-108.

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

How to cite this article: Grover S, Mujib BR. Scoring criteria for the evaluation of micronuclei in oral exfoliated cells. *South Asian J Cancer* 2017;6:89.

© 2017 The South Asian Journal of Cancer | Published by Wolters Kluwer - Medknow