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Letter to the Editor, response to: 'Intramedullary cervical spinal mass after stem cell transplantation using an olfactory mucosal cell autograft' by Woodworth et al. July 2019.

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Dear Editor,

Woodworth et al highlight a significant complication 12 years after a patient received a transplant of olfactory mucosa tissue into the spinal cord. This report, combined with others cited by the authors emphasises that long term follow-up after cell transplantation must be performed and reported as a matter of routine. This is essential for ensuring adequate patient safety, yet it is at odds with the short follow-up times specified by many current cell therapy trials.

We find it unsurprising that aberrant growth was observed after the transplantation of whole olfactory mucosa tissue. The olfactory mucosa is rich in a number of cell types [1], including the pseudostratified columnar epithelial cells noted on histology from this patient. In the original study by Lima et al, the use of whole tissue was justified because cell suspensions lead to poor cell viability and do not adequately fill the lesion space [2]. These concerns are justifiable [3], but we challenge the idea that transplanting whole tissue is the only way to overcome such issues. Indeed, we would like to draw attention to new approaches being developed by our group and others [4], where tissue engineering and biomaterial-based approaches have the potential to enhance the delivery of olfactory ensheathing cells.

Olfactory ensheathing cells still have great potential for treating spinal cord injuries [5], but this case reinforces the need for improved cell purification techniques and safety monitoring. A better understanding of the constituents of the source material and the potential beneficial or adverse effects of individual cell subgroups within the mucosa would be desirable before further clinical studies take place.

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Competing Interests: Dr. Bartlett reports grants from The Sackler Fund (MB/PhD award), outside the submitted work. Dr. Phillips is the co-founder of the UCL spin-out company 'Glialign Ltd' which focuses on peripheral nerve repair (not spinal cord injury which is the subject of this response). Dr. Phillips has received no income from the company and is not a director. Dr. Phillips holds the following patents: WO 2015015185 and WO 2004087231. These are broadly in the area of organising therapeutic cells within hydrogels but are not linked to any of the studies reported in the manuscript. Dr. Choi reports support from UCL/UCLH NIHR Biomedical Research Centre, and grants from Wellcome Trust, outside the submitted work.