Reviewer’s report

Title: A succesful pregnancy following SEM fine tuning of hormonal priming

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Reviewer: Prof Ian Cooke

Level of interest: A paper of considerable general medical or scientific interest

Advice on publication: Other (see below)

The paper uses scanning electron microscopy to monitor changes in endometrial features that are the most sensitive indicators of potential for implantation. It is a case report of implantation after modification of the best indicator in the light of earlier treatment in a particular patient.

Page 0, para1, l.2 P is used as an abbreviation for progesterone but is used throughout to signify progestogen. The distinction should be made.
2, l. 1"woman". We are not told whether the woman was ovulatory and suppressed or anovulatory.
I.3 "several" We are not told whether the embryos were from her oocytes or donated oocytes or how many of each in what sequence.
Clarify the paragraph. The words used were several, consecutive, 3 consecutive cycles and the fourth consecutive cycle. What was the regime in the fourth cycle, was it a repeated third cycle? This is important. To draw appropriate inferences it needs to be stated whether the eggs or embryos were donated and whether conception took place in the first or second cycle at the optimum dose of the regime. Did the pregnancy proceed to viability?
The conclusion is inappropriate. A success "rate" requires more than one case. Depending on whether conception occurred on the first or second optimum treatment cycle other explanations need to be considered for a possible failure in the first optimum treatment cycle and that would weaken the claim.
Monitoring is appropriate (in spite of the rapid turnaround in expensive resources- the practicability and cost of this are not discussed). "clearly demonstrates" needs "in this case" placed after it. The technique "could", not "should" be used...

Page 1 para1 Does repeat biopsy in consecutive cycles have an impact on pinopode formation?
"uterodomes" could usefully have "pinopodes" placed after it. Presumably the authors are trying to change the nomenclature. If so they should be consistent in their spelling of uterodomes which is variably spelt throughout.

Page 2, para 2 l.2 ? an important consideration
l.3&4 expand "uterodome analysis"
Page 3 para 3 l.4&5 and para 3 l.1&2 PO4 is better
Page 4 para 1 l.1&4" inhomogeneous"
Page 5 para1 l.1 and 7 How do "deep crevicing " and "cell separation was not apparent" match? Please
explain.
2 I.6 post-ovulatory
Page 6 para 1l.1 Please expand on "previously impoverished". Because the pt. was anovulatory, or non-responsive to particular doses? It would be useful to speculate as to why.
2 I.8 If the third and ?fourth cycles were at the same dose, was there variation in response? i.e .individual variation in response?
Page 7 para 2 How much could the poor response have been due to the Provera and how applicable are these data likely to be to the use of Progesterone?
I.11 "four fold" Is this a simple log biological response?
Conclusion
I.5 three consecutive
I.7&8 4th consecutive again
I. 9 "case by case" is more precise.
The authors could make a plea that this approach could be used more widely. Those data may then address the within- and between-patient variation, which has been such a problem in this field, at least with respect to light microscopy, as also shown here.

The Table and Figure are necessary and should remain unchanged.
The spacing of the references is erratic.

Competing interests:
None declared.