



To transfer or not to transfer? A medical dilemma

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Objective

■ Embryo quality is the essence of an assisted reproductive technique (ART) cycle. All the efforts are aimed at achieving highest quality embryos. Selection of embryos for transfer constitutes an important component of in vitro fertilization (IVF) treatment. The embryos can be graded by various methods of morphological grading (1), but Istanbul consensus is most commonly accepted criteria (2). In order to optimize the clinical outcomes following an IVF cycle, the novel Time Lapse Microscopy (TLM) technique has been developed to aid the conventional morphological assessment method (3).

■ The morphological assessment is a key predictor of both implantation as well as clinical pregnancy rate in IVF cycles(4,5). Current literature regarding morphological assessment and guide to embryo selection is immense. But as clinicians, the dilemma to transfer the only available poor grade embryos is encountered frequently in day-to-day clinical practice with no definite consensus.

■ This case report brings forth one such similar case wherein successful pregnancy outcome is achieved despite transfer of the only two available 4 celled grade-C embryos.

Case Report

Patient X, a 37-year-old woman presented with primary infertility for 10 years. After detailed clinical evaluation, examination and investigations, she was diagnosed with tubal factor infertility. The hormone profile comprised: FSH-6.33 IU/ml, LH -5.7 IU/ml, PRL-23.63ng/ml and AMH-2.5 ng/ml. Husband semen analysis was within normal limits. Hysteroscopy done prior to IVF revealed normal cavity size, shape, bilateral ostia visualised clearly. At recruitment, the initial total antral follicle cohort was 6-7. Patient underwent GnRH antagonist cycle according to the aforementioned stimulation protocol (Table 1).

Day of stimulation	1	2	3	4	5	6	7	8	9
Inj FSH dose	300	300	300	300	300	350	350	350	300
Inj HMG	75	75	75	75	75	75	75	75	-
Inj Cetrorelix	-	-	-	-	-	0.25	0.25	0.25	0.25

Six oocytes were retrieved after 36 hours of dual trigger (Inj. Recombinant HCG 250 *ug* with Inj. Leuprolide 1 mg subcutaneously). Among the six oocytes, they were equally distributed into grade 1 and 2. Conventional IVF procedure was done resulting in 4 fertilised embryos and they attained cleavage stage of embryo development on day 2 . But due to poor ovarian response and poor grade (4 celled grade C) embryos, it was a dilemma whether to transfer or not to transfer the poor quality embryos.

The decision was taken to transfer the only available day 2 embryos. UPT & beta HCG was done after 16 days was positive. Single live intrauterine fetus was documented at 6 weeks ultrasound scan and luteal phase support (Vaginal micronized progesterone 400 mg BD and injection micronized progesterone 100 mg intramuscularly OD) was continued throughout the first trimester. The first trimester screening and level II ultrasound is negative for any chromosomal aneuploidy and gross congenital anomalies, suggesting a healthy ongoing pregnancy. A healthy baby boy was delivered via C-sec, weighed 2.3 kg, mother and baby were observed for 72 hours and were discharged in stable condition

Discussion

■ Kirillova et al.(6) demonstrated a lower implantation rate with poor quality day 3 /5 embryo but those which implanted successfully possess similar potential to result in live birth comparable to fair or good quality embryos, thus supporting their transfer in dire circumstances. It should also be pointed out that top morphology is not proportional to the euploidy status of the embryo, and, conversely, there are euploid embryos among those of poor morphology(7). Thus highlighting the drawback of morphological assessment of the embryos and should not be a deterrent in the decision making process.

■ Another concern while transferring such poor quality embryo is increased probability of chromosomal abnormalities in foetus (8). Various studies have established that morphological assessment does not correlate with ploidy status of the embryo (7,9)

■ This case questions the aptness of morphological assessment technique in predicting the reproductive potential of the embryo.

A healthy baby was delivered with no gross congenital anomalies points out that good embryo morphology is not proportional to the euploidy status, and, conversely, there are euploid embryos among those of poor morphology. Thus highlighting the drawback of morphological assessment and it should not be a deterrent in the decision making process.

Conclusion

This case presents a rare yet unique scenario wherein day 2 poor grade embryos transfer resulted in a healthy baby. Thus highlighting the probability of all viable embryos to implant irrespective of their morphological grading and demonstrating poor correlation between the current morphological grading system and chances of successful pregnancy, warranting the need to explore more reliable predictors.

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References

1. Nasiri N et al.Cell J. 2015;16(4):392–405.
2. The Istanbul consensus workshop on embryo assessment: proceedings of an expert meeting. Hum Reprod. 2011 Jun;26(6):1270–83.
3. Zaninovic N.Fertil Steril. 2017 Nov;108(5):722–9.
4. G O. Human reproduction (Oxford, England) [Internet]. 2014 Jul [cited 2021 Jul 14];29(7).
5. Scott L. Hum Reprod. 2007 Jan;22(1):230–40.
6. Kirillova A.Fertil Res and Pract. 2020 Dec;6(1):2.
7. Alfarawati S.Fertil Steril. 2011 Feb;95(2):520–4.
8. Mendoza R.Gynecol Obstet Invest. 2015;79(2):83–9.
9. Fragouli E.Mol Hum Reprod. 2014 Feb;20(2):117–26.