

Human varicella zoster virus is not present in the semen of a man affected by chickenpox during the in vitro fertilization of his wife: a case report

David YL Chan, Kevin KW Lam, Estella YL Lau, William SB Yeung and Ernest HY Ng

**Abstract:** Human varicella zoster virus (VZV) is a member of the herpes viruses family and affects humans only. Information about the presence of the virus in the semen samples of men affected by chickenpox is rather limited in the literature. Here, we reported a husband was affected by VZV during in vitro fertilization treatment of his wife treated in our centre. The semen sample was checked for the presence of VZV by the PCR technique. The PCR result found no detectable viral DNA in the semen sample. This single case report suggest that the semen sample of men affected by chickenpox may be safe to use for assisted reproduction methods during the VZV infective period.

**Introduction:** Varicella zoster virus belongs to the herpes viruses family, a type 3 virus (HHV-3) known to infect humans only. The virus causes chickenpox on children and adults or shingles on adults only, by infecting nerve system and dormant in it. Occurrence of chickenpox in adults is much lower than in children but the symptoms could be more severe than in childhood. It causes relatively mild, self-limited illness on children. Symptoms include pain, paresthesia, fever and develops itchy blisters on skin. The duration of infection varies normally from 7 days to 20 days.

The safety issue of using semen sample of men affected by chickenpox has never been clarified in literature. Currently no report or review or guideline on whether it is safe for assisted reproduction methods has ever been published. There were two reports showing that many types of herpes viruses can be found in semen samples except VZV Neofytou, et al. <sup>1,2</sup>, however, the report was not targeted on onsetting VZV patient nor on IVF treatment. The present report aimed to provide information about the presence of VZV in the semen sample of men affected by chickenpox.

**Results:** In May 2015, the husband was reported to the clinic he was diagnosed to have chickenpox while his wife was undergoing ovarian stimulation. The oocyte retrieval had been scheduled two days later. The husband semen sample was collected on day 6 after first sign of the eruptions and the total duration of the chickenpox eruptions was 13 days. The husband semen parameters were: volume of 2.5 ml, concentration of 62.8 million/ml, progressive motility of 33%, non-progressive of 7%, immotility of 60% and strict criteria morphology of 3%. The

appearance of the semen was pale grey, viscosity was slightly viscous and the semen pH was 7.4. The semen sample was prepared by the gradient centrifugation method for the insemination purpose. A small part of the semen sample was sent to the hospital microbiology laboratory for the presence of VZV using the PCR technique. The results showed that no VZV particles were detected in the semen. Eight oocytes were obtained and six were fertilized following conventional insemination. Two cleaving embryos were replaced two days after the retrieval and the wife was found to be pregnant two weeks after the transfer. Eventually, a healthy baby boy was delivered in Feb 2016.

Discussion: In this case report, we could not find the presence of VZV particles in the semen sample of a man affected by chicken during the infective period and therefore the semen sample of the affected man was safe to use for fertilization during IVF treatment. Although intracytoplasmic sperm injection could be done in this case, the semen from chicken pox patient could also be used for ICSI procedure as well due to even smaller amount of semen sample were used for ICSI.

The semen sample was collected on day 6 of the infection, when there were vesicular rashes on the man's trunk, arms, face and legs. The semen was collected at home as suggested by the staff of the hospital infectious unit. The only concern was that the infectious fluid from the vesicular rash might contaminate the semen sample during masturbation. However it was not the case in this report. The couple underwent the third cycle IVF treatment in our centre as the woman failed to conceive in the previous two cycles. The semen samples of the husband in the last IVF cycles were similar to that of the present cycle when he was affected by chickenpox. It will be difficult to draw any conclusion as the semen samples may fluctuate in different samples anyway

In summary, we could not find the presence of varicella zoster virus in the semen sample of a man affected by chickenpox during the infective period and it may safe to use the semen sample for insemination during assisted reproductive methods.

Acknowledgement: We specially thank the man and Ms Wanda CW Ho, who made the contact with the couple.

- 1 Neofytou, E., Sourvinos, G., Asmarianaki, M., Spandidos, D. A. & Makrigiannakis, A. Prevalence of human herpes virus types 1-7 in the semen of men attending an infertility clinic and correlation with semen parameters.

*Fertility and sterility* **91**, 2487-2494, doi:10.1016/j.fertnstert.2008.03.074 (2009).

- 2 Michou, V. *et al.* Herpes virus infected spermatozoa following density gradient centrifugation for IVF purposes. *Andrologia* **44**, 174-180, doi:10.1111/j.1439-0272.2010.01121.x (2012).