Preparation of Morphology Slides: Liquefaction and Slide Options

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Background

This technical bulletin will address several questions about how to prepare semen samples for morphology assessment using pre-stained slides or dried smear fixation. It will also address the use of QwikCheck Liquefaction on the sample prior to preparing the slides for assessment.

1. **How should the sample be prepared prior to making the Morphology assessment slide?**
   - Samples need to be completely liquefied before preparing either pre-stained or dried smear fixation slides. It is important to ensure that sperm cells are homogeneously spread in the sample prior to aliquoting and on the slide for optimal results.

2. **What processes can be utilized to liquify the sample prior to making the slides?**
   - **QwikCheck Liquefaction** can be used following the package instructions. It is best to wait 10 minutes and then check if the sample is completely liquefied by expelling it from a wide-bore pipette. A normal liquefied ejaculate falls as small discrete drops. If viscosity is abnormal, the drop will form a thread more than 2 cm long. If the sample is not liquefied it requires an additional 5-10-minute wait before checking again.
   - **Room Temperature (RT) Liquefaction** is another method that can be used. The sample can 'rest' for up to one hour at RT after collection to see if it will liquefy normally as outlined above. The same technique should be used to check that the sample viscosity is normal.
   - **Room Temperature (RT) + QwikCheck Liquefaction** is the third option. The sample can 'rest' for 30 minutes following collection. If it is not completely liquefied, one vial of QwikCheck Liquefaction can be added, and the sample mixed and checked as noted in the first bullet point.

3. **Is there any negative impact on the morphology of the sperm cells if QwikCheck Liquefaction is used?**
   - QwikCheck Liquefaction is an enzyme that cleaves the hyper-viscosity-related protein bonds in seminal plasma without negatively impacting semen parameters. It does not 'digest' sperm cells.
   - WHO recommends the use of enzyme-promoted liquefaction (WHO 6th ed. manual, p. 64).

4. **After sample liquefaction, is there any difference or cautions to using the semen that has QwikCheck Liquefaction added to it?**
   - Either a pre-stained morphology slide or a dry smear fixation slide can be prepared after sample treatment using the QwikCheck Liquefaction kit.

5. **Is there a limited timeframe for preparing the slides or smears after liquefaction so as not to impact the morphology results?**
   - If the morphology assessment is done using the pre-stained slides coupled with SQA-Vision visualization, a 30-minute time interval will be enough to capture morphology images that may be assessed offline. Alternatively, if preparing a dried semen smear with fixation, the timeframe is not as critical because the sample is fixed.

Reference: WHO laboratory manual for the examination and processing of human semen, Sixth Edition, World Health Organization 2021.