Cytology Uncovered! Lubricating Gels - A Personal Experience

Author: Margie Givens
Senior BMS
Cytopathology Dept.
Forth Park Hospital
Kirkcaldy

My cytology career began in 1989 when I applied for and was successful in getting a promoted post (Senior Biomedical Scientist) within the Cytopathology Department at Forth Park Hospital, Kirkcaldy, based within the beautiful Kingdom of Fife. My previous life was as a Biomedical Scientist in the Histopathology Department. My first challenge was learning to screen cervical smears. In those days it was "learn on the job" training. Screeners whether Biomedical Scientists or Cytology Screeners were deemed competent on the "say so" of the Consultant Cytopathologist along with the Head BMS!

I did however go on to sit (and pass) the National Health Service Cervical Screening Programme (NHSCSP) cytology exam. This is now being superseded by the City and Guilds screening exam. Passing one or other of these exams is mandatory and has been for a number of years. This goes along with external training done at an accredited Regional Cytology Training School and of course in-house training. The Scottish school is based in Edinburgh Royal Infirmary which funnily enough is in Scotland's capital city. No points awarded for knowing this is Edinburgh! There are also logbooks to be completed as well as both written and screening tasks. A trainee has to screen a minimum of 5000 smears before he or in most cases she is allowed to sit the exam. Screening staff, particularly Cytology Screeners are predominately female.

The Fife Cytology Department has one Medical Laboratory Assistant who books in the vials, looks after our T3 (the ThinPrep automated processor which processes the vials i.e. vial in smear out!), stains the smears, coverslips and labels them amongst many other things. There are five part time Cytology Screeners whose main function is to primary screen and rapid review the smears. We have two Senior BMS's (I am one). BMS's have many functions but our main role in screening is as "checkers". We double screen the abnormal smears that fall into the borderline category. The smears in this category that may be inflammatory or reactive but negative we "sign out". The abnormals out of this category are passed onto the Consultant Cytopathologist. We also double screen women who present with symptoms i.e. post menopausal bleeding. Our screening role also includes primary screening and rapid review. The department has one Consultant who screens and signs out all abnormal smears as well as all symptomatic women. There are also four clerical staff. Last but by no means least is the token male in our department who is (Acting) Service Manager. We share him with "our other half", Histopathology.

In the last few years there have been many changes within gynaecological cytology. The two "biggies" are going from conventional smears to liquid-based cytology (LBC). In 2004 all of Scotland had converted to LBC using ThinPrep technology. Northern Ireland has also converted to LBC. England and Wales are currently rolling out the conversion process. The other huge change (again within Scotland) was the introduction of the Scottish Cervical Call and Recall System (SCCRS) last year. In a nutshell, women have their smears taken by the smear taker and their details are entered into the SCCRS system online. A unique SCCRS number is generated along with an electronic form. A barcode label is printed and affixed to the vial and sent to the laboratory. When scanned in the laboratory a unique laboratory number is assigned to the electronic form and vial. Another bar code label is affixed to the vial and the vials are processed in the T3. A bar-coded label is affixed to the stained smear. At each stage of the screening process the screener scans the slide and inputs the results. At the end of the process the smear taker is electronically notified of the result and a computer generated letter is sent to the woman. This is almost a paperless system although clinics that do few smears still send in paper forms. The other benefits of SCCRS include audit trails, statistical information and women who move to other areas have their smear history "follow" them.

The introduction of LBC dramatically reduced the inadequate rate of smears due to removal of obscuring blood, mucus and inflammatory exudates during processing. This brings me neatly on to a study I have recently undertaken in the use of lubricants when taking cervical cytology specimens. The British Society for Clinical Cytology (BSCC) recommends that lubricants should not be used when taking cervical cytology specimens. Warm water is recommended and if necessary a small amount of water-soluble lubricant may be used. It was noted that lubricants that contain carbopol polymers (carbomers) interfere with

Figure 1

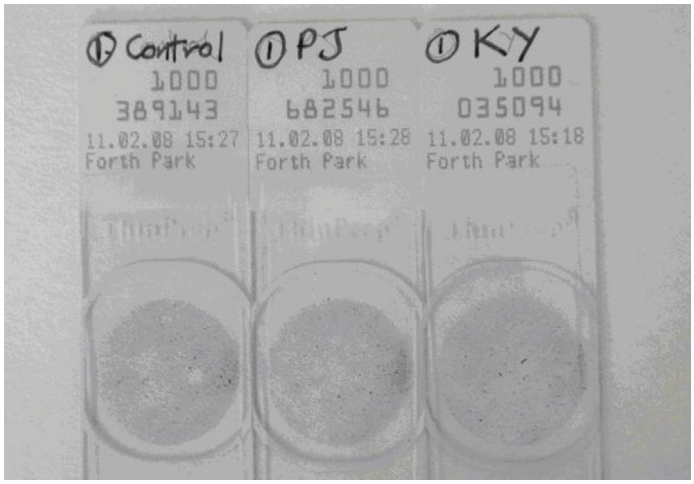


Figure 2

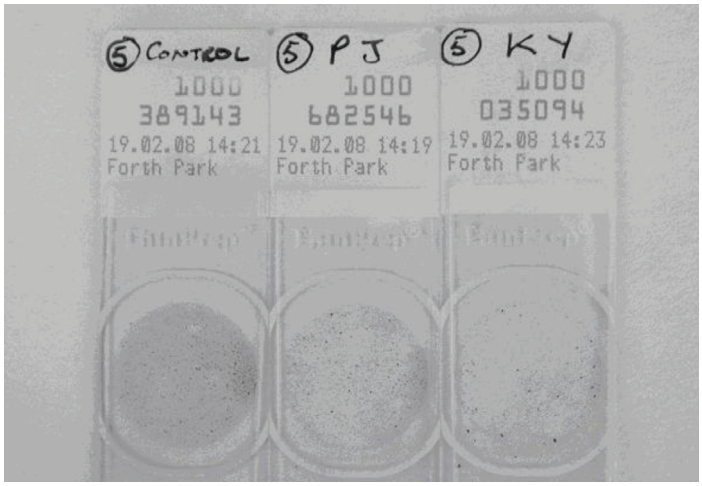
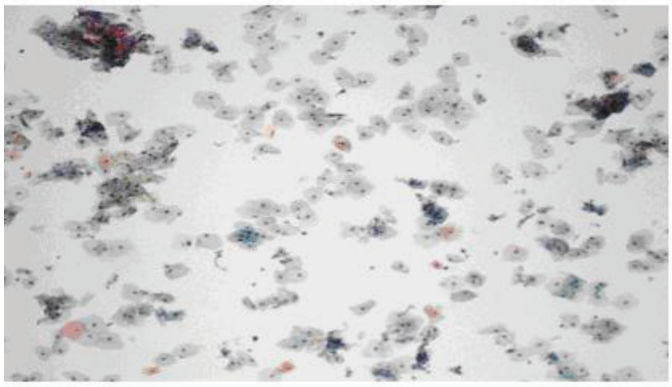


Figure 3

Control 5



cell transfer during processing.

The first lubricating jelly that we (in our laboratory) noticed a problem with was Aquagel. The prepared smear was hypo-cellular, the cells present were partially obscured by a pink/purple stringy deposit. The background also showed this deposit. We had identical problems with Numark lubricating jelly and Sutherland lubricating jelly. One sample was contaminated with ultrasound gel! The woman had a smear taken after a vaginal ultrasound. The Radiographer had used ultra-sound gel to lubricate the outside of the "elephant's condom" (sheath) that was protecting the probe.

The study I undertook involved obtaining cervical cytology specimens from six women. This was very kindly done (with consent) by the Clinical Nurse Specialist, who in a previous life had worked in Colposcopy. I pooled the six vials to ensure even, cellular distribution. The pooled sample was then re-distributed amongst the six vials. I left one sample as a control and added 0.5cm length of KY Jelly to another sample. The other four samples had 0.5cm of Sutherland's Jelly, Aquagel, Numark Jelly or ultrasound gel added. The samples were shaken and left overnight then run through the T3.

The resulting smears showed hypo-cellularity and deposit except for the control sample and the sample containing KY Jelly. They both contained ample cells and no deposit. There was no discernable difference between the control and the KY Jelly sample. I added another 0.5cm of each of the gels to the various samples and re-ran them the next day. However I noticed after a few runs that although there was no discernable deposit there were a paucity of cells. At this stage there had been approximately 4.5cm of KY Jelly added. The control sample was still more than adequately cellular. The other lubricating jelly samples were however showing the opposite effect and were becoming more cellular (although still unsatisfactory due to the deposit on the cells). At this time I have no explanation for this phenomenon. I had set out to show the effect of lubricating gels on ThinPrep samples. My conclusion was that the only lubricating gel that may be used (out of the ones I had studied) was KY Jelly. This should only be used in moderation as recommended by the BSCC.

After I had completed this study I met a rep from Pelican Healthcare at a Colposcopy meeting in Stirling Royal Infirmary. We started talking about lubricating gels (as you do!). I explained to her the study I had undertaken. Pelican Healthcare had just brought out a new lubricating gel called PELIjelly. She asked me to undertake a similar study comparing KY Jelly and PELIjelly. She gave me some samples to take away and voila!! the second part of the study was in the making! Once again I sought the help of the Clinical Nurse Specialist, who with the consent of three women, gave me three cervical samples. I again pooled the samples and redistributed them back into the three vials.

I used one sample as a control. The second sample I added 1cm of PELIjelly. This was a little tricky as the PELIjelly is in a sachet. I am sure that infection control nurses everywhere will be cheering! In true "Heath Robinson" style I found two identical pieces of wood in the back of a drawer in the laboratory. I thought these would be ideal for measuring out equal amounts of gel. The sticks measured 8cms long by 0.6cm wide. I marked one with a P and the other KY (to avoid cross contamination). To the third sample I added 1cm of KY Jelly.

See Fig.1 for the "first run". Macroscopically there is no clear difference in the preparations. Microscopically they all have adequate cellular material. I ran the samples another four times, adding a further 1cm of gel before each run. After run two there was a noticeable difference both macroscopically and microscopically between KY Jelly and the other two samples. The KY sample having fewer cells than the other two samples. By the time they were run a fifth time (See Fig. 2) the KY sample was insufficient i.e. too few cells for diagnosis.

Microscopically there were differences between all three samples. The control sample and the PELIjelly still had sufficient cells for diagnosis. The KY sample did not, as shown in the following slides. These are microscope images.

The photographs were all taken from the same area of the prepared slides.

My own conclusion from this small study is that while use of lubricating gels is not recommended, there are times when their use is necessary. PELIjelly may be better used (than KY Jelly) when taking cervical samples to be prepared using ThinPrep technology. Who knows we may even get a further reduction in unsatisfactory rates!

My thanks have to go to the women who provided the samples, Jane McCafferty the Clinical Nurse Specialist who obtained the samples, Elaine Paterson, MLA who prepared the samples for me and Gill Robson Senior BMS who helped with the photography. Last, but by no means least Linda Whitehill, Personal Secretary who sorted all my typing errors!

Figure 4

PELIjelly 5

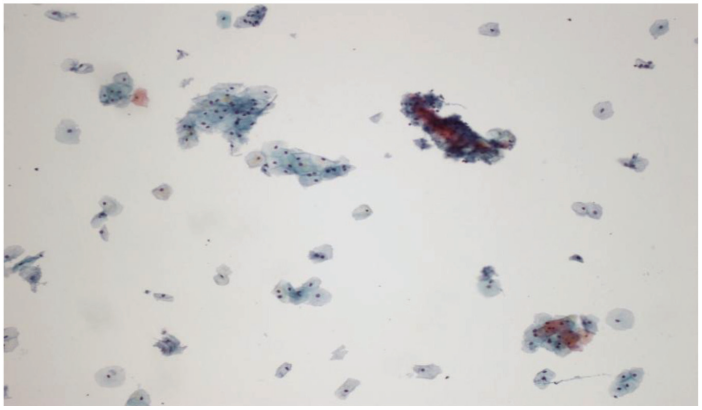


Figure 5

KY 5