The Impossible Possible High Grade Squamous Intraepithelial Lesions: An old problem in a new era.

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**Introduction**

From December 1 2017, cervical screening in Australia has reformed from conventional Papanicolaou smears for cytological examination, to liquid based samples for High Risk (HR) Human Papilloma Virus (HPV) detection. All screening cases with detected HR HPV undergo reflex cytology. This fundamental change in cervical screening has impacted upon Cytopathologists and particularly Cytoscientists responsible for microscopic examination of liquid base cytology (LBC). With the abandonment of Papanicolaou smears, LBC has also become the standard test for investigating symptoms which may be associated with cervical abnormalities. Follow up of histologically proven high grade abnormalities are also monitored by LBC. Thus the expectation of finding an abnormality in the National Cervical Screening Program (NCSP) has greatly increased. The approach to interpreting morphological changes in LBC may be influenced by the change in cytological preparation, heightened expectation of finding an abnormality and from the pre-emptive knowledge of HR HPV status.

In our public cytology laboratory we have seen an overall increase in all cytodiagnostic categories, including possible high grade squamous intraepithelial lesion (PHSIL). This diagnostic category has a significant impact on patient management, hence the need to improve our diagnostic skills in this area.

**Aim**

The objective is to gain a better understanding of factors contributing to a diagnosis of PHSIL and develop trouble-shooting strategies to reduce the frequency of PHSIL diagnosis.

**Method**

LBC cases from the NCSP where a Cytoscientist or Cytopathologist reported PHSIL, which had a subsequent histology specimen available, have undergone a microscopic review. Cases have been correlated with HPV status and histology. The differing opinions on review and reasons for the diagnosis have been analysed.

**Results**

64 cases were reviewed. Of these cases 43 were still called PHSIL on review.

During the correlation and collaboration of the results, three broad categories were observed as being problematic:

1. Confronting architecture
2. Single cells
3. Scant abnormal material

**Discussion**

**Category 1- Confronting Architecture**

3 common confronting architectural patterns were identified which are often difficult to interrupt and can lead to a PHSIL diagnosis.

- Reactive/reparative or high scrape endocervical cells (Image 1)
- Endometrial cells (image 2)
- Parabasal sheets and atrophic smears (Image 3)

|------------------------------------------------|-------------------------------------------------|---------------------------------------------|

**Category 2- Single cells**

- Immature metaplastic cells
- Irregular nuclear outline
- High N:C ratio
- Dyskeratotic cells, particularly in an atrophic background
- Sticky bare nuclei with size variation

**Strategy:**

- Search for small single isolated cells in the background.
- Compare surrounding cells for degenerate changes.
- Exclude bare nuclei as a result of cytolysis or autolysis.

**Category 3- Scant abnormal material**

- Irreducible cells with high N:C in a background of definite LSIL change.
- These abnormal cells may be scattered singly or occasionally in obscured clusters. They also may be small in size. These reasons make detection difficult.
- Blood and excess lubricant may obscure sheets making interpretation difficult.
- Suboptimal collection and preparation should be considered as a reason for minimal cellular material on the slide.

**Strategy:** Remake specimen. Treatment of the specimen with glacial acetic acid can help break down blood, inflammation, lubricant and other contaminants. A vortex following the glacial acetic acid treatment further assists in obtaining optimal results, as it helps to dislodge the cellular material.

**Acknowledgements**

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**References**


**Conclusions**

Awareness of factors contributing to PHSIL diagnosis and appropriate strategies may lower the PHSIL rate and thereby reduce the burden on the patient and medical community.