

## FIXATION OF CERVICAL AND VAGINAL SMEARS WITH HAIRSPRAY

by

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We are all familiar with the traditional method of fixing vaginal and cervical smears using a mixture of equal parts of absolute alcohol and ether. This method of fixation, though very efficacious and uniform in results, tends to be a little cumbersome and impracticable at times. With this point in mind, we decided to try out the effect of certain other fixatives.

Merckofix, a German smear fixation-spray, which was presented to us, smelt very much like hairspray and when sprayed on the palm, produced much the effect of tissue stiffening and lustre as did hairspray. We therefore decided to compare the effect of Merckofix and various indigenous brands of hairspray against the result of traditional ether alcohol fixative. On reviewing the literature we came across two references where hairspray had been used as a smear fixative in the United States of America (Freman, 1969) and Thai (Sriannaboon *et al*, 1971).

### Material and Methods

The study was conducted on the patients attending the gynaecological out patient department of Irwin Hospital. Three smears were taken from each

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patient, one was fixed in ether alcohol fixative, the second with Merckofix, at a distance of 9" from the slide, and the third with hairspray also at a distance of 9" from the slide. We used 3 popular brands of hairspray "Voodoo", "Mistair" and "Poise". We included all types of smears in our study viz., normal smears, inflammatory smears, cytolytic smears and malignant smears.

After fixation the spray fixed smears were rinsed several times in water, avoiding the descending grades of alcohol, as recommended in the instructions on the Merckofix. All the smears were stained by Papanicolaou's (1942) method. Except for a general ground glass cloudiness in the spray fixed smears we found no significant difference and no difficulty in making a diagnosis. However, this cloudiness was a great hindrance, and we overcame it by passing the spray fixed smears through the descending grades of alcohol, giving about 5 minutes in 95% alcohol.

### Results

The smears fixed in spray were qualitatively as good as the ether alcohol fixed ones. The blue-pink differentiation in the cytoplasm was better appreciated in the spray fixed smears. In the malignant smears fixed in hairspray the dirty background due to the lysed red blood cells was found to be much less and hence the malignant cell groups could be better appreciated. We assume that perhaps the spray fixative has some clearing effect on

the red blood cells. We have satisfied ourselves that the spray fixed smears are as good if not better than the alcohol-ether fixed ones. The cost of such a method of fixation is quite comparable with ether alcohol fixation (Table I).

TABLE I  
Cost Per Smear by Various Fixtures

Fixative	Cost in Rs.	No. of Smears	Cost per Smear in Rs.
1. Ether Alcohol (100 c.c.)	2.25	20	0.11
2. Poise (132 gms)	13.35	100	0.13
3. Voodoo (140 gms)	14.20	120	0.12
4. Mistair (85 gms)	9.60	110	0.09

We next established that these smears could be fixed and kept for a period of 2 to 3 weeks and then stained, still giving the same result. This covers the time taken during transportation of smears to distant cytodiagnostic centres. So far

(over six months) our stained spray fixed smears have retained their intensity of staining.

#### Conclusion

The result of smear fixation with hairspray is seen to be as good if not better than the ether-alcohol fixation. We wish to stress that hairspray is an ideal smear fixative for use by private practitioners, primary health centres, practicing pathologists and all those who do not have cytodiagnostic facilities, as the smears thus obtained are absolutely dry and transportation can easily be done to various cytodiagnostic centres. Hairspray should also prove useful to private practitioners as it will eliminate the difficulties encountered in obtaining absolute alcohol.

#### References

1. Freman, James A.: Acta Cytologica., 13: 416, 1969.
2. Papnicolou, G. N.: Science, 95: 438, 1942.
3. Sriannaboon, S. et al.: Journal, Medical Assoc. Thai., 54: 709, 1971.