

## A study of replacement paper for filter card using in cytospin preparation for fluid specimen

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### **Introduction :**

The preparation of low-cellular fluid specimen is best performed by cytospin machine. One of the important materials using in this preparation is the filter card which is quite expensive in Thailand. We studied various kinds of paper with water absorption ability to replace the standard filter card.

### **Materials and methods :**

Five types of paper which have property to absorb water were used in the study. They were bagasse paper, chromatography paper, thin-drawing paper, thick-drawing paper, and mulberry paper. Shandon filter card was used as the standard control. All paper were used to prepare 50 fluid specimens (urine 20 samples, and ascitic fluid, bronchial fluid, pleural fluid 10 samples, each) by the Shandon cytospin II. The smears were blindly interpreted comparing the number of cells (score 0-4, ranging from no cells to cells covering 100% of the area), monolayer arrangement (score 1-4, ranging from no. of monolayer cells covering 0-100% of the area), dispersion of cells within control area (score 1-4, ranging from present of 0-100% cells within the control area), and cell preservation (score 1-4, number of preserved cells ranging from 0-100%). Mode of filter paper preparation and cost were also determined. The statistical study was determined by using Chi-square test.

### **Results :**

The smears from all kinds of specimens prepared with all types of paper showed similar monolayer arrangement and cell preservation, whereas fluid prepared by the bagasse paper and chromatography paper gave numbers of cells and dispersion of cells in the control area similar to the Shandon filter paper. ( $p=0.1$ , each). The others showed poor to fare outcome with statistical significance in numbers of cells and dispersion of cells in the control area ( $p<0.005$  for thin-drawing paper,  $p<0.01$  thick-drawing paper, and  $p<0.05$  for mulberry paper). The chromatography paper was easy to prepare for the filter card comparing to the bagasse paper which needed a little more effort. However, the cost of filter card in preparation of one fluid specimen for bagasse paper is 0.50 baht, comparing to 1.40 baht for chromatography paper and 25 baht for Shandon filter paper.

### **Conclusions :**

The bagasse paper can absorb water well and aid in preparing cytospin fluid specimens. The smears show similar result to the Shandon filter paper and chromatography paper. Due to its cheapest cost, we have used it for routine cytospin preparation in our laboratory.