

Comparison of Spatula and Nonspatula Methods for Cervical Sampling

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A comparison between nonspatula (cotton swab and Cytobrush) cervical sampling methods and spatula (wooden Ayre spatula and plastic extended-tip Szalay Cyto-Spatula) sampling methods was made in 109 cases. Based on the presence of endocervical cells, there were statistically significant qualitative differences between the nonspatula methods as well as between the spatula methods, but not between the Cytobrush and Cyto-Spatula smears or the cotton swab and Ayrespatula smears. In all kinds of inflammatory lesions, the spatula samples were more accurate and diagnostic than the nonspatula ones. In all cases of cervical intraepithelial neoplasia and in most cases of squamous metaplasia, the Cyto-Spatula sample was the most accurate. It is concluded that the Szalay Cyto-Spatula method is superior to the other cervical sampling methods because it provides well-preserved cells from both the endocervix and the ectocervix in one smear. The Cytobrush should be used in conjunction with spatula sampling (combination method) for effective sampling of the cervix. The Cytobrush alone is effective mainly for endocervical sampling while the Ayre spatula alone is effective mainly for ectocervical sampling; the cotton swab is ineffective for both endocervical and ectocervical sampling.

The Papanicolaou smear, which has been used for cervical cytologic screening since the 1940s,²⁵ is widely regarded as a reliable and inexpensive method for screening for cancer of the uterine cervix.¹⁶ The reliability of the method depends on proper sampling of the transformation zone (squamocolumnar junction)^{8,10-12,15,20,28,34,35,37,45} because most epithelial abnormalities originate in this area.^{26,43} Since the upper margin of the transformation zone is formed by columnar endocervical epithelium, one can only be certain that the entire transformation zone has been adequately sampled if endocervical cells are present in the smear.^{10,14,44,45} While some consider the presence of squamous metaplastic cells alone, without columnar endocervical cells, to be a marker of adequate endocervical sampling,¹⁴ many do not.^{5,21,45}

A number of studies have shown that sampling errors are an important source of false-negative diagnoses of Papanicolaou smears.^{2,4,7,13,14,17,23,24,29} Nevertheless, the sampling method remains a matter of dispute. A variety of sample collection techniques have been introduced,^{21,32,34,38-41,44} in an attempt to improve the yield of endocervical cells and increase the percentage of adequate smears. Such improvements could reduce the need for repeat smears, which double work and costs and cause unnecessary anxieties to the patient.

This paper reports a comparative study of the use of the cotton swab, the traditional wooden Ayre spatula, the Cytobrush designed by Dr. Stormby³⁹ (distributed by Medscand AB, Malmö, Sweden) and the plastic pointed Cyto-Spatula designed by Dr. Szalay⁴⁰ (distributed by **CSM Graf & Co, Steinach, Switzerland**, www.csmgraf.com, www.zervixzytologie.com). The cellular composition of the smears prepared from samples obtained by these devices, the efficacy of each one of these devices and, consequently, the adequacy of the Cytology diagnosis were investigated.

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Discussion

Although the Ayre spatula produced samples with a very high diagnostic accuracy, it only provides adequate ectocervical sampling. The Cytobrush was very effective in the detection of endocervical abnormalities and most of the abnormalities of the transformation zone; however, a few epithelial abnormalities were not detected in Cytobrush samples. Those cases were diagnosed by the extended-tip Szalay-type spatula, which detected endocervical changes almost as well as the Cytobrush and identified all abnormalities of the transformation zone. Since the ideal cervical smear should include both endocervical and ectocervical samples, a combined Cytobrush and spatula method should be used. If only one device is to be used, it should be the Szalay-type spatula, which is as effective and reliable as the combination method.

Image 1 The pointed plastic Szalay Cyto-Spatula used in this study. The rough surface retains all of the collected material and does not allow any to be lost when transferred to the glass slide.

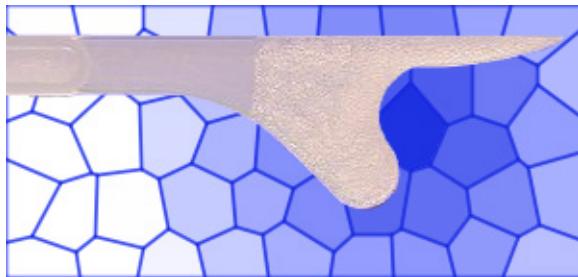


Image 2 Szalay Cyto-Spatula No 2, The three different sizes and shapes in which the Szalay device is available facilitate its use with all forms of ectocervices and all sizes of cervical canals.

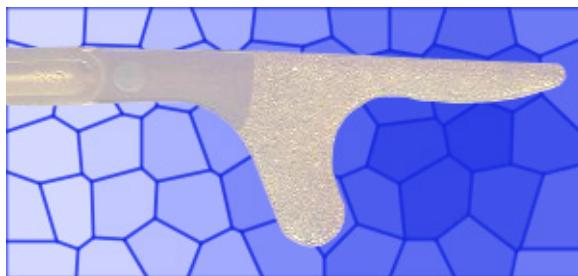


Image 3 Szalay Cyto-Spatula No 3

