

Images in Infectious Diseases in Obstetrics and Gynecology

Section Editor: David E. Soper, M.D.

Microscopy of the Bacterial Flora on Fresh Vaginal Smears

Gilbert G.G. Donders

Department of Gynecology and Obstetrics, Katholieke
Universiteit Leuven, Belgium

Vaginal bacterial flora can be studied by microscopy of fresh vaginal fluid or of a fixed, stained smear. Classifying the flora by microscopy of fresh smears of vaginal fluid allows the pathology to be approached in a way other than by application of Nugent et al.'s criteria¹ for Gram-stained specimens. Therefore, it may enable a more diverse and accurate assessment of the risk of preterm birth and other complications.²

The classification is based on the relative quantities of lactobacillary morphotypes present. If lactobacilli of variable size predominate, the flora is considered normal (lactobacillary grade I Fig. 1). Sometimes, this grade-I flora leads to production of excessive amounts of lactate³ and acidity due to hydrogen peroxidase activity,⁴ even causing lethal damage to the epithelial cells (epitheliolysis). The bare nuclei of these torn cells can be seen, along with the debris of their cellular cytoplasm and with numerous lactobacilli (Fig. 2). Care must be taken to differentiate the cellular debris from coccoid bacteria and not to misinterpret the bare epithelial nuclei as leukocytes.

Lactobacillary grade III is an intermediate flora, with a mixture of lactobacilli and other morphotypes, usually coccoids. If the lactobacillary morphotypes still outnumber the other bacteria, this is called lactobacillary grade IIa (Fig. 3); if the lactobacillary morphotypes are less abundant than the other morphotypes, the term used is grade IIb (Fig. 4). Although grade II will partly overlap with the

intermediate group of the bacterial vaginosis score according to Nugent et al. (score 4–6), it is certainly not identical to that group.

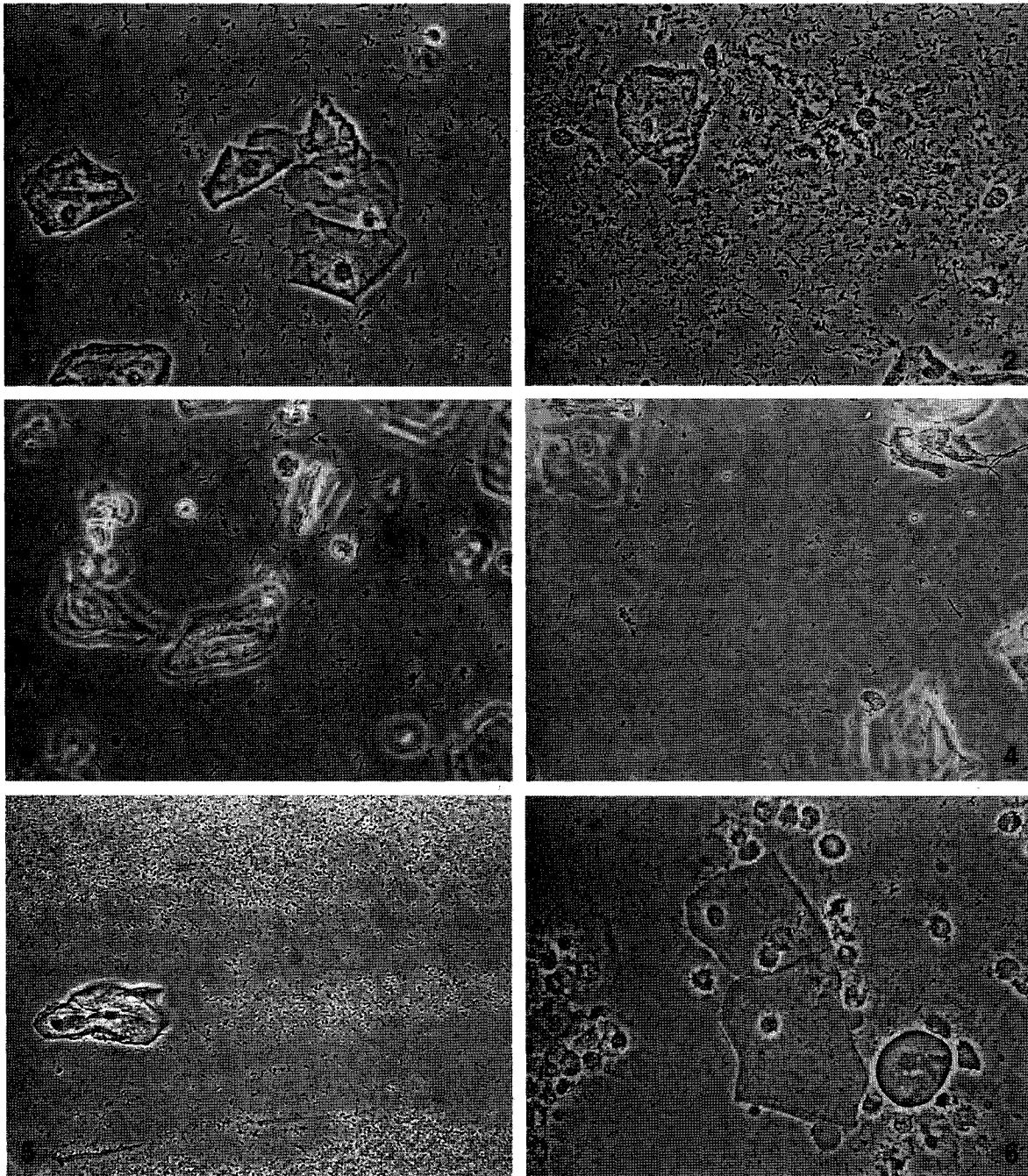
Lactobacillary grade II indicates complete disruption of the normal vaginal flora: other bacteria have completely overgrown the lactobacilli, which are no longer visible. The most obvious condition that would cause these lactobacilli to disappear is bacterial vaginosis, with its pathognomonic granular background appearance due to large numbers of anaerobic bacteria (Fig. 5) and the clue cells. It is not wise, however, to call every condition devoid of lactobacilli bacterial vaginosis. A search for trichomoniasis and other sexually transmitted diseases is also warranted.⁵ If the grade-III flora consists of coarse, coccoid bacteria or is accompanied by numerous parabasal epithelial cells and increased vaginal leukocytosis (Fig. 6), the condition certainly does not correspond to the anaerobic condition Gardner and Dukes⁶ and Amsel et al.⁷ had in mind when discussing the clinical diagnosis of bacterial vaginosis. Again, it is unclear in which Nugent score this group belongs; most probably you would find it dispersed among the intermediate (score 4–6) or bacterial vaginosis (score 7–10) groups. Cultures often grow streptococci and gram-negative bacteria of enteric origin. We propose to call this condition “aerobic vaginitis,” a clinical entity clearly distinct from bacterial vaginosis, rather to be seen as a lesser form of “desquamative vaginitis.”^{8,9}

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